



Med.
A

THE JOURNAL

American Medical Association,

A MEDICAL JOURNAL CONTAINING THE

OFFICIAL RECORD OF THE PROCEEDINGS OF THE ASSOCIATION, AND THE PAPERS READ AT THE ANNUAL
MEETING, IN THE SEVERAL SECTIONS, TOGETHER WITH THE

MEDICAL LITERATURE OF THE PERIOD.

EDITED FOR THE ASSOCIATION UNDER THE DIRECTION OF THE BOARD OF TRUSTEES,

BY

JOHN B. HAMILTON, M.D., LL.D.

VOLUME XXI.

JULY — DECEMBER,

1893.

CHICAGO:

PRINTED AT THE OFFICE OF THE JOURNAL OF THE ASSOCIATION.

1893.

400402
19.2.42.

"The American Medical Association, though formally accepting and publishing the reports of the various Standing Committees (and Sections), holds itself wholly irresponsible for the opinions, theories or criticisms therein contained, except otherwise decided by special resolution."—TRANSACTIONS, 1851.

R

15

A48

v. 21

esp. 2

CONTRIBUTORS TO VOLUME XXI.

JOHN B. HAMILTON, M.D., LL.D., CHICAGO, ILL., EDITOR.

EDITORIAL CONTRIBUTORS.

S. T. Armstrong.
H. M. Bannister.
Thomas D. Crothers.
H. Gradle.
John B. Hamilton.
Hobart A. Hare.

Bayard Holmes.
F. C. Hotz.
L. A. LaGarde, U.S.A.
G. Frank Lydston.
G. Betton Massey.
J. Elliston Morris.
Harold N. Moyer.

John H. Rauch.
J. L. Rosenberger Esq.
Charles Smart, U.S.A.
George W. Webster.
Frank Woodbury.
R. M. Wyckoff.

CONTRIBUTORS OF ORIGINAL ARTICLES.

Alexander, Harriet C. B., Chicago, Ill.
Anders, J. M., Philadelphia, Pa.
Andrews, Edmund, Chicago, Ill.
Atkins, E. C., Colorado Springs, Col.
Babcock, Robert H., Chicago, Ill.
Baker, Albert Rufus, Cleveland, Ohio.
Baldwin, E. A., Chicago, Ill.
Ball, James Moores, Keokuk, Iowa.
Ball, M. V., Eastern Penitentiary, Pa.
Bane, William C., Denver, Col.
Barek, C., St. Louis, Mo.
Barker, T. Ridgeway, Philadelphia, Pa.
Bettman, Boerne, Chicago, Ill.
Bishop, Seth Scott, Chicago, Ill.
Bleyer, J. Mount, New York, N. Y.
Blubaugh, C. B., Parkersburg, W. Va.
Brown, Bedford, Alexandria, Va.
Brown, Price, Toronto, Can.
Bryan, J. H., Washington, D. C.
Bulkley, L. Duncan, New York, N. Y.
Burnett, Charles H., Philadelphia, Pa.
Byford, Henry T., Chicago, Ill.
Carstens, J. H., Detroit, Mich.
Carter, W. M. G., Waukegan, Ill.
Casselberry, W. E., Chicago, Ill.
Charteris, M., Glasgow, Scotland.
Christopher, W. S., Chicago, Ill.
Churchill, F. S., Chicago, Ill.
Clarke, Augustus P., Cambridge, Mass.
Cobb, F. C., Boston, Mass.
Colburn, J. Elliott, Chicago, Ill.
Connell, M. E., Wauwatosa, Wis.
Cordier, A. H., Kansas City, Mo.
Crothers, T. D., Hartford, Conn.
Crouch, M. J., Union, Ky.
Culbertson, J. C., Cincinnati, Ohio.
Curtis, H. Holbrook, New York, N. Y.
Dabney, William C., Charlottesville, Virginia.
Dallas, Alexander, New York, N. Y.
Dalton, Robert Hunter, St. Louis, Mo.
Davis, N. S., Sr., Chicago, Ill.
Davis, N. S., Jr., Chicago, Ill.
Delavan, D. Bryson, New York, N. Y.

Denison, Charles, Denver, Colo.
De Schweinitz, G. E., New York, N. Y.
DeVilbiss, Allen, Toledo, Ohio.
Didama, Henry D., Syracuse, N. Y.
Dixon, W. A., Ripley, Ohio.
Dodge, C. L., Kingston, N. Y.
Doyle, O. M., Seneca, N. Y.
Dudley, E. C., Chicago, Ill.
Duff, J. Milton, Pittsburg, Pa.
Dunfield, Samuel P., Detroit, Mich.
Dunmire, G. Benson, Philadelphia, Pa.
Durgin, Samuel H., Boston, Mass.
Eastman, Joseph, Indianapolis, Ind.
Einhorn, Max, New York, N. Y.
Eliot, Llewellyn, Washington, D. C.
Eskridge, J. T., Denver, Col.
Ferguson, E. D., Troy, N. Y.
Fleming, Carey Kennedy, Denver, Col.
Fletcher, M. H., Cincinnati, Ohio.
Fuller, William, Grand Rapids, Mich.
Gapen, Clarke, Kankakee, Ill.
Gaston, J. McFaddon, Atlanta, Ga.
Gifford, H., Omaha, Neb.
Gibson, Albert L., U.S.N.
Godfrey, E. L. B., Camden, N. J.
Gould, George M., Philadelphia, Pa.
Gradle, H., Chicago, Ill.
Gray, Laudon Carter, New York, N. Y.
Grant, Sir James, Ottawa, Canada.
Griwold, E., Sharon, Pa.
Ground, William E., Superior, Wis.
Halley, George, Kansas City, Mo.
Hare, H. A., Philadelphia, Pa.
Hart, Ernest, London, England.
Hayes, D. J., Milwaukee, Wis.
Heath, F. C., Indianapolis, Ind.
Herdman, William J., Ann Arbor, Mich.
Herriek, James B., Chicago, Ill.
Hibberd, James F., Richmond, Ind.
Hinde, Alfred, Chicago, Ill.
Hofheimer, J. A., New York, N. Y.
Hoffman, Joseph, Philadelphia, Pa.
Holmes, Bayard, Chicago, Ill.

CONTRIBUTORS.

- Hotz, E. C., Chicago, Ill.
 Howe, Lucien, Buffalo, N. Y.
 Hughes, C. D., St. Louis, Mo.
 Humiston, William H., Cleveland, Ohio.
 Ingals, E. Fletcher, Chicago, Ill.
 Jackson, Edward, Philadelphia, Pa.
 Jekls, J. T., Hot Springs, Ark.
 Jennings, C. G., Detroit, Mich.
 Jensen, F. C., Manistee, Mich.
 Johnson, Walter B., Paterson, N. J.
 Judson, A. B., New York, N. Y.
 Kelly, H. A., Baltimore, Md.
 Kerr, James P., Pittsburg, Pa.
 King, E. H., Muscatine, Iowa.
 Kirkpatrick, A. B., Philadelphia, Pa.
 Knapp, Herman, New York, N. Y.
 Koser, S. S., Williamsport, Pa.
 Krause, William C., Buffalo, N. Y.
 Laidley, L. H., St. Louis, Mo.
 Lane, L. C., San Francisco, Cal.
 Lanphear, Emory, Kansas City, Mo.
 La Place, Ernest, Philadelphia, Pa.
 Latham, Vida A., Chicago, Ill.
 Larrabee, John A., Louisville, Ky.
 LeMond, Robert Fields, Denver, Col.
 Levy, Robert, Denver, Col.
 Lincoln, D. E., Geneva, N. Y.
 Lindsley, C. A., New Haven, Conn.
 Link, John E., Terre Haute, Ind.
 Logan, James E., Kansas City, Mo.
 Love, I. N., St. Louis, Mo.
 Love, Louis F., Philadelphia, Pa.
 Lydston, G. Frank, Chicago, Ill.
 Lydston, James A., Chicago, Ill.
 Lyman, Henry M., Chicago, Ill.
 Mackenzie, John N., Baltimore, Md.
 Marley, Thomas H., New York, N. Y.
 Marcy, Henry O., Boston, Mass.
 Martin, J. N., Ann Arbor, Mich.
 Martin, Franklin H., Chicago, Ill.
 Massey, G., Bolton, Philadelphia, Pa.
 Mayo, W. J., Rochester, Minn.
 Matthews, Joseph H., Louisville, Ky.
 McManis, Charles, Aiken, S. C.
 McKelvey, George I., Philadelphia, Pa.
 Mettler, L. Harrison, Chicago, Ill.
 Minard, E. J. C., Brooklyn, N. Y.
 Mitchell, Giles S., Cincinnati, Ohio.
 Morrow, Edward P., Canton, Ohio.
 Morton, Thomas G., Philadelphia, Pa.
 Moyer, Harold N., Chicago, Ill.
 Murdoch, J. B., Pittsburg, Pa.
 Murfree, J. B., Murfreesboro, Tenn.
 Murrell, F. E., Little Rock, Ark.
 Nassau, Robert Hannell, Gaboon, Africa.
 Newcomb, James E., New York, N. Y.
 Newman, Henry Parker, Chicago, Ill.
 Noble, Charles P., Philadelphia, Pa.
 Norbury, Frank Parsons, Jacksonville, Ill.
 North, John, Toledo, Ohio.
 Oelsner, A. J., Chicago, Ill.
 Owen, Edmund, London, England.
 Palmer, Edward, LaCrosse, Wis.
 Parham, T. W., New Orleans, La.
 Park, J. Walter, Harrisburg, Pa.
 Parsons, Frank S., Northampton, Mass.
 Partridge, J. Rawson, Chicago, Ill.
 Pepper, William, Philadelphia, Pa.
 Peterson, Frederick, New York, N. Y.
 Pierce, Norval H., Chicago, Ill.
 Prier, Joseph, Philadelphia, Pa.
 Purdy, Charles W., Chicago, Ill.
 Putnam, James W., Buffalo, N. Y.
 Randall, B. Alexander, Philadelphia, Pa.
 Raymond, James Harvey, Chicago, Ill.
 Reynolds, Dudley S., Louisville, Ky.
 Reyburn, Robert, Washington, D. C.
 Ricketts, B. Merrill, Cincinnati, Ohio.
 Richardson, C. W., Washington, D. C.
 Risley, S. D., Philadelphia, Pa.
 Roberts, John B., Philadelphia, Pa.
 Robinson, F. Byron, Chicago, Ill.
 Rodman, William L., Louisville, Ky.
 Rohé, George H., Baltimore, Md.
 Roe, John O., Rochester, N. Y.
 Rogers, Henry Raymond, Dunkirk, N. Y.
 Rumbold, Thomas F., San Francisco, Cal.
 Schaefer, F. C., Chicago, Ill.
 Schneek, J., Mt. Carmel, Ill.
 Schneider J., Milwaukee, Wis.
 Schroeder, Lewis, Des Moines, Iowa.
 Senn, N., Chicago, Ill.
 Shattuck, Frederick C., Boston, Mass.
 Sheppard, Charles H., Brooklyn, N. Y.
 Shier, Christian, Cleveland, Ohio.
 Shurly, E. L., Detroit, Mich.
 Smith, Frank Trester, Chattanooga, Tenn.
 Smith, J. Lewis, New York, N. Y.
 Sloan, M. G., Dexter, Iowa.
 Smith, S. MacCuen, Philadelphia, Pa.
 Solis-Cohen, Solomon, Philadelphia, Pa.
 Solis-Cohen, J., Philadelphia, Pa.
 Sternberg, Geo. M., Washington, D. C.
 Stockton, Charles G., Buffalo, N. Y.
 Tappey, Ernest T., Detroit, Mich.
 Taylor, Lewis H., Wilkesbarre, Pa.
 Taylor, J. Madison, Philadelphia, Pa.
 Thompson, W. Gilman, New York, N. Y.
 Thompson, J. H., Kansas City, Mo.
 Thornton, E. G., Philadelphia, Pa.
 Thrasher, Marion, San Francisco, Cal.
 Tiffany, Flavel B., Kansas City, Mo.
 Fraey, Edward A., Boston, Mass.
 Travis, B. F., Chattanooga, Ga.
 Tuttle, Albert H., Cambridge, Mass.
 Van Hook, Weller, Chicago, Ill.
 Warren, J. Collins, Boston, Mass.
 Ward, M. B., Topeka, Kan.
 Washburn, W. H., Milwaukee, Wis.
 Waterman, O. M., Milwaukee, Wis.
 Waxham, F. E., Denver, Col.
 Webster, George W., Chicago, Ill.
 Wells, Edward F., Chicago, Ill.
 Ziegler, J. L., Philadelphia, Pa.
 White, Joseph A., Richmond, Va.
 Whittaker, J. T., Cincinnati, Ohio.
 Wilder, William H., Chicago, Ill.
 Wilkinson, John, Omaha, Neb.
 Williams, Cornelius, St. Paul, Minn.
 Wirt, William E., Cleveland, Ohio.
 Wood, Casey A., Chicago, Ill.
 Wood, E. A., Pittsburg, Pa.
 Work, J. A., Elkhart, Ind.
 Wright, F. L., Bellefontaine, Ohio.
 Würdemann, H. V., Milwaukee, Wis.
 Wyoth, John A., New York, N. Y.
 Wynnan, Walter, Washington, D. C.

The Journal of the American Medical Association

VOL. XXI.

CHICAGO, JULY 1, 1893.

No. 1.

ADDRESSES.

WATERBORNE CHOLERA.

An Address delivered before the Forty-fourth Annual Meeting of the American Medical Association, held at Milwaukee, Wis., June 7, 1893.

BY ERNEST HART, M.D.

EDITOR OF THE BRITISH MEDICAL JOURNAL, CHAIRMAN OF THE NATIONAL HEALTH SOCIETY.

Mr. President and Members of the American Medical Association.—The thesis which I am here to present to you is one which has a superficial air of triteness, but it is not our value to be affected by superficialities, and I hope to convince you that although well worn, the subject of the causation and prevalence of cholera is by no means threadbare. At any rate, to such threads of this well worn subject as have survived attrition, there lie attached untold thousands of lives, which it may be yours or mine at any moment to save. My thesis is that cholera death is a violent death, an unnatural death, a preventable death; that the very existence of epidemic cholera, not to say endemic cholera, is a reproach to the nation and to the community in which it exists. Being a violent death, its prevalence is due to ignorance or apathy, which, from the dimensions of a blunder, easily develop into the proportions of a gigantic crime. Cholera deaths can be prevented, ought to be prevented; and, as I firmly believe, have been largely diminished by agencies to which medical men have pointed and will, in our lifetime, and therefore before long, be so wholly prevented that Asiatic cholera like the Asiatic plague, the bubonic pest and their more modern correlative, typhus fever, will become extinct among European nations, and survive only among the records and relics of an historic shame. You will perhaps hardly be surprised, even although you may not yet be prepared to accept my view of the facts, if I begin by saying to you what I hope to end by proving, that epidemic cholera can only be diffused where the water supplies of the community are poisoned with a specific poison, which we had recently identified as the cholera bacillus. That identification I believe to be correct, but the correctness of it is not necessarily associated with the true interpretation of the historical facts of the case. It, however, concurs with them. The independent evidence which it supplies, strengthens our appreciation of clinical records of cholera infections and cholera outbreaks, in the past and the present. But its more or less of error or incompleteness, if such there be, does not prevent our correctly interpreting the epidemic and clinical histories which are inscribed upon the scrolls of cholera literature.

There still survive some of the old notions which half a century ago—indeed much more recently—attributed cholera to the operation of "telluric" and "meteoric" influences, "atmospheric"

and "pandemic" waves, "cholora taints," and other mysterious agencies, are happily now becoming things of the past, though eminent writers are still to be found who discuss the spread of cholera from the point of view of some "general influence" or "choleraic influence," to the obscuring of other agencies which the overwhelming evidence of past epidemics has shown to be of superior and more practical importance. Even as recently as the great Russian epidemic of 1892, a clever English, though happily non-medical, writer (Hall Caine), referred to "the cholera insect which flies across the frontier," and I have been gravely apprised from one or two quarters of "blue mists," and "plagues of flies," such as were observed during previous cholera epidemics.

Ideas of this sort may, perhaps, be pardonable among such unenlightened communities as last year destroyed the cholera hospitals hastily provided at Astrakhan and Saratoff to receive the victims of the advancing scourge, and cruelly maltreated the doctors who, in the midst of superstition and filth were battling with its subtleties. But it is desirable to put aside these theories, or leave them for academic discussion, and to deal with the spread of cholera practically in the light of the accumulated evidence afforded by all the great epidemics of the past. That accumulated, and unhappily still accumulating, evidence clearly shows that cholera is a filth disease, carried by dirty people to dirty places, and there spread by dirt and the use of dirty water. It is well to take every means of impressing this fact on the popular mind, and to use it as a powerful lever to push forward the war against filth already so well begun. We should aim at security purity of our water, our air, our soil, and our habits. This achieved, cholera need no longer be feared. But it is a herculean task, and must in many countries, where filth, so to speak, is endemic, be slow of accomplishment. Even in our own country, the Augean stables requiring to be cleaned are still far too numerous. There are still far too many villagers and even townspeople throughout England who are more than satisfied with the polluted wells which have served their ancestors without bringing them to a premature grave. Water supplies are still too frequently obtained from contaminated rivers, and filth nuisances of every description are still too common amongst us. But to cherish and seriously discuss theories respecting "cholera influence," "epidemic waves," and so forth, is to retard the work of sanitary reform, and render it more difficult of successful and speedy accomplishment.

Ever since Snow in 1849, with the shrewdness of genius and the confidence of conviction, propounded his belief that the consumption of polluted water had had a great deal to do with the spread of cholera in England, each succeeding epidemic in this country and elsewhere has furnished overwhelming evi-

dence of its truth. For my own part, the deductions of Snow, confirmed as they were by the elaborate investigations of Farr and Simon, were always conclusive; but since 1866, when I was personally instrumental in tracing the disastrous cholera epidemic of that year in East London to the distribution of unfiltered and polluted water from the Lee during several days by the East London Water Company, I have been convinced that specifically polluted water is not merely an occasional or adjuvant cause, but the *causa causans* of almost every great epidemic of Asiatic cholera. Further, when the use of the poisoned water has been abandoned or cut off, the epidemic has ceased.

I have closely watched each successive disastrous cholera outbreak which has occurred within the last thirty years, and the facts have practically without exception, clearly borne out this contention, and strengthened my robust faith in it. The neglect of prompt and complete investigation of the whole circumstances of many of the foreign epidemics have rendered it impossible in some cases to learn all the facts; but where full investigations of the facts have been made by competent inquiries, the result has in almost every instance been remarkable in the confirmation afforded of the diffusion of cholera by water.

(A) ENGLISH EXPERIENCES.—EPIDEMIC OF 1831-33.

In England, cholera first appeared in October, 1831, and between that time and the summer of 1833, it ruthlessly ravaged various parts of the kingdom. No accurate history of the epidemic exists, and there are no reliable statistics respecting it, as the present system of registering the causes of death had not then been established. But in places in Great Britain having an aggregate population of less than 5,250,000, the deaths of 31,376 persons, and in Ireland of 21,171 persons, were reported through various channels to the board of health. In London alone, which then contained a population of little more than 1,500,000 there were 13,144 cholera attacks, and 6,729 deaths during eighteen months: that is to say, one person out of every 117 was attacked by the disease, whilst one in every 250 died. The epidemic filled the people with consternation, and took the medical profession by surprise. Its characteristics were unfamiliar and unaccountable, and its extension was so sudden and mysterious that it was popularly looked upon as a visitation of Providence beyond human control. According to the *Annual Register* of 1832, "the cholera left medical men as it had found them—confirmed in most opposite views, or in total ignorance as to its nature, its cure, and the causes of its origin, if endemic, or the mode of transmission if it were infectious." This, perhaps, is rather a severe criticism; for although all that we now know of its habits had not then become clear, the new disease was carefully studied, and much was learned of its characteristics. A consultative board of health was established, and the privy council circulated rules and regulations which, though far from complete, contained much sound advice. It was pointed out that the disease had special affinity for the poor, ill fed, unhealthy parts of the population, especially those of drunken, irregular life, and those districts which were malarial, ill-ventilated and crowded. General cleanliness was enjoined, the provision of special hospitals was advised, and strict

quarantine was sought to be enforced. But the most active medium of its epidemic extension—namely, water—seems to have received little thought. Whether water played a conspicuous part in the 1832 epidemic can not be proved to demonstration, as attention was not then directed to that phase of the subject. But the general circumstances of the water supplies of the country were such as to favor the diffusion of cholera once introduced; and incidents collected a few years later by Dr. Snow¹ respecting the distribution of the disease in 1832 in London, Newburn, Newcastle, Nottingham, Exeter, and elsewhere, lead to the presumption that, as in subsequent epidemics, contaminated water played its part.

The sanitary condition of these islands at that period was very different from what it is at the present day. Unprotected wells, leaky cesspools, and filth nuisances of every description abounded, for the age of sanitary reform had not then commenced.

THE EPIDEMIC OF 1848-9.

The epidemic of 1832 set men thinking, and gave a great impetus to sanitary reform. Before the next great invasion of this country by cholera in 1848, a growing tendency towards improvement in sanitation was distinctly noticeable. In September, 1848, cases of cholera occurred in Hull, and were soon followed by outbreaks at Edinburgh, Leith, Sunderland and elsewhere. It rapidly overran the whole country, and before it had disappeared in epidemic form towards the close of 1849, 53,293 of the English people had died from it, and 18,887 had died from diarrhoea, out of a population of some 17,564,656 living in a great variety of circumstances. It was in August, 1849, whilst this epidemic was running its course, that Snow² cast a strong light on the spread of cholera by propounding his theory that a most important way in which the disease may be widely disseminated is "by the emptying of sewers into the drinking water of the community." As far as his inquiries had extended he had found that in most towns in which the malady had prevailed to an unusual extent this means of its communication had existed. He pointed out for instance, that the joint town of Dumfries and Maxwellton, not usually an unhealthy place, had been visited by cholera both in 1832 and at the close of 1848 with extreme severity. On the latter occasion the deaths were 317 in Dumfries, and 114 in Maxwelltown, being 431 in a population of 14,000. The inhabitants drank the water of the Nith, a river into which the sewers emptied themselves, the contents floating afterwards to and fro with the tide. Glasgow, which had been visited severely with the malady, was supplied with water from the Clyde, by means of an establishment situated a little way from the town higher up the stream, and the water was professedly filtered; but, as the Clyde is a tidal river in that part of its course, the contents of the sewers would be washed up the stream and the supply of water could not be altogether free from contamination. Again, he pointed out that in 1832 the cholera was much more prevalent in the south and east districts of London, which were supplied with water from the Thames and the Lee where those rivers were much contaminated by

¹ On the Mode of Communication of Cholera. By John Snow, M.D. 1854.

² Pamphlet dated August 29, 1849, On the Mode of Communication of Cholera. By John Snow, M.D.

the sewers, than in the other parts of the metropolis differently supplied. And this he observed was precisely what again occurred in 1849. It may here be mentioned that in 1849, and for a few years later, none of the London water companies obtained their water higher up the Thames than Vauxhall bridge, above which point the river received an ever increasing amount of sewage.

But apart from the water companies, there were a great many pumps supplied by wells in use in the metropolis. On investigating a sudden and severe outbreak of cholera in Surrey Buildings, Horsley-down, Dr. Snow found that a certain well in use by the patients had been exposed to direct pollution by the dejections of earlier patients. A very similar state of affairs was found at Albion Terrace, Wandsworth Road, where a number of cholera cases occurred almost simultaneously. In that instance there was no data for showing how the disease was probably communicated to the first patients, "but it was two or three days afterwards, when the evacuations from these patients must have entered the drains having a communication with the water supplied to all the houses, that other persons were attacked, and in two days more the disease prevailed to an alarming extent." This explanation of the outbreak was disputed at the time, but Dr. Snow pointed out that "the only special and peculiar cause connected with the great calamity which befell the inhabitants of these houses was the state of the water, which was followed by the cholera in almost every house to which it extended, whilst all the surrounding houses were quite free from the disease."

His theory of the whole epidemic of 1848-9 was that the cholera matter was brought to London by patients from Hamburg, that it was multiplied by infected persons, that the infectious sewage matter found its way partly through soil into the wells, and partly through sewers into the Thames and Lee, from which a portion of the water supply of London was derived. This theory was adversely criticised in a report by Drs. Baly and Gull to the London College of Physicians in 1850; and, as Mr. N. C. McNameara has well remarked in his valuable Treatise on Asiatic Cholera, "these physicians well-nigh nipped this doctrine in the bud; had there been less truth in it than there is, their unqualified and positive condemnation of this theory would have utterly crushed it. As it is, their opinions have done much to retard the progress of our knowledge of the etiology of cholera."

EPIDEMIC OF 1853-54—THE BROAD STREET PUMP.

Dr. Snow had not long to wait for an opportunity of putting his theory to the test. In the early part of the summer of 1854 cholera had obtained a foothold in London. One special outbreak which occurred in the parish of St. James, Westminster, during that epidemic, is almost of historic importance, as it was the first instance in which the agency of water as a disseminator of cholera was clearly demonstrated. The outbreak was a good illustration of what occurred all over this country during the earlier cholera epidemics, and of what I regret to say occurs at the present day in India and elsewhere. The first death in the parish was recorded early in August, and throughout that month a few deaths were recorded each week. But during the week ending September 2, seventy-eight deaths were registered; in the next week there were 287 deaths, in the

following week there were sixty-seven, and then the mortality as quickly subsided as it had risen. But before it had disappeared at the beginning of November, some 700 fatal attacks had occurred in this single parish; that is to say, twenty-two out of every 1,000 persons living in the parish had died of the disease within three months. In the excitement of the moment various causes were assigned for this mysterious and sudden outburst. Some accused the ancient pest field in the parish, where during the Great Plague the dead had been buried by the hundred, of casting forth the disease germs buried there nearly 200 years previously. Others laid the blame on the unflushed and defectively ventilated sewers; whilst others again found sufficient cause in the extreme heat of the weather. But no satisfactory solution of the mystery presented itself until Dr. Snow was called in to examine the water supplies.

On studying the record of the deaths, Dr. Snow found that nearly all of those registered in the first week of the outbreak had taken place within a short distance of the parish pump in Broad street; and that of seventy-three deaths in the locality around this pump, sixty-one were found to have been of persons who used to drink the water from that particular pump. Pursuing his inquiries, he found that in a factory in the neighborhood, where the water was always used, eighteen out of the 200 workpeople died. On the other hand, in an adjoining brewery in Broad street, where water from that pump was never used, not one of the seventy workmen employed suffered from the disease. In another case a gentleman came from Brighton to see his brother, who was attacked by cholera in a house near the pump. On his arrival he found his brother dead, but he did not see the body. He remained only twenty minutes in the house, and after partaking of a hasty lunch, including some brandy and water (the water being from the Broad street pump), he proceeded to Pentonville, where he was attacked by cholera during the following day, and was dead within twenty-four hours. In another case, a lady living at Hampstead was in the habit of having brought to her daily a large bottle of water from the Broad street pump, as she had a preference for it, the water being both cool and sparkling, as sewage polluted water often is. The water was taken to her as usual on August 31; she drank of it, was seized with cholera on the next day, and died within twenty-four hours. A niece who was on a visit to this lady also drank of the water, returned to her residence in a high healthy part of Islington, was attacked with cholera and died also. In all these cases the water was used cold and unboiled. Had it been boiled before use its peculiarly sparkling character, which constituted its attractiveness, might have been sacrificed, but its dangerous properties would have been destroyed. Many dismal incidents such as these were discovered both by Dr. Snow and by the Rev. Mr. Whitehead, who conducted an independent investigation and showed the complicity of this well water with the outbreak. On following up the clue it was found that the pump immediately adjoined the house, No. 40 Broad street, and on the drains of that house being opened, a filthy condition of things was disclosed. There was a cess-pool under a common privy, within three feet of the well and at a higher level than that of the water in the well. The walls of the cess-pool were rotten, and the contents could leak into the surrounding soil. The walls of the

well were also found to be rotten, and there was distinct evidence of the cesspool contents having for a long time leaked into the well. Further investigation also disclosed the fact that on August 28 a child aged five months, living in this house, was attacked with what was registered as diarrhoea, and died on September 2. The symptoms of this child's illness, however, were distinctly choleraic.

This ghastly experiment fortunately bore good fruit. The more practical of our sanitarians realized its bearings, and the purity and protection of our water supplies received more attention. The first step was the abolition in the metropolis of such dangerous shallow wells as that in Broad street; wells which, in the words of Sir John Simon, contained evidence that "they represented the drainage of a great manure bed."

But the water companies also needed much reform, for it was now evident that they had unconsciously been trying gigantic experiments with the lives of Londoners. In 1856 Mr.—now Sir John—Simon, who was at different times a member of the committee for scientific purposes appointed to investigate the nature and circumstances of the cholera epidemics, medical adviser to the general board of health, and medical officer of the privy council, had in his reports described very fully the relations of the water supplied by the London water companies with the epidemics of cholera. He showed in 1856 that as often as Asiatic cholera had been epidemic in London it had been observed to prevail with especial severity in certain localities on the south side of the Thames—in St. Saviour's, St. Olave's and St. George's, Southwark, and in Bermondsey, Newington, Lambeth, Wandsworth, Camberwell and Rotherhithe.

The water supply of these districts was divided between two companies—the Lambeth and the Southwark and Vauxhall. In 1853 the former company drew their water from the Thames at Thames Ditton, having recently, in conformity with the requirements of the metropolis water act of 1852, moved their intake from Hungerford bridge; the latter company, however, still drew their supply from the Thames at Battersea. The former company, pumping from the higher and cleaner part of the river, furnished as good a water as any then distributed in London; while the latter, pumping from Battersea, was purveying perhaps the filthiest stuff ever drunk by a civilized community.

Microscopical and chemical observations proved the almost incredible foulness of the water supplied by the Southwark and Vauxhall company. It was not only brackish with the influence of each tide, but was contaminated with the outcroppings of the metropolis, swarming with infusorial life, and containing unmistakable molecules of excrement. Bearing these facts in mind, the following figures, culled from the records of the cholera epidemic of 1854, are more than suggestive:

In the 24,851 houses supplied by the Lambeth company, comprising a population of about 166,906 persons, there occurred 611 cholera deaths, being at the rate of thirty-seven amongst every 10,000 living. In the 39,726 houses supplied by the Southwark and Vauxhall company, comprising a population of about 268,171 souls, there occurred 3,476 deaths, being at the rate of 139 out of every 10,000 living. Thus the population drinking dirty water appears to have suffered three and a half times as much mortality as

the population drinking other water, although in many localities the mains of the two companies ran side by side through the streets, and the supplies of the two companies were so interlaced that it was not possible to define accurately their respective limits, or even to say that the whole of the houses in any particular street were supplied by one particular company.

The significance of these contrasts is made more evident by a glance at the records of the preceding epidemic of 1848-9. At that time the Lambeth Company drew their water from the Thames at Hungerford bridge, and were supplying even a worse water than the Southwark and Vauxhall Company. As already mentioned, in 1853 611 cholera deaths occurred amongst the customers of the Lambeth Company, but in 1848 1,925, or three times as many deaths, had occurred among the same set of customers, who were, however, then drinking water from a more polluted part of the river. On the other hand, the Southwark and Vauxhall Company not only did not secure a pure source of water between 1848 and 1854, but in the latter year were distributing an even stronger solution of sewage matter than during the earlier epidemic. One is justified in inferring, therefore, that of the 3,476 tenants of the Southwark and Vauxhall Company who died of cholera in 1853-4, two-thirds would have escaped if their water supply had been like that of their neighbors, and that of the much larger number—tenants of both companies—who died in 1848-9 also two-thirds would have escaped, if the Metropolis Water Act of 1852, with its stringent provisions prohibiting the abstraction of water from the Thames below Teddington Lock after August 31, 1855, had but been enacted a few years earlier.

EPIDEMIC OF 1866.

The next invasion of this country by cholera was in 1866, and it is memorable for the terrible experiment which was unconsciously carried out by another of the London water companies, at the expense of some 4,000 lives in East London. The disease appeared in London in the last week of June, when six deaths were registered. During the succeeding weeks there were 14, 32, 346, 904, 1,053, 781, 455, 265 deaths, and then the mortality gradually declined, but before the first week of December 5,915 deaths had been registered. Of these, 4,276 occurred in the east districts of the metropolis and adjacent suburban districts of West Ham and Stratford. It was in these districts that the rapid and unexampled development of the outbreak occurred.

Early in the outbreak I was struck by its incidence on the area supplied with water by the East London Water Company, and I felt confident it could only be due to a sudden specific pollution of the water supply. Acting on behalf of a great medical journal I despatched the late Mr. J. Netten Radcliffe (who had not then become attached to the medical department of the privy council) to investigate the matter. At first, of course, he was met with a blank denial on the part of the water company that anything had occurred in connection with their water supply which could explain the distribution of cholera; a refusal to accept any such denial, and a patient investigation, in which the officials gave all necessary aid, though under protest, at last made it plain that owing to changes having been made in

their filtering apparatus the company had sent out for a few days unfiltered water, or water in a very partially filtered state, direct from the river Lee. Subsequent inquiry proved that just at that moment the waters of the Lee had been infected with choleraic discharges from a cottage whose sewers were connected with the river, and in which a family had come to reside who had reached Southampton infected with cholera, and were allowed to pass on after they were supposed to have recovered. The whole history of this outbreak is set out in great detail in Mr. Radcliffe's report included in the appendix to the ninth report of the medical officer of the privy council. Mr. Radcliffe thus summarizes the more prominent questions arising out of the outbreak:

"The outbreak in the metropolis was one of a succession of phenomena, which indicated a widespread diffusion of cholera infection in the kingdom during the month of June, 1866, and this diffusion was inseparably connected with a direct dissemination of the infection from the continent. Although facts are not forthcoming which would establish the direct dependence by transmission of the recent outbreak upon the outbreak previously occurring in Western Europe, the conclusion does not follow legitimately that no such dependence existed. . . . The earliest unquestionable cases of the outbreak took place on June 26th, 1866, on the east verge of the metropolis, upon the banks of the river Lee, and the outbreak reached its acme in the fifth week following. The mortality among the population was proportionately less from this outbreak than from any previous outbreak in the metropolis, but the disease was not less fatal in proportion to the number of persons attacked. Of the total mortality of 5,915, no fewer than 4,276 occurred in the east districts of the metropolis and adjacent suburban districts of West Ham and Stratford. It was in these districts that the disease underwent the rapid and unexampled development which gave to the outbreak such formidable proportions in the fifth and six weeks of its duration. The unusual development of the epidemic in the east districts as compared with the rest of London began in the week ending July 13th. In the week following the rate of increase, as compared with the previous week, was nearly seven times greater than in the rest of the metropolis, but in the subsequent week the rate of augmentation became virtually the same over the whole of London. Neither the meteorology of the period, nor altitude, nor the nature of the soil, nor density of population, nor filth, nor the state of the sewage, nor locality, affords any explanation of the peculiar localization of the outbreak in the east districts. There is but one condition known which might become capable of propagating cholera, common to the whole area of the outbreak, namely, the water supply. The sudden and virtually contemporaneous development of the outbreak over the entire area of prevalence indicated a medium of propagation common to, and capable of rapid diffusion over the whole area; its sudden declension indicated the temporary efficiency to this end of such a medium. The area of prevalence approximated with remarkable closeness to a particular field of water supply, and there are facts which seem to prove that this approximation was not accidental. It is known that, immediately prior to the outbreak in the east districts of the metropolis and neighboring districts across the Lee, impure water was distributed over

this field of supply, and it is highly probable that this water was charged with choleraic poison. It is submitted that these facts and inferences supply a sufficient and legitimate explanation of the great and explosive development of cholera in the east of London and its suburbs during the recent outbreak, and it is argued in respect of a serious objection to this theory, arising out of the actual or relative immunity from cholera of certain districts and institutions supplied with the suspected cholera-infected water, that in the present state of our knowledge of the outbreak, the positive and more generally applicable facts may justly and for practical purposes warrant a conclusion apparently in contradiction with certain negative facts of much more restricted application."

During 1866 the cholera was not restricted to London, but was diffused over the whole country, and, in his annual report for the year, the registrar-general showed that it had prevailed, as on former occasions, in particular fields. "The epidemic," he observed, "has been most fatal on the sea coast in the chief ports of the kingdom. It is by no means capricious, but obeys definite laws. It never destroys the people to any extent where the water supply is pure or where the hygienic conditions are good, when the authorities adopt judicious and well-organized measures of early treatment and systematic disinfection. Those districts which are supplied with bad water, have no effective system of sewerage, have no health officer, and have no precautions in force should immediately set their houses in order, as they are still in imminent danger." He further pointed out that, though the cholera had diffused itself over the remotest parts of the kingdom, its ravages had been restricted everywhere except where the people were living in the open violation of the laws of health. "The returns contain many examples of the efficacy of hygienic measures, and afford strong proofs of the doctrine that, if England has suffered less from cholera in the present year than the continent, or less than England herself in former years, it is mainly due to changes which all Europe can appreciate and adopt. Among other instances the Black Country, as it is called, about Wolverhampton may be cited. The epidemics of 1849 and 1854 destroyed in five districts more than 3,000 lives, while in the year 1866 the mortality has been inconsiderable. The water was formerly impure, and could only be obtained with difficulty in a country covered with pits and works. But the people, with commendable energy, have brought good waters from a distance, and are realizing the advantages of the change in Wolverhampton, Bilston and the other towns."

Since 1866 Asiatic cholera has not been able to extend or even to establish itself in England. Cases have reached our shores in 1873, 1883, and 1892, but in no instance has there been any extension beyond the first cases. Sanitary improvement throughout the country has grown apace since 1866. Taking only the last dozen years, the expenditure of upwards of £22,000,000 on water supplies, and of £12,000,000 on sewerage throughout the country, has been officially sanctioned by the local government board, Londoners, as the result in a great measure no doubt of the gigantic experiments to which they were subjected in 1854 and 1866, are supplied to-day with better filtered water than they were thirty or forty years ago. But we can not get away from the fact

that more than half of the water is drawn from the open Thames and Lee, both of which rivers are polluted by sewage above the intakes of the water companies. A few years ago it was calculated by the late Sir Francis Bolton that the sewage of upwards of 70,000 people was delivered direct into the Thames or its tributaries above the intakes of the metropolitan water companies. Supposing a case of cholera could find its way amongst those 70,000 people, and the five and a-half millions supplied by the metropolitan water companies would be only separated from its dread influence by a possibly imperfect filter of sand.

IMMUNITY OF WATER COMPANIES IN DISTRIBUTING POISONED WATER.

I am not quite sure what view the government now takes of the responsibility of water companies for the distribution of polluted water, but I remember very well that in 1871, when cholera was advancing rapidly through Russia, and Baltic ships with fatal cases of cholera upon them were already arriving from Cronstadt at Hull, Mr. Foster in making an official statement in the House of Commons as to the dreaded outbreak of cholera, made a singular remark, on which I made a note at the time and wrote in remonstrance, but without effect. It was worded thus: "Water companies should be mindful that the greatest disasters produced by cholera in this country have been due to their distribution of sewage-tainted water, and every care should be used by them in good time to prevent the recurrence of any such mischief. Their customers, too, should watch them narrowly." This is the extreme application of the principle of *caveat emptor* , which would probably not now be as generally approved as it was then, but I am not aware that in any case, however flagrant, a water company has been held either severely or criminally responsible for the poisoning of its "customers." I am not aware of any legislation which provides that they are or can be held to be liable for such malfeasance of duty. It is, of course, very different for purveyors of unsound meat or of unsound fruit or vegetables, who are duly warned, and by the provisions they are liable to heavy fines and penalties which are frequently imposed for selling damaged goods of the kind. I can not understand the distinction which enables water companies to slaughter on a large scale a helpless population, of whose supply of one of the first necessities of life they hold monopolies in their respective districts, while the smaller fry tradesmen and costermongers are treated with such severity.

(B) EGYPTIAN EXPERIENCES.

In 1831 31,000 deaths from cholera are said to have occurred in Cairo, and Dr. Graves¹ mentions 150,000 as the estimate of the total mortality from that disease in the whole of Egypt in that year. Since then Egypt has been severely scourged by cholera at short intervals, but for our present purpose no reliable data are available earlier than the visitation of 1883. In that year the first cases of cholera occurred at the port of Damietta during June, became prevalent there on the 22d of that month, and before the end of the month had killed some 700 of its 30,000 inhabitants. Gradually declining in Damietta as July advanced, it invaded various

towns of the Nile delta, and reached Ghizeh and Cairo by July 16. After July the disease lost its epidemic intensity, and appeared to be extinct by the end of September. According to Dr. Sandwith,² the physician to Kasr-el-Aini Hospital, Cairo, who has been able to collect much valuable information concerning the epidemic, 58,511 deaths from cholera occurred throughout Egypt among a population of 6,765,000. In Cairo, among a population of 371,576, there occurred 6,650 deaths; in Ghizeh, with a population of 283,083, there were 3,996 deaths; and in Damietta there were 1,927 deaths. The definite origin of the epidemic has been much disputed, though there has always seemed to me to have been ample opportunity for the introduction of the specific infection into Damietta. Once started, however, the condition of Egypt was exactly such as would favor the extension of the disease.

"There can be no doubt," says Dr. Sandwith, "that Damietta in 1883 possessed all the known requisites for engendering filth disease. In addition to the predisposing causes common to the rest of Egypt, a flat alluvial soil, soaked with decomposing organic poisons, drinking water soiled by every imaginable means, heated stagnant air, an apathetic population and a poverty stricken indifferent government, Damietta had unfortunately at least five other dangers, which affected chiefly the natives of the most crowded and insanitary part of the town. The richer inhabitants drew their water supply from cisterns filled from the Nile at its height, but the poorer folk, living in the quarter of the town where cholera was first seen and was most rife, were entirely dependent for drinking water upon a low Nile for several weeks below sea level, and therefore extremely brackish, or upon an open canal drain which ran through the town and received the sewage of houses on its banks, and also of the public latrines attached to many of the sixty mosques in the town. These conditions prevailed every May and June, but in 1883 must be added the wholesale contamination of the Nile by carcasses of cattle which had died of bovine typhus. One Englishman says that he removed during two months more than 2,000 carcasses in every stage of putrefaction, the greater number being from the Damietta branch of the Nile. The air of the town was in a very poisonous state, and was not improved by the depôts of stinking salted fish (*fishk*) arriving from the neighboring lake of Menzaleh for the consumption of Damietta and the rest of Egypt. The last of the exciting causes special to Damietta, was the fair which immediately preceded the cholera explosion (June 13 to 20). Some 15,000 people had been allowed without any sanitary supervision to encamp on the outskirts of the town, and to overcrowd the existing 30,000 inhabitants. The wonder is, not that cholera appeared, but that any remained alive to debate its origin."

Speaking in 1884 of the water supply, Sir W. G. Hunter—who was one of the special commissioners sent out by the English government to inquire into and report upon the epidemic of 1883 in Egypt—remarked³ that the larger majority of the people drink the Nile water unfiltered, and generally before it has been allowed time to deposit. "It is said that they prefer it in this condition. In Cairo the quality of

¹ Paper on Cholera in Egypt, read before the Seventh International Congress of Hygiene and Demography, held in London, August, 1891.

² British Medical Journal, January 19, 1884, p. 91.

³ Dr. Graves' Clinical Lectures, 1848, Vol. I, p. 297.

the water supply is indifferent. At the waterworks there is but one settling tank, and as it is in constant use it can never be cleaned. The large amount of mineral water contained in Nile water while settling carries down with it no inconsiderable quantity of the organic substances held in suspension in the water, and must lead to rapid fouling of the tank. Filtration is effected by gravel and sand. In the Ismailia quarter—that is, the fashionable part of the city—and in the Boulak quarter also, no attempt is made to filter the water, but it is supplied as obtained from the Nile. Close to the intakes of the Cairo waterworks, where some slight efforts, it is presumed, would be made to prevent pollution of the water, I have seen human and other animal excreta, fresh and stale, lying about in various directions, and men and women bathing and washing their soiled clothes in the river. This was by no means an uncommon sight. The water supplied to Alexandria is, on the contrary, of very good quality. The system, though much the same as in use in Cairo, is carried out in a much more efficient and thorough manner. Alexandria is the only town in Egypt which possesses a wholesome supply of water. The river and the soil have been polluted through countless generations, and the alluvium is almost as absorbent as a sponge. Wherever there is water, it is scarcely too much to say you may feel assured it has been fouled by man. The river is, I may say, polluted and fouled almost from its source. It is the means by which filth, garbage and dead animals of every description are disposed of. Every town and every village situated on its banks add their quota to the fouling of the stream, until at length, when it has reached its lowest level in June, it is found, as at Cairo and at Damietta, to be undergoing putrefactive changes; to present under the microscope the character of pond water rather than as a running stream, and to contain bacterioid organisms in considerable quantities." As a specimen of a quality of the water used by the villagers in Egypt, Sir W. G. Hunter quoted the following passage from a letter written on August 30, 1883, by Mr. Honman, one of the twelve medical gentlemen sent to Egypt by Her Majesty's government for service during the epidemic, respecting Mehallet-el-Kibir, a town of 28,000 inhabitants midway between the Rosetta and Damietta branches of the Nile: "The town has three mosques, the drain from one running through the town, quite open and with three feet of filth at the bottom. This discharges itself into a pool of water at the back of the town, which is used by the people for domestic purposes and as drinking water for their cattle. The other two mosques drain in a like manner into pools outside the town, and they also are used by cattle and for domestic purposes. The stench from these drains can be smelled all over the town."

In 1883 Alexandria was the only town in Egypt possessing a tolerably wholesome supply of water. That supply, however, was by no means altogether safe, and it was laid on to only some 4,000 out of the 16,000 houses in the town. Alexandria also possesses a system of underground sewers, but many of these structures were found to be in a neglected condition in 1883. Yet this town suffered much less severely than the rest of Egypt, only 916 cholera deaths occurring among its 225,000 inhabitants.

During the last ten years a great stimulus has been given to sanitary reform throughout Egypt, but the

task is exceptionally difficult and the obstacles are many. Speaking of a visit to Damietta in 1891, Dr. Sandwith remarks that "the existing cisterns are cleaned out and refilled every year, and a large new one built by the government supplies the town for two months and a half. Moreover, a new circular fresh water canal has been excavated to bring Nile water from near Cairo, and the central canal drain of the town has been filled in and converted into a road. The river and the canal no longer contain dead bodies, and the local fair has been shorn to harmless dimensions."

It is unfortunate that the question of providing Cairo with a proper system of drainage is still in abeyance, the initial costliness of an efficient scheme being apparently the real cause of the delay. But there is a prospect of something being done in this matter ere long. The responsible authorities of Cairo, however, will be well advised if they put the sanitary condition of the town into a proper state without further delay, and take care to adopt the most efficient and permanent scheme for that purpose, even if it be at first a little more costly, rather than lay the foundations of future trouble by carrying out an imperfect or temporary scheme.

The water supply of the country is also still far from satisfactory, although the question how best to deal with so difficult a problem has for some time been receiving attention. The latest report of Lord Cromer, the British consul general for Egypt, on the administration of that country and the progress of reform in it, is very hopeful. Dr. Rogers Pasha, who is quoted by Lord Cromer, is able to say that an extraordinary and satisfactory change has come over the spirit of the mudirs and governors. "Two mudirs," he says, "have forwarded me schemes of important sanitary legislation, while all the mudirs and governors it has been my pleasure to meet are unanimous in recognizing the evils which exist, and the necessity for their being remedied."

(C) FRENCH EXPERIENCES.

In 1883 some cases of cholera occurred in Marseilles, but by a conspiracy of silence between the municipal authorities, the attendant physicians and the nurses, their existence was for the moment concealed. In June, 1884, however, the disease broke out in Toulon, and a few days later cases were reported in Marseilles. On this occasion it was not practicable to secure the same secrecy as had been obtained in the previous year. The disease claimed some 30 or 40 victims daily in Toulon during the second and third weeks of July, and before it had entirely disappeared from the town, in the middle of November, it had caused over a thousand deaths there. At the same time it steadily spread in Marseilles, and during the second week of July, the daily mortality there rose to 70 or 80. Between June 27, when the first case appeared, and October 27, when the disease finally disappeared from that town, 1,777 deaths were recorded. Marseilles again suffered in 1885, 1,639 of its inhabitants dying of cholera during the year. Toulon also lost 314 inhabitants from the disease that year. Coming to more recent times, we find that between the middle of September and the middle of November, 1892, some 90 deaths from cholera occurred in Marseilles; and another outbreak of the disease, which the local authorities again strenuously endeavored to conceal,

occurred in February, 1893, and caused nearly 100 deaths.

The sanitary condition of both Toulon and Marseilles at the time of the epidemic of 1884 and 1885 was scandalous. Reporting to the Comité Consultatif d'Hygiène Publique de France on July 1, 1884, after an inspection of Toulon in company with Dr. Proust, Dr. Brouardel described⁶ Toulon as "one of those towns where the laws of health are most imperfectly observed." He pointed out that the water, though originally derived from springs of good quality, was not free from suspicion of contamination before it reached the consumers, and he described at some length the unwholesome methods of filth disposal in vogue in the old quarters of the town, such as the general practice of casting the night soil each morning into the gutters, where, if, as was generally the case, the water was not abundant and the gradient sufficient, it pestilentially accumulated. A very similar state of affairs is disclosed by M. A. Dominique in his *Historical Study of the Cholera Epidemics at Toulon*.⁷

The insanitary state of Marseilles is also notorious. In a report on the epidemic of cholera in that town in 1884, M. Guérard, the engineer of the port, pointed out that the most neglected portions of the town as regards cleanliness were those that were most fatally affected, and he especially referred to the old quarters to the north of Port Vieux and behind the Rue Cannetière. Referring to the state of Marseilles forty years ago, when in the absence of sewers the Port Vieux became a receptacle for all the liquid impurities of the town, when local wells were in general use for the water supply, and when closets were but little known, all filth finding its way into the gutters, M. Guérard added that, with the exception of an abundant water service, the same description still held good for the old quarters.

But even at this time the water supply, though abundant, was, and is at the present day, far from satisfactory. Marseilles derives its water from four sources—the river Durance to the extent of 7,000 litres per second, the river Huveaune to the extent of 100 litres per second, the spring of La Rose, five litres per second, and the Grand Puits, which supply six public fountains. The water of the Durance is brought to Marseilles by a canal and aqueduct some eighty miles in length, and as it approaches Marseilles it is exposed to a variety of contaminations. At one point it passes through some flour and other mills, turning the water wheels in its course, and having corn washed in it. At another point it passes in open conduit through a populous locality. Moreover, at its best the Durance is but a turbid river. It carries down a good deal of vegetable matter in its course, and although its waters pass through settling tanks on its way to Marseilles, it is not filtered before its actual distribution. Some elaborate analyses of the Durance water have recently been made by Dr. P. David, of the 15th army corps, and show that in its unfiltered state it is by no means an altogether satisfactory water.

It is, however, the use of the water of Huveaune which is most dangerous. That water is drawn from the river near the village of St. Marcel, and a few kilometres only below the village of La Fenne and

the town of Aubagne, the inhabitants of which cast all their slops and filth into the river. In an interesting report on the cholera epidemics of 1884 and 1885, M. Guérard⁸ states that nothing in the observation of those epidemics "proves that the waters distributed in the town had any appreciable influence on the mortality from cholera." But at the same time he points out that at La Penne and Aubagne there had been numerous cases of cholera in 1885, and adds that "the use of waters from the Huveaune for domestic wants in the town of Marseilles could not have been without influence in the development of the epidemic in that town." Moreover, he shows that "the water of the Huveaune was drunk in precisely those quarters (of the town) in which the epidemics of 1884 and 1885 made the greatest number of victims."

As further showing the suspicion which very properly attached to the water supply of Marseilles at the time of the epidemic of 1884, the following circumstances recorded by Dr. Proust in his report⁹ of December, 1884, on the cholera epidemic of that year in France, are instructive:

A French steamer (Ville de Palerme) left Pointe-a-Pitre on June 24, 1884, and arrived at Marseilles on July 17. It remained there from July 17 to the 24th—that is to say, during the worst days of the cholera epidemic. During its stay at Marseilles there had been no sickness on board; it was not until two days after the departure of the vessel from that port for Havre that the earliest cases of illness on board took place. Between July 26 and 29 five men on board were seized with cholera. The captain narates that before arriving at Marseilles the steamer had taken on board a supply of water at Gibraltar on July 12, and, acting on the advice given him, there was consumed on board only the water taken at Gibraltar during the whole of the stay of his vessel at Marseilles. But on July 24, the day of the departure of the vessel from Marseilles, the Gibraltar water being almost exhausted, he had to refill his water tanks with the Marseilles water, and that was the water consumed on board after the evening of July 24. The captain himself remarked the coincidence of the appearance of cases of sickness on board with the first use of the Marseilles water, and also that these occurrences seemed to cease at the same time that he ceased to use that water. He gave his crew the water boiled and lightly alcoholic, and after that no new case of illness occurred.

As regards the outbreak in Marseilles in October, 1892, Dr. Brouardel has declared that it was principally due to contamination of the drinking water by sewage.

Happily, both for Marseilles and for the rest of France, as well as for the safety of the health of vessels trading with Marseilles, great works are about to be commenced for the general sanitary improvement of the town. Marseilles has obtained an unenviable notoriety as a focus of cholera, and the efforts at concealment which have always been made have not tended to strengthen public confidence in the good faith of the local authorities.

In the same report from which we have taken the particulars respecting the steamship Ville de Palerme Dr. Proust deals with the spread of cholera through-

⁶ Recueil des Travaux du Comité Consultatif d'Hygiène Publique de France, tome IX, 1884, p. 295.
⁷ Le Choléra à Toulon, par A. Dominique, Toulon, 1885.

⁸ Recueil des Travaux du Comité Consultatif d'Hygiène Publique de France, tome IX, 1884, p. 297.

⁹ Recueil des Travaux du Comité Consultatif d'Hygiène Publique de France, tome XIV, 1884, p. 252, 253.

out the southern and southwestern departments of France in 1884, and, after detailing the facts respecting a great number of localities where the disease prevailed, he arrives at the following general conclusions: "1. The cholera has been imported into the towns and villages of the departments just mentioned. 2. Water has played an important part in its transmission. 3. The intensity of the epidemic has been in direct proportion to the unhealthy condition of the country. 4. The cessation of the epidemic in the localities invaded can in part be attributed to the adoption of sanitary measures and of means of disinfecting."

One of the epidemics included in Dr. Proust's interesting report is that which occurred at Yport, a little town of 1,700 inhabitants in the department of Seine-Inférieure. The facts are also given in a report¹ by that earnest sanitarian, Dr. Gilbert of Havre. It would appear that the department of the Seine-Inférieure had been already free from cholera until the disease was imported by the arrival there on September 28, of two of the crew of the *Louise-Marie* from the port of Cette. This vessel having arrived at Cette from Newfoundland, nine of the crew shortly contracted cholera, two of the attacks terminating fatally. After this several of the crew traversed France by rail, one dying of cholera on the journey. The personal effects of the remainder were at the same time submitted to some process of disinfection by a sister of mercy. One of the men who left for Yport had suffered from a cholera attack at Cette, and on the day following his arrival (September 29) his clothes were, with the aid of his sister-in-law, wrung out in water and hung up in front of certain dwelling houses. On October 4 this sister-in-law was suffering from diarrhoea, and on her return that day from having completed the washing of these clothes at the public "fontaine" she was seized with symptoms typical of the Asiatic disease and died. Cholera subsequently extended to the filthy narrow streets and bypaths, in which low dwellings, excavated in the sloping surface and having a natural soil for a flooring, supplied the place of houses. In all there were forty-two attacks and eighteen deaths at Yport, the last case taking place about the middle of November.

A very detailed account of the cholera epidemic of 1884 in France has been written by Dr. L. H. Thoinot of Paris, and a concise abstract of it is to be found in Dr. Shakespeare's report on cholera in Europe and India.² Dr. Thoinot's investigations go to prove very clearly that cholera follows water-courses, and especially those of little importance, such as torrents and small streams; that water is a means of propagating cholera for both short and long distances; that the cholera manifestly develops around wells or fountains, the water of which has been contaminated by the choleraic germs; that if there exist two kinds of drinking water in a neighborhood, one infected and the other free of all infection, the cholera will attack the neighborhood of the first, but will spare absolutely, or notably at least, the neighborhood of the second; and that cholera is transmitted by linen and clothing contaminated by choleraic dejections. Each of these propositions is

fully borne out by the details of the epidemic of 1884. Reviewing these epidemics Dr. Shakespeare remarks that "the disease seems to have spread from place to place by means of soiled personal effects, by small watercourses which had become contaminated with choleraic discharges, or the washing therein of soiled linen, and by the movements of persons experiencing an active or a latent attack of cholera. By these means the disease reached and found a lodgment in many places in the interior of France, remote from the districts at first affected."

The department of Finistère furnishes, unfortunately, a very vivid lesson in the spread of cholera by dirt and polluted water. In that northwestern corner of France the population are poor, very ignorant, and often greatly addicted to intemperance; the soil is filth-sodden and permeable, the water supplies are almost entirely derived from surface wells, imperfectly protected and readily liable to receive specific contamination, and the arrangements for filth disposal are of the most primitive and old world character. Here then are to be found all the accessories needed for a widespread cholera epidemic, and here cholera has ravaged the simple folk in 1832-33, 1834-35, 1849-50, 1854-55, 1865-66 and 1885-86. Whenever cholera has visited France, Finistère or its neighbor, Morbihan has been an early and great sufferer. An exceptionally interesting report of these epidemics, dealing in great detail with that of 1885-86, has recently been written by Monsieur Henri Monod,³ who is now Directeur de l'Assistance et de l'Hygiène Publiques, but was formerly the Prefect of Finistère. This is how he refers to the water supply of the department: "With rare exceptions the water drunk in Finistère is that of wells; but nearly everywhere the soil is composed on the surface of very permeable calcareous sand. The drinking waters are therefore exposed to infiltrations to whatever flows or rests on the soil becoming impregnated with decomposing matters along the roads and at the corners of the houses. Sometimes even streams after they have passed through all sorts of filth flow directly into the wells, which are destitute of kerbs. The inhabitants know it, they see it; treating it with indifference they do not use the less of it, but drink philosophically a water which will make them ill only if destiny has thus ordained. Consequently, water seems to have contributed to the propagation of cholera on the one hand in disseminating germs of cholera by the streams, by the washing fountains (*les fontaines lavoirs*) by the water-courses of every description, and on the other hand, in introducing those germs into the human organism by the drinking waters. The communes which can be cited as having had the wells particularly infected are those of Donarnez, Plouhinec, Ile de Sein, Guengat, Guilvinec and Quimper. Those who think that water fills in the course of a single epidemic of cholera the double rôle of carrier of morbid germs and a direct agent of their introduction, will undoubtedly derive an argument from the precise occurrences in those last two communes."

This outbreak in Finistère was also investigated officially by Dr. Proust,⁴ and his opinion is exactly similar to that of M. Monod as to the very conspi-

¹ Le Choléra à Yport, par M. le Doct. Gilbert; Revue Scientifique du 26 Décembre, 1884.

² Report on Cholera in Europe and India. By Edward O. Shakespeare of Philadelphia. Washington, 1890.

³ Le Choléra: Histoire d'une Epidémie. Finistère, 1886. Appare aux tomes XIX and XX de Recueil des Travaux du Comité Consultatif d'Hygiène Publique de France. Juin, 1892.

⁴ Recueil des Travaux du Comité Consultatif d'Hygiène Publique de France, tome XVI. Août 1886, pages 7 et 89.

ous part played by water in the dissemination of the infection. As regards Guilvinec, where between October 1 and December 24, 1885, 71 fatal and 54 non-fatal cases of cholera occurred among a population of 1,968 Dr. Pronst states that "almost all the villagers use, for drinking, water furnished by a tank called a fountain situated in the center of the *Quartier du Palus*, a reservoir which is only a well, and by other wells at different points. This water is the infiltration through the superficial strata. The turf and the sand form a layer of not more than one metre above the impermeable granite. Hence this water is contaminated by all kinds of organic matters, fecal and otherwise, which cover the soil in profusion, and at the time of the epidemic by choleraic matters which it has never been customary to throw on the beach, and which even when disinfected were buried near the dwellings at a depth of fifty to sixty centimetres. It is to be remarked that in two or three houses where rain water is used no case of cholera was observed. But what is still more worthy of interest is the fact that near Guilvinec small villages built on the rock have been free from the epidemic. In one of these villages there were two imported cases, but the disease did not spread. A still more striking example is that furnished by the occurrences at *Échéagat*, a village which is separated from Guilvinec by a narrow arm of the sea uncovered at low tide. In 1886 that village had no cholera, although Guilvinec was affected; and although during that year it served as a refuge for a number of the inhabitants of Guilvinec, the disease did not spread in it. But the inhabitants of that village drink water from an irrefragable source, which they found at a distance of two kilometres. Sometimes they drink rain water, but never well water. This little village has always been free from epidemics, whilst small-pox, typhoid fever, and cholera have prevailed on different occasions at Guilvinec."

But by far the most important extension of cholera in France in 1884 was that which affected the western suburbs of Paris, and subsequently that city itself in November. A few deaths had taken place in Paris between July and October, but the first case of the more important outbreak did not occur until November 3. During the following days of that month, the deaths respectively were 1, 3, 18, 14, 28, 76, 95, 96, 79, 82, 65, 70, 45, 36, 47, 28, 34, 25, 15, 19, 10, 14, 8, 3, 11, followed by a rapid daily decline.¹ Between November 3 and December 5, 946 deaths had occurred in Paris. These figures are very suggestive, even by themselves, of a sudden and temporary agency being at work, such as the contamination of the water supply, and although the outbreak does not seem to have been officially reported upon in detail, I have excellent reasons for believing that it was due to the temporary distribution of a highly polluted water to particular districts of the city.

In 1892, Paris, more especially again in its western and northwestern suburbs, was once more somewhat severely visited by cholera. On April 1, the disease broke out in a crowded prison at Nanterre, to the west of Paris, and ere long it had caused in that institution 19 deaths out of 51 attacks. The disease soon spread through the neighboring districts of Suresnes, Puteaux, Neuilly, and Argen-

teuil. In May there were ten deaths, in June 19, in July 78, in August 211, in September 535, in 535, in October 102, in November 6, and in December 16, making in all a total of 977 deaths during the year. The greater part of this mortality occurred, as already mentioned, in the suburban districts to the west and northwest of Paris, it being, in fact, late in the autumn before any considerable number of deaths took place within the city fortifications. There is a very general consensus of opinion that the consumption of the Seine water was at the root of this serious outbreak, as it has been at the root of previous epidemics. A considerable portion of the Parisian water has been drawn from the Seine near Charenton, but before the intake at that place is reached the river has received, at Choisy-le-Roi, Vitry, and a host of other places, the contents of numerous sewers, etc. Drinking such water is bad enough, but when it is considered that the suburban districts in the west and northwest—those districts, in fact, where cholera raged last year, and where also it began in the epidemic of 1884—draw their water from the Seine, after it has passed through Paris, and been fouled by steamer traffic, by the filth from the clothes and linen washed in its floating wash-houses, by the innumerable private sewers at Sèvres, Neuilly, and elsewhere, and by the discharge into it of the contents of the main sewers of Paris at Asnières and St. Denis, one need not wonder at the spread of cholera once introduced. Happily the works which have been in progress for improving the water supply of Paris by the addition of pure water from the Vigne are to be completed in the spring of the present year (1893), and the suburbs are to have their supply of Seine water drawn where that river is not tainted by Paris sewage, and are also to have it filtered through sand and iron before use. The need for some drastic measures of this kind has long been apparent.

D.—ITALIAN EXPERIENCES.

It is to Marseilles and Toulon that Italy is indebted for the severe epidemic of cholera which swept over the country in the autumn of 1884. When cholera broke out in the neighborhood of Marseilles and Toulon, numbers of Italian workmen who were then employed in that neighborhood fled across the frontier into their native country. Strenuous efforts were made to enforce land quarantine against them on the frontier, and thousands of travelers were in consequence detained in lazarettos at Ventimiglia, San Dalmazzo, Bardonecchio, Saluzzo, Pinerolo, and other places; but in spite of bayonets and bâtons, this theoretically perfect but practically discredited method of withstanding the march of infection once more utterly failed; and a great many frightened and unwholesome fugitives, bearing with them in their persons or in their filthy clothing or chattels the germs of the disease, succeeded in evading the cruel police cordons. By July 22 it was alleged that cholera had broken out at Spezzia, having, it is said, been introduced by arrivals from Toulon. Many of the inhabitants of Spezzia at once fled terror-stricken from the town. Gradually the disease spread through the provinces of Turin, Massa, Parma, Bergamo, Cuneo, on to Campobasso and Cosenza in the south of the kingdom. Before the end of the year some 27,000 attacks of cholera and upwards of 14,000 deaths had occurred, at least forty-four out of

¹ *Bulletin des Travaux du Comité Consultatif d'Hygiène Publique de France*, tome III, Paris, 1884.

the sixty-six Italian provinces having been visited.

It was in the city and province of Naples that the severest outbreak of the disease occurred. There is a general agreement that the infection was introduced from Marseilles by Italian workmen and sailors, although there may be some doubt as to which of several channels was actually the earliest in operation. According to the United States consul, some fifteen Italian sailors sailed from Marseilles, and arrived in Naples about the end of July. At the time of landing their presence was unknown to the municipal authorities. They passed one night in the Strada di Porto, but, being discovered, they were sent back to their ship and left, presumably for Palermo. Their stay, however, was thought by some to have been long enough for them to have sown the seeds of the disease in Naples; but, according to the British consul, the cholera was most probably introduced by sixty-five Sicilian workmen who, having crossed the frontier from Marseilles, were detained in quarantine for some prescribed period on a floating hospital at Spezzia and thence were shipped to Naples, where they arrived on August 3, and took up their quarters in the Porto district, one of the most squalid and insanitary quarters of the city. On August 6 and August 18 other similar detachments arrived. One man, who arrived on the latter date, put up in the Marcato district another of the worst parts of the town and, sickening with cholera the same night, died within forty-eight hours. Other cases followed, producing in the circumstances well-founded anxiety; but it was not until September 1st that the disease broke out with sudden and considerable violence. On that day there were sixty cases and twenty deaths notified; on the next day there were 127 fresh cases and sixty-five deaths; and so on until on September 11, 949 fresh cases and 357 deaths were announced. This was followed by 848 fresh cases and 386 deaths on the 12th, and 693 fresh cases and 231 deaths on the 13th, after which there was a gradual decrease in the daily numbers until the epidemic practically ceased early in November. Between August 23 and November 9 some 12,345 cases and 7,086 deaths had occurred among a population of 492,908.

Any one who has visited Naples must, while charmed with the unequalled natural loveliness of its magnificent site, have been struck by the squalor and unwholesomeness of the place. After visiting the town just before the epidemic of 1884, I was driven to describe it as the dirtiest, raggedest, most obscene and squalid city of Europe. There was hardly anywhere to be seen a population more poverty stricken, more miserably housed, more filthy in their habits. The atmosphere of a great part of the town was an infection, the defilement of the streets was unspeakable, the mortality of the city was excessive, although it is surprising, almost incredible, that it was not greater. When, therefore, cholera reached Naples in 1884 it found a most congenial resting place, and in the peculiar water supply arrangements in vogue there was the most complete provision for its indefinite extension. That peculiar system, and its relation to the nastiness of the domestic arrangements, are clearly described by Dr. Shakespeare in his interesting work on cholera. He points out that the houses of the poor quarters are many stories in height, and are tenanted by families who live in flats. The upper flats are constructed upon the same plan

as the lower ones, the kitchens of all being directly over each other. The water closets, when they exist, usually occupy one corner of the kitchen and connect by untrapped pipes with the main perpendicular drain, which leads to a *pozzo nero*, or sort of filth receptacle in the basement of the house. It is usually only the overflow of the fluid contents of the *pozzo nero* which enters the main house drain and passes to the street sewer. The walls of the *pozzi* are usually very imperfectly, or not at all cemented, the floor of the sink being formed by the porous earth. The solid accumulations in the *pozzi neri* are not often removed more than once a year. In most of the large houses there was at least until 1885, as already stated, a very peculiar individual provision for water. Running water flows in masonry trenches from house to house, ordinarily a little underground. In the course of the trench, as it passes beneath the house, there is a cistern sunk beneath the bottom of the trench, in order to form a species of water reservoir for household purposes. This reservoir is usually located in the part of the building immediately under the kitchens of the various floors, and is in communication with them by means of a bucket attached to a rope which runs over a pulley at the top of the house, so that the occupants of the various stories can draw the water without the necessity of descending to the ground floor. The location of these reservoirs is therefore frequently in close proximity to that of the *pozzi neri*, and, from what has already been said of the construction of these *pozzi neri*, it is easily understood how filtration from them must unavoidably reach and contaminate the water of the reservoirs. And the fact that the water trench passes from house to house and directly communicates with the reservoirs explains how, in houses where the *pozzo nero* and the reservoir are quite distinct, the water drawn from the reservoir is often necessarily contaminated by the *pozzi neri* of houses up stream.

Besides this household provision of water, there is also a public supply by means of a comparatively limited number of public fountains in the streets and public squares. The majority of the inhabitants recognize the fact that the water of the public fountains is of a better quality for drinking purposes than that drawn from the reservoir within the houses, and those living on the ground floors and not too far distant from the nearest public fountain habitually resort to the fountain for their drinking water, using, however, the reservoir water for other domestic purposes. Dr. Shakespeare notes in connection with this practice the curious fact that during the prevalence of cholera in Naples in 1884, and, indeed, in nearly all of the preceding epidemics, contrary to the customary rule in cholera epidemics in most parts of the world, persons dwelling in the upper stories suffered the most severely from the disease. The explanation of this fact is patent. The ease with which those people could obtain water from the reservoir, and the inconvenience of resorting to public fountains, caused them to use water which was by far the most likely to be contaminated by cholera discharges.

In addition to the contamination of the reservoir water by cholera discharges which might reach the *pozzo nero*, in not a few instances the reservoir water was further contaminated by the reckless practice of washing linen soiled with choleraic discharges in the trenches of running water beneath the houses.

It is difficult to realize the fact that such a system as this—a system which could scarcely be better designed for the most effectual distribution of disease—was to be found towards the close of the nineteenth century in such a populous and important city as Naples. Fortunately the danger was at last recognized in 1884, and in the following year pure water was brought into the city from a mountain stream—the Serino, eighty miles distant—and was very generally distributed through iron pipes under pressure. At the same time the old system of distribution by water trenches coursing beneath the dwellings was, to a great extent, done away with. Neither in 1885 nor in 1886, notwithstanding the existence of cholera in the vicinity and the not infrequent arrival of refugees from cholera-stricken localities, did Naples suffer from even limited epidemic outbreaks of the disease. This was true also of the year 1887, until, in consequence of a break in the new water conduit from the distant mountain stream, recourse for a few days was had very generally to the old water system. At this time there were numerous refugees in the city as, in fact, there had been for weeks past from various places in southern Italy and Sicily, including several suburban towns where cholera was more or less prevalent. Moreover, there were, and had been, almost constantly occurring a few isolated cases of the disease among these refugees without, however, a local epidemic being produced thereby. But very soon after the interruption of the supply of the Serino water there were one or two quite sharp explosions of local epidemics around some of these cases. The speedy repair of the Serino aqueduct enabled the municipal authorities again to turn on that pure water throughout the city, and, practically coincident with that action the local epidemics, which had occasioned so much alarm, ceased almost as suddenly as they had begun.

It is interesting in this connection to note that there has been a marked decrease in the prevalence of enteric and typhus fevers since the introduction of the new water service into Naples.

The disease reached the city of Genoa in September, 1884, and the severe epidemic which immediately ensued is one of the most interesting and conclusive examples recorded of the spread of cholera by water—by water, moreover, which was of exceptional natural purity until the moment it received the specific infection.

A few sporadic cases of cholera occurred in Genoa during the first fortnight of September; but immediately following the 21st of that month the disease suddenly and rapidly spread, there being 9 cases on September 21, fifty-two cases on the 25th, 42 on the 26th, 38 on the 27th, 47 on the 28th, 64 on the 29th, followed by a rapid decline to 59, 40, 22, 21, 23, 22, 12, 13, 10, 5, 6, 3, 6, 2, 5, 7, 0, 1, 4, 4, the last case occurring on October 20. The deaths during the days following September 22 were 2, 18, 32, 27, 37, 47, 30, 19, 25, 28, 20, 22, 17, 10, 10, 13, 10, 10, 10, 3, 6. These figures are themselves very suggestive of a water influence, and this explanation of the epidemic spread was strongly confirmed by the circumstance that, during the early days the disease not only attacked indifferently the poorest and the richest quarters, but was also singularly disseminated throughout the whole city. In the penal Bagno di S. Giuliano, an isolated place where the prisoners are kept in strictest confinement, there were five cases in

the first five days of the epidemic, and at the same time the disease made headway upon the heights of S. Benigno at 80 metres above the level of the sea. In every part of the city there were attacks, without distinction of the density of the population, or of social status, or of hygienic conditions or precautions. The dissemination was so general that the first 300 cases were found to be scattered along 158 different streets of the city.

Early in the epidemic a resident physician, an old friend of mine, whose acquaintance I had made when I organized and despatched, with his aid and that of Dr. Wolfe, a convoy of medical succor to the army of Garibaldi on his famous expedition from Sicily, telegraphed to me from Genoa: "Your water theory of cholera at fault. Genoa has a fine supply of pure water from a high mountain source. Cholera has broken out in districts so supplied, and we have already 100 cases a day. What is to be done?" I replied by telegraph: "Can not be at fault; must be water; can not be anything else; examine every foot of your water pipes, and trace to the supply pipes' source." Genoa, it may be remarked, is supplied by three aqueducts—the Civic and the Galliera about fifteen miles long, fed by the river Gorgento, and the Nicolay about thirteen miles in length, and supplied by the river Scrivia. An analysis of the first 50 cases of cholera in the city disclosed the fact that as many as 44 were in houses supplied with Nicolay water; of the 50 succeeding cases 43 dwelt in houses supplied with Nicolay water; and of the third group of 50 cases, 45 were in houses so supplied. In fact, out of the first 300 cases, as many as 93 per cent. inhabited houses in which the Nicolay water was distributed. Further, although the poorhouse of the town is in a very crowded center, no case of cholera occurred in it, as the authorities of that institution cut off the Nicolay supply. Again, taking the Via Bianchetti, cases of cholera occurred on the side which was served with Nicolay water, while there was not a case on the other side, which had water from a different source.

Thus the Nicolay water stood convicted, and on further investigation the mystery was readily solved. Near the beginning of the Nicolay aqueduct is the village of Busalla, and at the time in question some hundreds of workmen including, there is reason to believe many refugees from infected localities, were engaged on a new railroad, and are described as living in the most filthy conditions. Cholera broke out at Busalla on September 14, and several cases thereafter daily occurred until the end of the month. Inquiry disclosed the fact that nearly all the workmen, both the sick and the healthy, had their clothes washed in the Scrivia, or in a tributary of that stream, which supplies the Nicolay aqueduct with its water.

As soon as these facts were known the mayor of Genoa, with very commendable promptitude and decision, prohibited for a time the distribution of the water of the Nicolay aqueduct, or rather the distribution by that aqueduct of the water of the Scrivia. This was done on September 28. On September 30 the cases of cholera fell from sixty-four to fifty-nine, and, as already shown, during the succeeding days the number of cases suddenly dropped to 40, 27, 22, 21 followed by a rapid decline to *nil* on October 17.

In 1885 cholera occurred in various parts of the

mainland of Italy in the provinces of Ferrara, Genoa, Massa, Modena, Parma, Reggio Emilia, Rovigo, Trapani, Venice and elsewhere. But the severest visitation that year was at Palermo, in Sicily. Into that town, which has been richly endowed by Nature but has been rendered most unsavory by man, the cholera was imported from Marseilles by the steamship *Salunto*, in spite of the fact that that vessel had been subjected to seven days' quarantine in the Gulf of Assinara. Between August 23 and 25, 1885, a woman living in a little street in Palermo received, for the purpose of washing, a parcel of linen which had been sent to her husband, a sailor on board the *Salunto*. That woman, after having washed the linen, was seized with vomiting and diarrhoea. On the following day a young woman who lived with her developed the same symptoms, as did also several other women in the neighborhood during the next few days. On September 13 there were thirteen cases and four deaths, on the 14th there were thirteen cases, on the 15th seven cases; but on the 16th the number of cases suddenly sprang to 36; on the 17th to 132; on the 18th to 221; and on the 19th to 258. From that date the disease began slowly but gradually to decrease until the middle of November, by which time 5,535 cases and 2,959 deaths had occurred in Palermo among a population of about 275,000.

The opportunities for the spread of the disease when once introduced into Palermo were very similar to, though much more pronounced than those in Naples. The water supply is brought from the surrounding hills, usually in open trenches of masonry. Within the town these trenches are sometimes uncovered, or they pass beneath the houses in the basements of which there are traps in the top of the water trenches for the purpose of enabling the water to be taken from them direct. There are also a number of public fountains throughout the city supplied by this running water, and there are many wells exposed to all the most filthy contamination. The washing of clothing is very common in the water trenches, both before and after the city limits are reached.

The habits of the people are of the most filthy character, and in the presence of the cholera the ignorance and superstition of the populace greatly harassed the authorities and increased their difficulties. It is owing in great measure to the enlightened and vigorous action of Dr. Albonesi, who was appointed director of the local sanitary council, that the early termination of the epidemic is mainly due. That Dr. Albonesi thoroughly understood the methods by which cholera spreads is shown by an eloquent pamphlet which he published shortly after the epidemic on the duties of governments and countries during epidemics. He directed the closing of all wells in the affected localities, and inaugurated thorough cleansing operations of all kinds. The closing of the wells was followed by the decline of the epidemic. On his advice also the boiling of the water before use was very generally adopted by the more intelligent inhabitants, and with marked benefit as regards their immunity from infection.

I have only given details of the three greatest outbreaks in Italy in 1884-85, but every community throughout the country that was attacked by the disease taught the same lessons.

(E) SPANISH EXPERIENCES.

In 1885 Spain was the seat of a cholera epidemic

of exceptional ferocity, which, having sprung from a few initial imported cases, rapidly embraced the greater part of the peninsula. There is, unfortunately, little sign at present that Spain herself has profited from her terrible lesson, but for those who wish to master the mysteries of cholera, the Spanish epidemic of 1885 illustrates clearly the futility of so-called quarantines, both on sea and on land, and the potent agency of rivers and streams, once infected, in spreading the disease for long distances, when the populations living on their banks drink their waters.

The earliest cases of cholera occurred in Alicante, on the southeast coast, towards the end of August, 1884. There is, as usual, some conflict as to the exact manner in which the infection first reached Spain. According to one account, a family of Spaniards returning from Marseilles was responsible. That family sailed from Marseilles to the French province of Oran, on the northern coast of Africa, where they procured transport for themselves and for their personal effects to a maritime village near Alicante. They successfully evaded the surveillance of the Spanish quarantine officers, and carried, it is thought, the germs of the disease with them. According to another version, the disease was brought by a vessel from Algiers, which, after performing a week's quarantine at Alicante, proceeded to land her passengers. Among the latter was a family from Cetta, which took up its abode in the house where cases of cholera subsequently appeared. During the third week of September isolated outbreaks occurred in the province of Tarragona, also bordering on the Mediterranean, and in the neighboring provinces of Lerida and Saragossa. Later on, in November, cases cropped up in the coast province of Valencia and in the inland province of Toledo.

The disease slumbered through the winter around Gandia, in Alicante, and in the following April broke into an epidemic at Jativa and Alcala. From these quarters the disease was soon carried far and wide by the laborers who usually disperse in May from the rice plantations of Valencia. Henceforward sanitary cordons and such like measures failed to stay the march of the epidemic; indeed, in some instances they seem to have had the contrary effect. Without attempting here to follow that march step by step, the result may be summarized from a tabular statement issued in May, 1886, by the Spanish minister of the interior. It appears that between the first cases of the disease notified on February 5 in the province of Valencia, until the last cases notified on December 31, 1885, in Salamanca and Cadiz, 2,247 local governments ("ayuntamientos"), included in 46 provinces, and having an aggregate population of 6,576,641, had been invaded, 33,685 cases and 119,624 deaths having occurred among them. The population which escaped the scourge is stated to have been 10,396,339, distributed among 7,067 local governments.

Sanitation and domestic hygiene are of a very primitive description in Spain, if indeed they can be said to be at all regarded by the bulk of the population. The streets and roads of the towns and villages, and the back yards of the houses are, without any consideration for decency or health, made the depository of nearly all the fecal and other filth of the population; the dwellings of all but the wealthiest are old and unwholesome, with frequent

accumulations of filth close beside them; and drainage properly so called may be said to be non-existent, only a very few of the largest towns possessing any system of drainage whatever.

The open rivers and streams are the usual sources of water supply, and in Valencia and some other provinces the open agricultural irrigation canals serve also for the domestic supplies. But these rivers and canals too often serve as public sewers, and, as in France and Italy, the washing of clothes is usually performed in them. In some cities and towns there are also wells; but, apart from their being sunk in a recklessly polluted soil, there is seldom any attempt made to protect those wells against infiltration of the filth which so often surrounds them. In Murcia and Andalusia there is still the old Moorish custom of storing water in huge earthen jars. These jars are sometimes to be found ranged around the house courts, reminding one of tales of the Arabian Nights, but often they are sunk beneath the floor of the yard where they are in close proximity to the *cloaca nigra* or cesspit of the establishment, and are liable to receive the overflow or soakage from it. These *cloacas negras*, it may be added, when they exist receive all the fecal and other filth of the household, and their contents usually soak away into the surrounding soil.

In a work published in 1886, on cholera in its relation to water,¹⁵ Mr. George Higgin has dealt very clearly with the Spanish epidemic of 1885, and by comparative pictures of the circumstances of several typical towns, he has graphically and conclusively shown that it was *par excellence* a waterborne epidemic that, specifically infected, more than any other unwholesome circumstance was the cause of the fearful mortality and misery which then spread throughout the length and breadth of the peninsula. He shows that this formidable disease never became truly epidemic or dangerous in any Spanish city in which there was a pure and good supply of water, and where proper means were taken to guard against the sources being polluted by any of the specific choleraic poison. He shows how, in this way, the cities of Toledo, Seville, Malaga and Madrid escaped comparatively lightly, while such places as Aranjuez, Saragossa, Granada and Valencia suffered very severely.

Taking Madrid, it is noticeable that out of a population of 397,816, there were only 2,207 attacks and 1,336 deaths, or barely as many as occurred in a couple of days in the previous epidemic of 1865. The water supply of the town is derived from the Lozoya river among the Guadarama mountains, and was completed shortly before 1865. The greater part of the drainage was also then completed, but at the time the new water supply had scarcely come into use, the large majority of the houses being supplied from the old fountains which existed in various parts of the city. During the last twenty-five years the use of the Lozoya water has become very general, and an ample supply has been provided for washing the streets and flushing the sewers. Madrid is well drained, but the means of disposing of the sewage is very unsatisfactory.

When the existence of cholera in Madrid was recognized in 1885, one of the first acts of the municipality was to attend to the water supply. There

existed 11 ancient sources which supplied 85 taps or fountains, 22 of which were public, and at which water carriers were allowed to fill their barrels, while the remaining 63 belonged to groups of houses. In spite of the excellent supply brought in from the Lozoya, these old sources were still a great deal used by the inhabitants—many, from old habits, preferring to use the same water which their fathers had used, while many were not willing to incur the expense of laying on the new supply. In view of the impossibility of effectually guarding against the possible contamination of some of these sources of supply, the municipality, by decree, closed all of them except one. The central government undertook the custody of the Lozoya aqueduct, and during the whole time of the existence of cholera in the city the uncovered portion of that aqueduct was patrolled by armed guards, no one being permitted to approach it without special order. There is every reason to attribute to these energetic measures the comparative immunity of Madrid from cholera during the epidemic of 1885. Such cases of the disease as did occur in the city seemed to be associated not with the water, but with the outfalls of the sewers, around which they seemed to cluster.

Toledo, the ancient capital of Spain, now having a population of about 20,000 differs widely from Madrid, its sanitary arrangements being much worse. It was supplied with water from the river Tagus, which flows round the city, the water being lifted by pumps. Above Toledo, on the same river, is situated Aranjuez, and above that town again, on the Manzanares, which is a feeder of the Tagus, is situated Madrid. In both of these latter towns cholera existed in 1885, being unusually severe at Aranjuez. The governor of Toledo, recognizing the suspicious character of the water, promptly stopped the pumps and obliged the inhabitants to send for their drinking water to a distant spring, and even forbade any one to bathe or wash clothes in the river. The measure was a strong one but it saved the city, for there were not more than 200 cases there during the epidemic.

Next, Mr. Higgin points to Seville, the third city in Spain, with a population of 134,000, and with very bad sanitary arrangements. There is no proper drainage, and the city is not healthy. The town, however, possesses an excellent and well protected water supply. But one of the suburbs of the city called Triana, containing about 30,000 inhabitants, is situated on the western side of the river Guadalquivir, which is fed by the rivers Darro and Genil which flow through Granada, and the poor in this suburb drink generally the water of the river. The Seville authorities, however, in good time prohibited the use of any water from the river, either for dietetic or other purposes. The result was that Seville practically escaped the disease, although it raged fearfully in Granada higher up the river, and descending the river Genil, which runs through Granada, attacked the towns of Herera, Ecija, and others in the province of Seville. It broke out also at Cordova and other towns on the Guadalquivir, of which the Genil is an affluent, and it appeared in Palma, Utrera, Puerto Real, Puerto Santa Maria and Cadiz, forming a circle around Cadiz, but the city itself escaped almost completely. Xerez, which lies between Seville and Cadiz, and possesses an excellent water supply, also escaped the disease. Malaga, which is in a bad

¹⁵ Cholera in its Relation to Water Supply, by George Higgin, 1886.

sanitary condition, except that it has been provided with an excellent water supply, also escaped very lightly.

Taking now some towns which were severely visited by the cholera, it is seen that Granada, with a population of 76,000, has had sanitary arrangements, on a title of the houses being drained. The water supply is from the Genil and Darro rivers, to which we have already referred. A small portion is supplied from a spring. The canals carrying the water from the rivers are uncovered, and exposed to all kinds of contamination. The cholera broke out in July, spread with frightful rapidity, and by the middle of August over 450 cases a day were officially recorded. No attempt had been made, as at Toledo, to suppress the old water supply. From Granada the course of the cholera may be followed down the rivers Darro and Genil, the infected waters carrying death wherever they were used for drinking purposes.

Murcia, with a population of 91,000, from which the cholera was imported into Granada, suffered heavily also. The disease was carried into the plains of Murcia by the waters of the river Segura from the baths of Archena, it having been imported into Archena by some invalid soldiers from the infected districts around Valencia. The plain of Murcia is irrigated by the waters of the Segura, and the disease commenced in this district with the death of a laborer who had drunk the water of one of the irrigation canals. The epidemic raged principally among the little cottages scattered thickly over the plain.

According to Mr. Higgin, no case in reference to water supply is so instructive as that of the town of Valencia. This city is fairly well drained, as drainage goes in Spain. The water supply is derived from the river Turia, is passed through sand filters, and is stored in a covered reservoir. When cholera broke out in the spring of 1885, it came very near Valencia, but did not touch it. At last, in the middle of May, having crossed the water supply of the city and thoroughly infected the river, it fiercely attacked Valencia, and by the end of June the number of cases had risen to 700 a day, among a population of 143,000.

The experience of Saragossa is also instructive. Its principal water supply is derived from the Aragon canal, which in its turn, is fed by the Ebro, near Tudela. The water became infected, the disease broke out in Saragossa, and some 10,000 cases occurred among a population of about 40,000. The preventive measures adopted by the authorities unfortunately came too late.

These cases could be multiplied almost indefinitely, and the same lessons be learned from them.

(F) RUSSIAN EXPERIENCES IN 1892.

The complete history of the cholera epidemic in Russia in 1892 remains still to be written, but what we know of it bears out previous experiences as to the influence of infected water. We venture to take the following extract from some very interesting papers on the subject which have been written by Dr. Frank Clemow¹⁶ of St. Petersburg. Speaking of the distribution of the epidemic, Dr. Clemow says that "the experience of last year's epidemic has added a large body of evidence to that furnished by earlier outbreaks upon which conclusions may be founded as to the means by which cholera is spread

from one district to another. In tracing the disease from its first introduction across the Persian frontier throughout the Russian empire it has, I think, been clearly shown that cholera followed the main lines of human communication, and that where these lines coincided with a great river—such as the Volga—the spread of the disease was much more rapid than where communication was mainly by railways. These were the conclusions to be drawn from the behavior of the epidemic as a whole. The object of the present article is to bring together evidence as to its behavior in individual cases. The evidence has been collected from various sources, but principally from the discussions at the conference on cholera held in St. Peter-burg last December, and from the medical and lay press at the time of the epidemic. In almost every instance that has been recorded where the means by which the infection was carried was known the course of events was somewhat as follows: A person coming from an infected district to one that has hitherto been free from the disease, sickened with cholera soon after his arrival. The earliest subsequent cases in the town or village occurred among members of the household of the first patient, among persons who had been in contact with the first patient or with articles soiled by him, or among persons who had drunk water from sources polluted, directly or indirectly, by the dejecta of the first patient. I may be pardoned for giving in detail the following instructive histories: In the village of Ulybyshef (Vladimir government) a laborer arrived on June 29 from Kazan where he had attended the funeral of his brother, who had died from cholera. Three days later he sickened with the disease in the morning and died in the same evening. The clothes he had worn remained in an outbuilding for a week. They were then washed in the stream from which the village drew its water supply. In a very short time cholera became epidemic throughout the village. In the government of Viatka, five villages situated along the banks of the same stream were invaded by cholera. The infection was traced to the systematic washing of linen, belonging to the early cases in the stream which provided the inhabitants of all the five villages with their drinking water. No sooner was this practice forbidden than the epidemic began to abate. In the village of Upper Moulla (Penn government) an exactly similar relation of cause and effect was recorded. The linen of cholera patients was washed in a pond. From the same pond the inhabitants drew their supply of drinking water, with the result that cholera raged throughout the village. As in the last instance, as soon as the washing of linen in the pond was put a stop to, the number of cases of cholera in the village began to diminish. In the village of Borki (Samara government), lying on the river Samarka, the first case of cholera was that of a woman. After a short interval a peasant was seized with cholera upon a barque lying at anchor a short distance further down the river. The disease then became epidemic solely among that portion of the population which drew its drinking water from the river. The remaining inhabitants, who drank water obtained from wells, remained free from the disease with but one or two exceptions. In Great Berezukof, a village in the Simbirsk government, an exactly parallel instance was recorded. Cholera attacked only that part of

¹⁶ Lancet, May, 1893, p. 1,655.

the village which drew its water supply from the river Kshi, while among the inhabitants of the village whose drinking water was derived from wells, there was but a single case—that of a beggar woman to whom had been given some clothes from an infected house. In two villages in the Tambof government, in each of which a dual water supply existed, it was observed in like manner that cholera was confined to one portion of the inhabitants. In each instance it was found that this portion of the inhabitants drew its water supply from a pond contaminated through the washing of linen of cholera patients. The rest of the village, supplied with well water not so contaminated, did not furnish a single case of cholera. The part played by water in the diffusion of cholera was clearly illustrated at the beginning of the epidemic in St. Petersburg. It was found that the earliest cases were confined to the workmen in the large factories situated on the banks of that branch of the Neva known as the Great Nevka. The workmen were accustomed to drink water derived directly, without filtration or boiling, from this branch of the river—water which at all times is charged with much organic matter (14 parts in 100,000), and which produces gastro-intestinal catarrh in all persons unaccustomed to its use. It was at once arranged that water should be supplied to the workmen from the town waterworks, and that this water should be filtered or boiled before drinking. The effect of the change in the water supply was immediate, and there was no further spread of cholera in that part of the city. Another instructive case was furnished by one of the St. Petersburg prisons. A prisoner who had been in solitary confinement for more than a month was suddenly seized with all the symptoms of cholera. Bacteriological and *post-mortem* evidence confirmed the diagnosis. All the prisoners were supplied with boiled water, and for a time the source of infection remained an enigma, which was only solved by the discovery that the deceased had drunk a quantity of unboiled water, provided to him for washing purposes. Steps were immediately taken to furnish all the other prisoners with boiled water for whatever purpose required."

In an interesting report by the United States consul at Tashkent, in Turkestan, dated October 11, 1892, I also find the following interesting statements:

"That the cholera germs were taken into the system through drinking impure water my experience and personal observation confirm. At Samarcand three regiments of infantry were encamped side by side on a level plain close beside a stream of water. The colonel of one of these regiments took the most extraordinary pains to prevent his men from being attacked with the cholera and he succeeded. In the first place he caused every article in the camp to be thoroughly cleansed with hot water and disinfected. He compelled his men to bathe every day in water that had been boiled, and a guard was constantly maintained whose duty it was to keep the soldiers from drinking the river water, and to carry out the colonel's instructions. The result was that not a single case of cholera occurred in the regiment, while the other two regiments which were camped alongside lost over 100 men from cholera. In these latter regiments the ordinary precautions were taken, but no such measures were adopted as I have mentioned above.

"At Ashabad the cholera had almost disappeared early in August, and the event was celebrated with much rejoicing on the Emperor's name day, which occurs in that month. The governor-general gave a dinner to which he invited a numerous company, and to the various regiments were granted extra rations that they might rejoice on the occasion. The day which began so auspiciously amidst general rejoicing was destined to have an ending which has no parallel in history. Of the numerous guests who attended that dinner, one-half died within 24 hours. A military band of about 50 men, who played during that fatal dinner, lost 40 of their number with cholera and only 10 of the men reached camp that night. One regiment lost half its men and 9 officers ere the sun rose the following morning, and within 48 hours 1,300 people died of cholera. The cause of this outbreak was clearly traced to a small stream of water which supplied the town. Four days previously the authorities were informed that cholera had broken out at a small Turcoman village, situated on the banks of this stream, about 4 miles from Ashabad. The inhabitants of this village were ordered to move their kilrtkas (tents) several miles back on the hills, which they did. On the day previous to the reappearance of the cholera at Ashabad, a very heavy rainstorm occurred, which washed the banks of the river, and swept refuse and other matter from the abandoned village into the stream, and this matter was carried by the water into the city and distributed to all parts of the town by the numerous open canals through which the inhabitants were supplied with water. It was this contaminated water which caused the reappearance of the epidemic, and the frightful mortality which followed. The population of Ashabad was not more than 13,000, of which 10 per cent. died within 48 hours."

(G) CHOLERA AT HAMBURG IN 1892.

The secrecy and prevarication attempted last year at Hamburg, when cholera appeared in that city, are much to be regretted. Great risk was thereby incurred in other seaports where, had the presence of the disease in Hamburg been known, the exercise of a little extra vigilance, but without the imposition of quarantine, would have probably secured the detection before landing of any suspicious cases from the north German town. Although August 21 was the first day on which the presence of cholera in Hamburg was officially admitted, there is no doubt that cases had occurred there quite a week before that date. The public announcement that on the first day as many as 83 cases and 22 deaths had occurred naturally caused a feeling of much anxiety throughout Europe and America, for in times past Hamburg has been a very frequent distributor of the disease. How the infection was first introduced last year into Hamburg is still a matter of dispute, but there can be little disagreement with the opinion that when once it was started the public water supply was the vehicle of its dissemination.

The strongest and most striking evidence of this is afforded by the relative incidence of the disease on Hamburg, Altona and Wandsbeck, which together make up the Greater Hamburg. Wandsbeck, with a population of 20,571, had 64 cases (3.1 per mille), and 43 deaths (2.0 per mille); Altona, with 173,279 inhabitants, had 572 cases (0.9), with 329 deaths (2.3); Hamburg State, with a population of 622,530,

had 17,974 cases (28.8) and 7,611 deaths (12.2); or taking only the infected parts, the town and suburbs of Hamburg, among 579,907 inhabitants there were 17,891 cases (30.8) and 7,582 deaths (13). This striking difference between Wandsbeck, Altona and Hamburg is distinctly traceable to the water supply. Thus Wandsbeck, which suffered less than the other two, is supplied with spring water, whereas Altona and Hamburg derive their water from the Elbe. Altona, however, gets its water very far down, at Blankensee, where the river is cleaner than in Hamburg, and passes it through a good gravel filter, unlike Hamburg, which gets its water from the harbor contaminated with sewage and absolutely unfiltered. These facts led Dr. Hueppe,¹⁷ who spent the whole of last September in Hamburg, as well as most other observers, to the inevitable conclusion that the water of the harbor and the waterworks was answerable for the outbreak and rapid spread of the epidemic.

On behalf of the *British Medical Journal*, the history of the water supply of Hamburg has been investigated by a special commissioner on the spot, and its history has been examined from a series of official and other publications.¹⁸

HISTORY OF THE PRESENT SYSTEM.

According to the official volume, "Hamburg and its Buildings," published by the Hamburg Architects' and Engineers' Association in 1891, the oldest system of water supply, which was established in the fourteenth, sixteenth and seventeenth centuries, was replaced in 1822 and 1843 by new systems, where steam power was first used. They were only in force in part of the town, but are not entirely out of use in certain districts at the present time.

After the great fire in 1842, W. Lindley undertook the water supply of the entire town, after Mylne's system, then in force in London; by 1849 the new supply was in full working order. In July, 1890, the sand filtration system of the water pumped from the Elbe was established at the central dépôt of the waterworks at the expense of 7,000,000 marks, and it now supplies districts including a population of nearly 800,000 souls. There are 64 fountains in Hamburg city, 39 being for drinking purposes; but of course the ornamental fountains and "market fountains," so familiar in Germany for public laundry work, play out water accessible for persons who may be more thirsty than prudent and more thrifty than foreseeing. There remains the supply to private and public houses and offices. The Altona waterworks at Blankensee supply a population of 140,000; they were originally built after Hawksley of London's plan, in 1857, and nearly half of the present buildings remain as he projected them, but improvements were made on a large scale in 1873-5 and 1884-8. Extensive sand filtering beds were then constructed. It was on the recommendation of Herr Henry Gill, director of the Berlin waterworks, and Augustus Fölsch, that sand filtration was introduced at Hamburg.

THE NEW SYSTEM.

Herr Arnold Samuelson, engineer to the Hamburg works, has published a treatise on the establishment and working of the new system in his city. The

later treatises, pamphlets and articles on this filtration, published this year are, as might be expected, less congratulatory than those issued at an earlier date. Herr Samuelson implies that the results are not satisfactory, while in a work on the lighting, drainage and water supply of Hamburg published in 1887 it is stated, at the conclusion of the paragraphs on the drainage and sand filtration, that the Elbe water purified by this system is remarkably good, especially pleasant and wholesome to drink, and at the same time well suited for ablation and laundry work, owing to the small quantity of calcium salts which it contains. The system is doubtless good, the filter beds have been excavated and paved with care. But not only may the water be polluted between the filter beds and the public fountains and private cisterns, as evidently occurs; not only do a large waterside population drink water direct from the Elbe, but there remains the fact which long descriptions of new designs of filter beds must not make us forget; a considerable district is yet supplied by a system seventy years old. Evidence is also not wanting that the water fresh from the filter beds is not free from germs; indeed, it appears to be infested with them.

THE ELBE WATER AND SAND FILTRATION.

This turns our attention to another fact—that the supply of water is from the Elbe. It is quite possible to filter away solid bodies and to precipitate noxious inorganic chemical salts, but organic germs can not be removed by retaining millions of cubic feet of water from one of the great muddy continental rivers in extensive open filtering beds. A few pints of water are easily purified, perhaps without boiling, in the wards of a hospital, but none would willingly rely on sand filtration alone for purifying water from a river which has run for hundreds of miles through hundreds of towns and villages. At least such filtration would never be trusted had an epidemic once broken out in the neighborhood of a hospital. When it comes to the purity of the water supplying a great city, the insufficiency of sand filtration of river water is thus rendered self evident.

Among the rules issued for the public benefit by the Imperial sanitary board we find clauses relating not only to ditch water, river water and water from the basins of town pumps and fountains, but also to "suspicious water" from any source. The citizen is warned not to drink any water that may in his own opinion be suspicious, and he is also reminded that small house filters are untrustworthy, not being perfect purifiers of water which may be impure when put into the filter—the Hamburg water being no doubt borne in mind when this caution was framed—besides being specially dangerous when not kept perfectly clean by frequent changing.

THE PAST OF THE WATER.

Judging from official and medical works on Hamburg, that city has suffered very severely in the fourteen epidemics of cholera which, beginning in 1831, have hitherto visited that city until the last appearance of the disease in 1873. In all these publications the water is blamed; but it is the Elbe water fresh from the river that is meant even when not specified. In all the visitations the waterside poor were first attacked, and this truth, confirmed by statistics, is only what might have been expected.

¹⁷ Berlin. klin. Wochn., Nos. 4 and 5, 1893.

¹⁸ British Medical Journal, September 22, 1892, p. 708.

But an elaborate work on Hamburg, its natural history and medical aspect, lays all the blame on unfiltered Elbe water and those who drink it; and this work appeared in 1876—that is to say, three years after the last epidemic. The explanation therein given as to the way in which the disease spreads to the wealthy, and to parts of Hamburg far from the Elbe and Alster, is clearly a hypothesis on which the authorities have been lulled into a false security.

The epidemic of 1892 shows that something has been overlooked. The first to suffer, says the work above quoted, are the sailors and poor close to the Elbe; then, when a large number of them are dead or ill, the infection is carried from man to man into other parts of the town. Thus direct contagion is made to account entirely for the spread of the disease. There is not a suggestion that the waters from the filters might be incompletely purified, although it is clear from close examination that in 1876, as now, the apparatus for filtration was not adequate, was not placed at the general disposal of the town, and besides did not promise such adequate filtration from organic impurity as its projectors professed it could give.

TRIBUTARY STREAMS AND LOCAL SUPPLIES.

Besides the "water supply" of the city, in the official sense of the term, we may consider the total supply of water procurable in any way, whether from nature direct or from local sources. Dr. Wibel wrote an exhaustive monograph on the river and surface water of Hamburg in 1876. The three rivers in the immediate vicinity of the city are the Elbe, Bille and Alster. The analysis of water taken from the middle of the Elbe showed that Elbe water was not different in composition from that of any other river similar in its source, length and course. The tourist who has visited the beautiful district near Dresden known as the Saxon Switzerland, is aware that the Elbe, as it flows by Schandau and Pirna, far from the great city near its mouth, is already a very dirty river; and even at Leitmeritz in Bohemia, the narrow rapid "Elbestrom" is as muddy as the Mississippi. Nobody would care to drink it there. At Hamburg it is of course much worse. The Bille is a small stream which flows from the woods where once our Saxon ancestors dwelt. Dr. Wibel shows that in the suburbs of Hamburg it is fairly pure. But near its entry into the Elbe within the city, it is thoroughly polluted, and full of all sorts of organic substances. The Alster arises in Holstein, and enters the Elbe after diluting, on account of artificial impurities, into the famous "outer and inner Alster," which are among the "lions" of Hamburg, and give a characteristic appearance to the city. The analytical tables show that the Alster is not nearly so polluted as the other rivers; probably its two great ponds, used for boating and skating, are not so near low quarters and housewives with pails and dustbin produce as are the Elbe and Bille. Unfortunately, there flows into the outer Alster a stream of notorious ill fame, the Eilbeck, which neutralizes much of the advantage that the Alster may gain from the kind of protection above referred to. The Eilbeck flows through the town of Wandsbeck in Holstein, and before opening into the Alster it spreads out as a pond known as the Kuhnühlenteich. The Eilbeck was tried and found guilty in 1871 of having caused an epidemic of typhoid in a district through which it flows.

CANALIZATION AND POLLUTION.—SURFACE WELLS AND PUMPS—POSSIBILITY OF ARTESIAN WELLS.

Hamburg once had the great advantage of a large number of running streams of pure drinkable water. Hence, no doubt, in past centuries, when the hygiene of the town was otherwise far worse than at present, the citizens escaped dangers to which their living descendants are now exposed. The extensive canalization of Hamburg has entirely destroyed many of these streams. Only four remain, and three are thoroughly polluted, running through dirty slums; one of them receives the drainage of the main cemetery. The fourth, the "Englischer Brunner," is less noxious. This pollution of bright streams is a sad affair and their restitution to their pristine purity a theme worthy of the consideration of sanitarians. Dr. Wibel notes that the ease with which water can be obtained from the waterworks supply has caused the good old fashion of drawing water from these streams outside the town to die out. Our surprise about the prevalence of cholera will be much allayed when we find that Dr. Wibel analyzed the brook water from certain pumps close to the streams. Out of the pumps much evil must be drawn. The pumps properly so-called, drawing surface water and not water from the rivers or streams, are next considered. Their water is condemned and yet some of them are specially used for table purposes. A few surface water ponds with drains exist in the neighborhood of the city; of course, they are polluted. Lastly, Dr. Wibel describes his researches respecting the artesian wells of which it appears, there are ten at the disposal of the city. The water is fairly pure, but as it flows in different wells through different strata it varies greatly in chemical composition; in some cases it is highly charged with soluble inorganic salts. It is not satisfactory to find that Dr. Wibel does not consider that it is an easy matter to discover fresh artesian wells. There is no known indication for calculating where they can be pierced so as to reach water at a safe depth without great cost and difficulty.

ARTESIAN WELLS AND SAND FILTERS.

The mention of artesian wells in relation to Hamburg renders it necessary that all who take a real interest in the restitution of that city to a sanitary condition should remember precisely what an artesian well is, and how it is made. It is a spring of water rising above the surface of the ground by natural hydrostatic pressure as the result of the boring of a small hole down through a series of strata to a water carrying bed enclosed between two impervious layers. In the first place, the difficulty of boring a small hole through a great depth of strata varying in density is considerable, and the expense high. The boring is always more or less experimental; the precise position of subterranean water is not always to be determined. Sometimes the boring need be but about 300 feet, as in many English wells; at others 3,000 or even 4,000 feet are exceeded. Then the boring may strike water lying between two impermeable strata; but there may be a flaw in one of the strata, or the lower may be damaged by boring too far. In both cases the water will not rise, as it escapes through the flaw or sinks below the lower impermeable stratum running through the boring into porous soil beneath. In boring a well at St. Louis, Mo., in 1868, water was found at the depth of

3,147 feet, but it proved to be brine. Hence minute precautions must be taken else all the engineer's labor may be in vain. Boring too many wells close together prevents the water from rising to the surface, so that pumps have to be used. To cry out for artesian wells at once is like demanding the instant building and equipment of ironclads when the foe is near the coast. The boring of the wells is a necessary prophylactic duty which the authorities must deliberately, but not hurriedly undertake. As for shallow wells, digging for them is out of the question, as they are never to be tolerated in a porous soil—as at Hamburg—on which houses are built. The best bricking in of the sides can not protect them from impurities entering from above and below.

For understanding sand filter beds much knowledge of sanitary engineering is demanded. But in relation to their failure at Hamburg, it is interesting to know how they may fail. In the filter beds the bottom is paved, then layers of clean material are spread, decreasing in coarseness from small rubble to sharp sand, with a total average thickness of about four feet. The actual filtration is effected by the upper layer of sand, and the lower layers allow the passage of the water unaccompanied by the sand. The efficiency of the filtration depends upon the slowness of the passage of the water; sometimes defects may cause the water to flow too fast. The top layer of sand soon becomes choked with the matter removed from the water. Hence the filter must periodically be cleaned by scraping off the top surface of the sand. Thus it is easy to understand that a filter bed may be faulty and is easily mismanaged.

During the months which immediately followed the epidemic of 1892, provision was made for an additional water supply, in case of need, pending the completion of the improvements which are being carried out in connection with the present water-works. This provisional supply consists of 56 public wells, 34 useful private wells, 43 stations for boiling river water and 126 connecting taps with the Altona and Wandsbeck systems. There are also 98 water carts for the distribution of this water, and 6 water boats to supply the shipping interests. A few of these wells were in use before the epidemic broke out, but most of them have been opened since that time. During the past few months at least 127 wells have been bored at the public expense, but only 39 of them have been found to furnish a useful water. More wells are being sunk. The popularity of the stations for boiling river water may be judged from the fact that several of the stations are visited by upwards of 1,400 people a day. The improvements which are nearing completion at the water-works consist of 4 large subsiding basins and 18 filtering beds, on the principle of downward filtration through fine sand. The water will be taken from a point 2.4 kilometres further up stream than at present. The subsiding basins will have a capacity of 78,500 cubic metres each and the water will be allowed to settle 21 hours before it is drawn off into the filtering beds. The filters are 18 large rectangular open basins, built of brick and cement on a clay base; each basin has a surface of 7,500 square metres, and a capacity furnishing 11,250 cubic metres of water per day, at a filtering rapidity of 62.5 millimetres per hour. The filter consists of a layer of sand 1 metre in thickness, spread over a layer of gravel and stone, which is 0.6 metres in thickness.

WATERBORNE CHOLERA IN INDIA.

India is very generally referred to as the "home of cholera." The disease is there established endemically throughout a wide area, but not, as most Indian authorities once believed and many would even now apparently often have us believe, in virtue of any local, mysterious, unknown or unpreventable causes. It is so in virtue of conditions which may all of them be removed and which in time I trust will be removed. In 1879 there were 318,000 deaths from cholera in India; in 1881 there were 161,000 deaths; in 1887 488,000; and in 1888, 270,000. It must also be admitted that nearly all the great cholera epidemics can readily be traced back to India along lines of human intercourse. But what to my mind is entirely contrary to all we know of cholera, and is, from a practical common sense point of view, much to be deprecated, is the tendency in many quarters to regard the idea of eradicating cholera from India as impossible and ridiculous. I have waded through and studied, I think, all the reports and available information respecting India during the last thirty years, and have had the benefit of much personal converse on the subject with medical men who have spent years of their life in the "endemic area" of India, and in the result, it seems to me as fatuous to deny the possibility of ridding that "endemic area" of cholera, as to deny the possibility of banishing typhoid fever from unwholesome localities in this country. I do not question the herculean nature of the task. The religious rites and superstitions prevailing in India, the ignorance and fanaticism of the natives, the enormous expenditure requisite may all combine to render the difficulties of the task well nigh insurmountable in present circumstances. But let it be rationally realized that an endemic area of cholera in India is a removable blot, and let those who are responsible for the government of India set to work to remove the food on which cholera grows, and in time to starve the scourge out of India. For my own part I am convinced that in India as elsewhere, water has been the chief nurse and disseminator of cholera, and that if every town and village in India were provided with pure and properly protected water the so-called endemic area would soon become indefinite, and would eventually disappear from the map. Why there should have been so much opposition to this contention, such needless straining to prove it groundless or to shake its foundation I am somewhat at a loss to understand. It is a fact that cholera, to all intents and purposes, fled from Madras and numerous other places immediately on the introduction of uncontaminated and properly protected water. Why should not the experiment which when tried has always been found successful, have been extended or, at least, further tested in new localities? Happily, with the support of such eminent and practical Indian sanitarians as Drs. Macnamara, Townsend, De Renzy, Cornish, Payne, Simpson, Furnell and Laurie the contention that water is a frequent and common means of cholera diffusion in India is gaining ground, and must ere long bear good fruit.

Dr. M. C. Furnell, in his recent excellent book on the subject expresses himself as firmly of opinion that the general method of the propagation of cholera in India is by means of specifically polluted water. While in Europe, however, nearly every outbreak of cholera has been definitely traced to the contamina-

tion of the water supply, and much has been written about it, telluric and atmospheric conditions are distantly invoked by Indian authorities. These are terms of mystery and of indefinite meaning, which unfortunately have been adopted, however, by too many government officials, who can not explain what they mean, and frequently use them as a cloak for ignorance. Dr. Furnell has had no difficulty in finding masses of facts in support of his opinions. The habits of the natives, though in direct opposition to their own laws and sacred writings, are such as tend to the most filthy pollution of the water supplied for their use. Where pure water has been supplied to the natives, as in Madras and Calcutta, and care has been taken to guard such sources of supply from pollution, cholera epidemics have become of infrequent occurrence and of greatly reduced fatality. In this opinion all the best authorities concur.

I will refer to the two great cities which are leading seats of government and most under our influence. In the paper by Dr. W. J. Simpson, medical officer of health, read at the British Medical Association in August, 1888, he gave a description of Calcutta, Howrah and the suburbs, dwelling especially on the water supply, the tanks, the drainage, the construction of the streets and houses, native and European; and the sanitary system generally. Calcutta, to the south of the native town, he stated is well built; the streets are wide and straight, the houses are large and have gardens attached; there is a liberal supply of excellent water, the drainage and cleansing are good, and that portion of the city compares favorably with the better parts of London. With a few exceptions, northern and native Calcutta is densely crowded, the streets are narrow and irregular, the drainage is bad, only the better and middle class have a fair supply of water; the poorer class have a very scanty water supply, and depend upon the water in the tanks. The native town is studded with wells and tanks. Neither Howrah with its 100,000 inhabitants, nor the suburbs of Calcutta with its 250,000 have any public water supply, with the exception of the wells and tanks. The insanitary condition of Howrah without a public water supply, and without building regulations is surpassed by the suburbs, which have no public water supply, no drainage, no building regulations, nor any effective conservancy arrangements. As a general rule, European residents in Howrah get their water from Calcutta by carriers, and they avoid the well and tank water. The personal habits of the natives are cleanly. As a religious duty they bathe at least once a day, the women more frequently, and this is done when convenient, in the river Hooghly, but generally in the tanks near their houses or huts. The tanks are thus defiled by the excretions of the body, by the washing of dirty clothes, frequently of clothes soiled by excretions of the sick, by human ordure due to the practice of children and others defecating on the banks of the tanks, and by the drainage and soakage from the surrounding huts and houses. Thus the water in the tanks except during the rainy season, varies in quality from moderately polluted up to concentrated sewage, and this is the only water supply practically available for large numbers of the native population. Dr. Simpson traces out the connection between local outbreaks of cholera and a deficient and contaminated water supply, showing that those who have an abundant and

pure water supply—namely, the European and better class of natives—escape cholera epidemics, except in isolated instances, which can generally be accounted for; while the natives who necessarily depend on the tank water, suffer severely when the tank becomes polluted by the excreta from a cholera patient. He says:

"I would particularly direct attention to this scarcity of water in the parts affected. Go almost where one may, in the northern part of the town, and especially in the riparian wards, there is the same complaint of the want of water, and a very valid one it is. It is a common occurrence to see the people grouped round one of the standposts, waiting their turn to fill their chatties, many of them to be disappointed, for the water from the standposts often comes in mere dribbles, and the supply is exhausted or turned off before half the people are supplied. Scarcity of water brings in its train a great deal of sickness apart from cholera. The districts which have suffered most from scarcity of water have suffered also from a large amount of sickness of a dysenteric character."

The natives bathe, wash their utensils and clothes in the tanks, because it is the only available place for doing so; and they use the water of the tanks, contaminated in addition by soakage and sewage for cooking and drinking, because it is the only available water supply for domestic purposes. The remedies for the condition of affairs described are simple enough but they need time, and must involve considerable expense. The first requisite is a liberal water supply for Howrah and the suburbs, and a more liberal supply for Calcutta. Few will drink polluted water if they can obtain pure water. By specially constructed tanks even the habits of the people can be so directed as to permit them to enjoy the luxury of the bath, and to perform their ablutions without danger. The second requisite is well-planned streets with free ventilation, good building arrangements, a system of drainage to pass through these streets, systematic clearing, leveling, paving and filling up ponds, draining, scavenging, removal of nuisance, and a well-organized sanitary department. The carrying out of these measures will ultimately convert Calcutta, Howrah and the suburbs containing nearly 800,000 inhabitants, into as healthy a locality as any in the world, in so far as the prevalence of diseases not due directly to a sub-tropical climate is concerned, and these measures of sanitation will change one of the most important centers in the endemic area of cholera into an area no longer marked by endemicity. Before any real progress in scientific medicine can be expected in India, the scientific branch of the medical service must be distinct from the administration, for when administrative functions preponderate, scientific research is relegated to such a subordinate position as to render it impossible to be carried out satisfactorily. A central institute is necessary, well-equipped, and having attached to it a body of men well trained in chemical, physiological, and biological methods, whose whole time should be devoted to scientific research.

I take another example from Dr. Furnell, the surgeon-general at Madras, writing in 1886, an address on cholera. For many years before the introduction of the Red Hills water supply into Madras, the number of deaths from cholera annually amounted to

hundreds, and too frequently to thousands; but from the year 1872, when the water supply was first opened, there has been a very large reduction in the mortality, one year being absolutely free from the disease, and in three others the deaths being 5, 6 and 2 respectively. Of course during the famine years there was a large increase in the fatal cases of cholera, caused by the migration into the town of many poor, half-starved creatures who had no strength left to resist the disease. But as soon as the famine was over the rate of mortality again fell to below 100 per annum; and during the last four years when there has been a severe epidemic of the disease throughout the greater part of the Madras presidency, the average number of deaths had not exceeded 250 per annum. The greater part of these deaths also, it is shown, took place in those parts of the town which had not had the benefit of the Red Hills water supply. Dr. Furnell, therefore, urges the necessity of extending the water supply to these localities. Our duty, then, lies before us; it is a grave and difficult task, but must be looked steadily in the face.

From Dr. Furnell, also, I gather that Pondicherry has a similar immunity from cholera, even while the disease is raging in the neighboring English towns of Cuddalore, Chellumbrum, etc. Pondicherry town is supplied with water by artesian wells and also from a small lake situated some distance outside the town, from whence the water is led by pipes and distributed throughout the town. It is impossible to contaminate the source of the artesian wells, and great care is taken that the other source is also protected. To this unique water supply Dr. Furnell has attributed the immunity of Pondicherry from cholera. "If it is argued," he says, "that it is more likely owing to its general cleanliness and conservancy, I answer that while all must admit Pondicherry is a clean town (in that respect an example), still I can not admit that it is so much cleaner than the neighboring town of Cuddalore, where cholera flourished with much vigor; nor can I admit the difference is owing to telluric, atmosphere or local influences, for to tell the truth these terms convey no very definite ideas to my mind, and seem rather a convenient escape from ignorance than from any scientific explanation. But why, one may ask, should a certain spot in a contaminated district thus suddenly be exempt from these mysterious influences? Its unique water supply, free from contamination, seems to me a much more common-sense explanation of the matter."

Here is another instance quoted by Dr. Furnell of the protection afforded to a community by a pure and uncontaminated water supply. It is Dr. Van Geyzel of Ganjam, who thus describes it: "The port of Gopaulpore (Ganjam district) has enjoyed a remarkable immunity from epidemic cholera under circumstances which are sometimes considered very favorable to the spread of the disease. Cholera has this year (1885) raged all over the district, from Rumbha to Chicacole, and from east to west; the villages in the neighborhood of Gopaulpore furnished not a small proportion of cases. When it is remembered that from these very villages hundreds of coolies go daily to Gopaulpore for work, and back again; that a stream of carts, about 150 on an average, keeps daily pouring into Gopaulpore from various parts of the district and out again, it goes

without saying that Gopaulpore is by no means isolated in any way, but on the contrary, it has as frequent and large a communication with the interior parts of the district as Aska or Rumbha, or even Berhampore, in all of which places it may be said that cholera is very seldom absent. During this year only three cases of cholera occurred in Gopaulpore. These cases arrived already suffering from the disease. In this way the disease has occurred, now and again, chiefly among people coming from other places, but it has not gained a foothold. The general sanitary condition of Gopaulpore, though much improved of late, is by no means what is to be desired. There is, however, one circumstance which makes Gopaulpore unique in respect of its water supply; it has absolutely no tanks whatever. There are thirty-five wells in the village for a population of 2,675 people, good, bad and indifferent. Lately some wells have been sunk by Mr. Minchin, who generously allows people to take drinking water from them, and they are freely resorted to. The immunity of Gopaulpore from epidemics of cholera while it was surrounded by infected villages with which abundant daily communication took place, as well as with other and more remote parts of the district, especially at a time when cholera was raging epidemically generally over the whole district, and the inability of the disease to establish itself, although it was imported on many occasions, point to the want of something by which the disease could be propagated and spread. In this connection the absolute absence of tanks is well worthy of note."

A further example of the influence of the water supply upon cholera in India is furnished by the 85,000 inhabitants of the city of Nagpur, the capital or chief city of the Central provinces. In 1872 that city was supplied from the "Amblaghiri reservoir." In the seven years previous to the opening of this water supply there were 1,264 deaths from cholera, while in the next seven years after that date Nagpur had only 177 deaths from that disease. It has been further remarked in Nagpur that after the opening of the water supply the cholera was limited almost exclusively to that part of the city in which impure water was still used, such as that of surface streams and open tanks.

The following interesting account of a cholera epidemic in the Salem district, in 1881, is extracted from the annual report of the sanitary commissioner of Madras for that year. It appears that by far the greater number of deaths occurred among people using the river water which is described as defiled by the filth from drains, the filth from dirty clothes, and the filth from men's bodies. It appears also that more than five-sevenths of the whole number attacked occurred among caste Hindus, people who obstinately cling to the use of this river water from religious belief. The Mussulman population almost escaped; the European and East Indian entirely; and strangest of all, the inhabitants of Kitchipolim, Chucklers, low caste people who are engaged in most filthy occupations, and who are not allowed to use the river water, also enjoyed an immunity from this dread scourge. The course of the disease is shown to have been mainly along the banks of the river, and the village of Kitchipolim, mentioned as having enjoyed an immunity from the disease, is situated well away from the river. That the use of the river water alone is not to be justly saddled as the cause

of the disease, is evidenced by the statement that the division of the town in which the inhabitants used well water instead of that of the river suffered as severely from cholera as most of the other parts of the town along the river banks. Apart from all this it is added: "The curious feature of the epidemic is its weighty incidence on children, nearly one-half of those attacked being children under 15 years of age, and fully one-half of the deaths occurring among them."

Again, in the Punjab sanitary report for 1869 Surgeon Major A. C. De Renzy called attention to the remarkable fact that the Fort of Peshawar had passed almost unscathed from the terrible epidemics which had visited that station, and that this immunity was the more remarkable because the fort was extremely unhealthy. Dr. De Renzy attributed the circumstance to the fact that the fort was supplied with water from a well which, though an extremely bad one, was more safe from choleraic contamination than the roadside gutter water so generally used in the cantonment. On visiting Peshawar in company with Dr. Cunningham a few years later Dr. De Renzy was surprised to find that the European troops in the fort had suffered with special severity and for a time he doubted the correctness of his own explanation. But casually and after some days the novelty of an epidemic in the fort became less inexplicable. It appeared that about a week before the appearance of cholera at Peshawar the medical officer of the fort seeing how bad was the fort water and how much the troops were suffering from fever, and not knowing anything of what Dr. De Renzy had written about the immunity of the fort from cholera, had recommended the supply of cantonment water, and this water was accordingly sent in casks, the distance being about two miles. The water was supposed to be taken, as ordered, from a certain good well, but it seems that in one case at least, the water carriers, to save themselves the trouble of lifting water by means of ropes and pulley blocks from a depth of 90 feet, had filled their vessels from the roadside gutters. Whether they did so or not in the case under consideration is unknown, but the fact remains that in 1872 for the first time in the history of the fort, the European troops were supplied with cantonment water, and that this was also the first occasion of their being affected with cholera. The native portion of the garrison continued to use the well water as formerly and enjoyed their former immunity from the disease.

Religious pilgrimages are a fruitful means of spreading cholera in the east. In 1866, 30,000 pilgrims died of cholera at Mecca. And here let me mention one of the customs of that pilgrimage which goes far to explain the intensity and the fearful mortality which attend any outbreak of cholera among the Meccan pilgrims. At a given period the pilgrims stand naked in turn by the holy well; a bucket of water is poured over each man; he drinks what he can of it, and the rest falls back into the well. The water of this well has been analyzed by an English chemist, Dr. Frankland; it is fearfully polluted with abominable contaminations. In 1866, within a few days of the ceremony, the road for twelve miles to the foot of Mount Ararat was thickly strewn with dead bodies.

In a report in June, 1891, Dr. W. J. Simpson, an able and energetic health officer of Calcutta, gave an

interesting account of two large pilgrimages which he personally witnessed in that year—one in the endemic area of Bengal and the other in the non-endemic area or north part of India. The first of these pilgrimages was the Ardhodaya Jog, which is held at Calcutta and other sacred places near Calcutta, at rare intervals of 27 or 28 years. The purity to be obtained by bathing in the Ganges during this festival is exceptionally great, and therefore the gathering of pilgrims at the several bathing shrines was, on its own merits, a very large one. Kalighat, where the gathering in question took place, is in the suburban area of Calcutta, on Tolly's Nulla, a small tidal creek which is held to be more sacred than the Hooghly. The Nulla can be waded across at low tide, but it is the receptacle of unspeakable filth of all kinds. After describing the insanitary arrangements of the neighborhood, Dr. Simpson remarks that "without a good water supply, or drainage, or proper means of disposal of the excreta and sullage, with crowding together of huts and houses irregularly placed, and with the filthy tidal Nulla, which is practically the sewer of the district, and with numerous polluted tanks, Kalighat, it may be surmised, is at no time a healthy spot, and at all times a danger to pilgrims." On the occasion in question at least 150,000 people came into Calcutta in the first and second week of February, and to describe the crowding which occurred in the Nulla on the festival day is difficult. Dr. Simpson performs this task very graphically by appending to his report a photograph which he himself took on the morning of February 8. The crush is seen to be very great, and it is marvelous that no accidents happened; the tide is low, and the bathers, even in mid stream, have not the water much above their knees. A collection of boats, extending as far as one can see, is so great and close together that only occasional glimpses of the water are to be obtained, and these boats are crowded with men, women and children. Dr. Simpson gives details of an outbreak of cholera which occurred among these people, as many as 51 cases appearing on February 11. The pilgrims had to be soon dispersed, and though this dispersal checked a larger outbreak at Kalighat which would have only widened its circle afterwards, it could not prevent those already infected from suffering on their way home. Consequently, at some of the principal railway stations sick people had to be taken out of the trains; passengers by boat died on their voyage, their bodies being thrown overboard; while travelers on foot were picked up dying and dead on the roads.

Dr. Simpson's description of the great Kumb festival, which occurs once in twelve years at Hurdwar, is also very graphic, and photographs taken by Dr. Simpson at the festival of 1891—copies of which I have before me—show the sacred pools and the approaches to them to be hidden by a mass of semi-naked human beings. The pollutions to which the sacred pool is exposed on these occasions are indescribable. There is not only the washing of the naked fakirs who cover themselves with wood ashes as their only clothing, and the general bathing of the pilgrims, who are not all in the cleanest of clothes—several, moreover, on the occasion in question being seen bathing with skin diseases upon them—but the ashes of deceased relatives, enclosed in little red bags, are brought from the different homes of

the pilgrims and thrown into the pool. Can it be wondered at that, when cholera cases have been among the pilgrims, disease and death should have spread broadcast?

Reverting again to the sanitary administrations of India and the difficulties to be encountered, I fully recognize that very much has been done in the way of sanitary reform under English rule. This was shown by Surgeon General Sir W. Moore, in an interesting paper read by him before the International Congress of Hygiene, which met in London in 1891; but at the same congress the authors of numerous other papers showed the amount of sanitary work still urgently waiting to be done in India. One and all of those authors placed the need for better water as the most pressing want throughout India, especially in the villages, which contain 95 per cent. of the people of India.

Greater energy and more systematic administration are much needed in regard to the sanitation of India, and England's imperial responsibilities in this matter are very heavy, not only to the native races under her protection, but to civilization at large. At the International Hygienic Congress in Vienna, the remark was constantly made, "You English have by your sanitary improvements prevented cholera from gaining a foothold in England; why do you not attack it in its birthplace, and prevent it from springing into life in India?" And the same question has more recently been asked by Dr. Talafus of Tiflis, and by M. Monod, the director of the public health department of the French Ministry of the interior, in his work on Cholera in Finistère. We may well closely question ourselves why we have not succeeded in carrying further than we have done the great work of improving the sanitary circumstances of Indian populations. It has not been, as Sir Douglas Galton has pointed out, for want of knowledge. The following scheme for a new public health service for India has been drawn up by an eminent medical officer in India, who has himself long been engaged in sanitary work and organization. I commend it as a useful suggestion to our Indian government:

1. An imperial sanitary department attached to the government of India.

2. A provincial sanitary department attached to each of the provincial governments, such as Bengal, N. W. Provinces, Punjab, Madras, Bombay, Central Provinces, etc.

3. A local sanitary department attached to each municipality, district board, etc.

1. The imperial sanitary department should be administrative and scientific, and quite distinct from the sanitary department of the army. It should consist of: 1, the sanitary commissioner with the government of India; 2, deputy sanitary commissioner; 3, a medical statist; 4, veterinary commissioner; 5, sanitary engineer; 6, a minister of health, having a seat in viceroy's council as president. Scientific agents: Laboratory with trained experts. Duties: The advising of the viceroy and council on important health matters, either initiated by the imperial sanitary department or referred to it by the local governments; the collection and publication of information as to epidemic disease existing in India and in other countries; the right of asking from provincial governments what they propose to do or have done in checking or inquiring into diseases

affecting man, animals or agriculture in their provinces; the arranging that all administration reports shall be drawn up on a uniform plan for ready reference; the acquiring of all information regarding the movements of pilgrims, coolies and emigrants, and the advising the provincial government, and requiring the latter to take proper precautions; the consideration of new sanitary laws, etc.

2. Provincial department, to consist of the following sanitary officers appointed by the local government: 1, sanitary commissioner; 2, assistant sanitary commissioner; 3, sanitary engineer; 4, a president, who should be a high officer in the civil service. Traveling agents: Deputy sanitary commissioners or inspectors, veterinary surgeons, deputy sanitary engineers, as may be required. Scientific agents: Trained professors and assistants in government laboratory for bacteriological, chemical, agricultural work, etc., and general sanitary investigations requiring to be done in laboratory. Duties: To control local authorities; to institute special investigations at any particular spot on any particular subject; to make by-laws and amend sanitary laws; to investigate diseases of men and animals, and study agricultural pests, etc.; to analyze waters, etc.

3. Local sanitary departments, to consist of municipal commissioners or district magistrates, with civil surgeon when obtainable. Executive agents: A health officer, attached for one or more towns; an engineer in similar position, and a sanitary staff for each place as required. Duties: Conservancy, water supply, building regulations, drainage, registration of births and deaths, vaccination, stamping out of infectious disease and informing provincial authority by weekly reports as to prevalence of cholera, small-pox or other dangerous disease.

ADDRESS ON STATE MEDICINE.

Delivered before the American Medical Association at the Forty-fourth annual meeting held at Milwaukee, June, 1893.

BY WALTER WYMAN, A.M., M.D.

SUPERVISING SURGEON-GENERAL OF UNITED STATES MARINE HOSPITAL SERVICE.

THE EXTINCTION OF CONTAGIOUS DISEASES.

Mr. President, Ladies and Gentlemen:—Is the idea utopian or has the time come in the history of the world when it should be considered a rational thought, worthy of serious contemplation? When a standard so lofty as this should be raised, and around it gather physicians, sanitarians and philanthropists fully determined upon a great struggle and animated by a reasonable confidence in ultimate success?

Concerning the great epidemic diseases, encouragement may be found both by a reasoning from analogy, in the study of their respective histories, and in the contemplation of modern knowledge and methods.

The history of the world shows us that whole races of men and other animals have become extinct. Why should not races of microbes become extinct? And certain diseases that once ravished the earth in epidemic form have so lost their inherent strength or have been so controlled in the latter part of the nineteenth century as to warrant the belief that their histories are closed, or fast closing. The plague of Athens and the plague of the second century are unknown at the present time; and the terrible black death of the fourteenth century it is unreasonable to

suppose can ever again sweep from the face of the earth 25,000,000 of its inhabitants within a century.

The terrible bubonic plague since the introduction of quarantine, crude though the first quarantines were, has gradually receded from Europe, its last appearance on European soil being in 1878 when the Russian government by means of military cordons and destruction of infected villages by fire succeeded in stamping it out. Though it still occurs in Asia it may never again obtain a serious foothold in Europe because of more perfect quarantine and improved sanitation.

With regard to yellow fever the *great* period of its history was from 1732 to 1805. Formerly it was of common occurrence in Europe, the ports of Spain in particular suffering severely between 1801 and 1825, but there has been no disastrous epidemic of this disease in Europe since that of Lisbon in 1857, thirty-six years ago.

Its earlier history in this country includes invasion not only of the South, but of parts as far north as Pennsylvania, New Jersey, New York and even New Hampshire. But to-day, though constant vigilance against its introduction is necessary, it has practically vanished from the ports of the United States.

Formerly epidemics of this disease were so frequent in the city of New Orleans that the belief became quite prevalent that it was natural to the soil, but under the excellent quarantine service, and the modern quarantine appliances of the Louisiana State Board of Health, there is now a record of fourteen years' exemption from this dreaded pestilence. The last epidemic in the United States was that in Florida in 1888, when, by reason of intelligent restraints, it was prevented from spreading to other States. Since that date an efficient State Board of Health for Florida has been established, and under its vigorous management the disease has been barred out. Even in the West Indies some ports formerly affected are now exempt and with careful sanitation and sanitary engineering all might be freed, and this dread disease become as certainly a matter of history only, as the African slave trade with which it was intimately associated. In South America, Rio Janeiro is its principal breeding place, but the disease was unknown there until 1849. Why should it not again become unknown?

Since the discovery of vaccination by Jenner in 1796 small-pox, though still a stubborn foe, no longer devastates without restraint. It is now simply a matter of choice whether one shall be made absolutely proof against this disease, and the good effects of a compulsory law regarding vaccination are seen in the statistics of Prussia, in which country for six years prior to the enforcement of vaccination the deaths from small-pox averaged 85 per 100,000 of the inhabitants, while from 1875 to 1886, after the law came into force, the yearly average was but 2 per 100,000.

Typhus fever flourishes to-day in certain parts of Mexico, and is occasionally reported from the old world. It is always a menace where large numbers of people are crowded together with unsanitary surroundings. But it has no permanent lodgment in the United States, and the energetic and successful measures instituted by the Board of Health of New York during the past winter to suppress this disease, although it appeared in a section of the city more densely populated than that of any other city

in the world, is a striking example of what may be accomplished by proper law, energetic execution and scientific disinfection.

The Japanese have recently illustrated how a disease, commonly thought to be infectious, may be eliminated by scientific investigation and the application of a proper remedy. Prior to 1884, beriberi was the scourge of the Japanese navy. During a period of six years prior to 1884 there were 9,516 cases reported, while for a second period of six years, from 1884 to 1889 inclusive, there were but 765 cases, of which 718 occurred in 1884, which was the year in which the remedy, relating to a change in the character of the food furnished, was applied. In 1887 there was not a single case reported in the entire navy of 9,000 men; and the *New York Medical Record* aptly remarks that "this is one of the great victories of science, and lends good grounds to the hope that beriberi may before long become a rare or even unknown disease in the Mikado's dominions."

With regard to cholera, which is still an ever threatening menace, the history of the past few years has demonstrated most clearly its relation to filth and to contaminated food and water, both of which conditions require only the peculiar energy and love of cleanliness characteristic of the Anglo-Saxon race. In recent years the superior sanitation of England and the more perfect quarantine surveillance of the United States have served to protect these two nations from this exotic disease.

One possible agency in the elimination of these diseases, still young as a science but not without promise, is protective inoculation. Whatever opinion may be held of Freire's inoculations for yellow fever and Kitissato's and Haifkine's inoculations for cholera, the investigations of these and other bacteriologists in this particular field warrant the hope that results will be attained equal in efficiency to vaccination for variola. But be this as it may, the nature of these diseases is now so well known that they no longer strike terror in the hearts of those whose duty it is to meet and combat them, and never before has human agency had within its grasp the weapons known to be efficient in preventing their spread. The terra incognita no longer exists, and we have but to provide ourselves with the weapons, and manifest the energy to wield them, to combat successfully these microbial armies hostile to human life. As to the *United States* the time is at hand when we may expect that no more shall cholera, typhus, yellow fever or small-pox prevail in epidemic form. Never before have our ports been provided, as now, with protective armaments; the ordinance, so to speak, of sanitary defense. The great power of steam has been invoked, and along the coast from Portland, Maine, to Port Townsend, Washington, where ten years ago not a single port was provided with a steam disinfecting chamber, there are now twenty-three ports with steam chambers in actual operation or in course of construction. These ports are: Portland, Boston, New York, Sandy Hook, Delaware Breakwater, Reedy Island in the Delaware River, Cape Charles, Baltimore, Wilmington, N. C., Savannah, Blackbeard Island, Ga., Charleston, Dry Tortugas, Key West, Mullet Keys, Pensacola, Mobile, Chandeleur Islands, New Orleans, Galveston, San Diego, San Francisco and Port Townsend; of these ten are national quarantine stations.

In support of the quarantine plants are laws both

national and State, that are sufficient; but should perchance contagion pass this line, it meets with forces ready to prevent its spread. State boards of health have increased in number and in power. There are now thirty-seven, and at their recent conference in New York City, the reports revealed not only their zeal and activity, but an increase in the legal power and pecuniary resources of many, brought about by their own efforts within the past year. In States that have no board of health, or for other reasons fail to execute such regulations as are necessary to prevent the spread of epidemic disease into adjoining States, the government, in the interest of all, under the act of Congress of February 15, 1893, must undertake to enforce them.

QUARANTINE LAW AND REGULATION.

It will be germane to the subject and may be of particular interest at this time, to give a resume of the measures which have been taken by the national government under the act referred to. This act, approved February 15, 1893, is entitled "An Act granting additional quarantine powers and imposing additional duties upon the Marine Hospital Service." Stripped of its legal verbiage it provides, first, that no vessel shall enter a port of the United States from a foreign port without a bill of health, signed by the United States consul, or a medical officer of the United States government; and provides a penalty of \$5,000 to be imposed on any vessel coming into American waters without such bill of health. Furthermore, the vessel shall not be admitted to entry except in accordance with other provisions of the act, and with such regulations of State and municipal authorities as may be made consistently therewith; and before being permitted to enter or discharge its cargo or land its passengers a certificate must be obtained from the health officer at the quarantine station, certifying that the rules and regulations have in all respects been complied with, both on his part and on the part of said vessel and its master. This bill of health and the quarantine certificate are to be delivered to the collector of customs.

The secretary of the treasury is directed to make rules and regulations to be observed by vessels at ports of departure and on the voyage, and the president may detail a medical officer of the government to serve in the office of the consul at any foreign port for the purpose of making the necessary inspection of vessels, to see that the regulations are complied with, to sign the bills of health and to furnish information.

Consular officers are required to be notified by the secretary of the treasury of the regulations made with regard to vessels, cargoes, passengers and crew at ports of departure and on the voyage; and of the regulations also to be observed in the inspection and treatment of vessels on arrival at ports of destination in the United States. The supervising surgeon general of the marine hospital service is required to examine the quarantine regulations of all State and municipal boards of health, and at ports or places which are found to have no quarantine regulations under State or municipal authority, where such regulations are, in the opinion of the secretary of the treasury, necessary, and at ports or places where State or municipal regulations exist, which, in the opinion of the secretary are not efficient, the secretary is empowered to make additional

rules which after being promulgated, are to be enforced by the sanitary authorities of the States and municipalities if they will undertake to execute and enforce them, but if said authorities refuse or fail, the president shall adopt such measures as are necessary to their enforcement.

The law further specifies that it shall be the duty of the supervising surgeon general of the marine hospital service, under the direction of the secretary of the treasury to perform all the duties in respect to quarantine and quarantine regulations which are provided for by this act.

It further provides that information shall be obtained of the sanitary condition of foreign ports and places through the consular officers of the United States; that weekly reports shall be obtained of the sanitary conditions of ports and places within the United States, and for the collection of such other information affecting climatic and other conditions of the public health as may be pertinent. Weekly extracts of the consular and other sanitary reports are to be prepared and published, and transmitted to the collectors of customs, State and municipal health officers and other sanitarians. The law further permits the secretary of the treasury to remand an infected vessel from any port, which is not provided with proper facilities, to the nearest national or other quarantine station, and after treatment at a national quarantine station, with a certificate furnished by the United States quarantine officer, a vessel shall be admitted to entry at any port of the United States named in the certificate. But at ports where sufficient quarantine provision has been made by State or local authorities, the secretary of the treasury may direct vessels bound to said ports to undergo quarantine at said State or local station.

An important section of this act is that which gives the president the right to prohibit in whole or in part the introduction of persons and property from such countries or places as he shall designate, and for such period of time as he may deem necessary, whenever by reason of existence of cholera or other infectious or contagious disease in a foreign country there is serious danger of the introduction of the same into the United States, despite the quarantine defenses.

Provision is also made that if a State wishes to surrender the use of its quarantine buildings and disinfecting apparatus to the United States, the secretary of the treasury is authorized to receive them and pay a reasonable compensation to the State for their use.

The first step under this new law was the framing of regulations for vessels at foreign ports. To assist in this duty a board of medical officers of the marine hospital service was convened, and the regulations framed were approved by the secretary of the treasury February 24, and duly promulgated. These regulations prescribe the form of the bill of health; the definition of an infected port; what vessels shall be inspected before the bill of health is granted; the time and method of making the inspection, with all necessary details for the enforcement of cleanliness and perfect sanitation including disinfection, and relating both to the vessel itself and the cargo, crew and the passengers, both steerage and cabin. In ports infected with cholera, passengers of the cabin class must produce evidence as to abode during the

four days immediately preceding embarkation, and if necessary they and their baggage may be detained and the baggage subjected to such disinfection as is necessary. Steerage passengers in a cholera infected port, or from a cholera infected place must be detained five days under medical observation, and their personal effects and baggage must be disinfected by steam. The regulations further forbid the shipment of certain articles of bedding and clothing from an infected port, also certain articles of merchandise, such as old rags, old jute and old gunny, during the prevalence of an epidemic and for thirty days after it has been officially declared at an end. All rags at all times are to be disinfected before shipment to the United States.

Under the law these regulations are to be enforced at foreign ports, either by United States consuls, or by medical officers of the United States government, when said medical officers have been detailed by the president for that purpose.

An examination of the records shows that the chief ports of embarkation of the immigrants most liable to bring contagion are as follows:

Southampton, Liverpool, Hamburg, Bremen, Rotterdam, Amsterdam, Antwerp, Havre, Marseilles, Genoa and Naples. Accordingly a medical officer of the marine hospital service has been detailed by the president to serve in the office of the consul at each of the ports named. These officers have all had experience with ships, and with but two exceptions have had actual quarantine experience. They have been at their respective stations now for a period of two months, and their reports show both the necessity of their presence and the good results of their activity. This is a new departure in quarantine—quarantining in foreign lands—and the ultimate result may be looked for with great interest. Whatever the result may be, certain it is that the presence of these officers in European ports has diminished in a great degree the danger of introduction of cholera and other diseases from those ports. Their relations in one or two instances with the foreign governments were in danger of being strained, but this danger has been averted both by their tact and good judgment, and because of the all powerful United States law, which practically says to foreign officials that should they object to the official acts of these officers, the alternative is the refusal of the bill of health and the cutting off of all commerce between their ports and the United States.

For securing uniformity of action among these medical officers, and that the bureau may be informed as to any special difficulties in enforcing the regulations, an inspecting medical officer is now under detail, visiting each of these ports for the purpose named.

To aid these medical officers and the consuls in the performance of their duty a letter of instruction has been issued by the State department, addressed particularly to United States consuls at interior places in Europe and Asia, directing that when merchandise or immigrants are about to leave or have left, any action within their respective consulates where cholera prevails, they shall notify by telegraph the United States consul or medical officer at the seaport selected for embarkation that the officer may be prepared to enforce the detention and disinfection required.

On May 4 a circular was issued to consuls and

medical officers, requiring all baggage of immigrants coming from any port to the United States to bear a label certifying to either inspection or disinfection. Furthermore, each immigrant is to be furnished with an inspection card giving his name, last residence, name of ship, port and date of departure and a reference number relating to the manifest which is required by the immigration regulations, and in which is contained much information regarding each immigrant. This card is to bear the stamp of the consulate. It is also to be stamped or punched at the quarantine at the port of arrival, and again at the immigration depot, and it is to be held by the immigrant until he reaches his point of destination. These inspection tickets, and the labels upon the baggage will furnish to the health officers of the interior States information which they have much desired with regard to immigrants coming within their borders. These provisions also insure care and accuracy on the part of medical officers and particularly on the part of United States consuls at ports where immigrants do not usually embark for the United States, but which may be sought by them in the hope of avoiding the enforcement of the stringent rules at ports where medical officers have been stationed.

For the vessel on the voyage certain rules have been promulgated relating to inspection and sanitation, isolation of the sick and requiring a clinical history by the ship surgeon of all cases of sickness to be delivered to the quarantine officer at the port of arrival.

Having thus detailed the precautionary measures set in operation abroad, I will now narrate briefly those which have been taken on this side of the Atlantic.

First I may refer to the danger which, for some time, seemed to be imminent by reason of immigration through Canada. The Canadian laws do not provide for the inspection and sanitation of ships and passengers at foreign ports, and it was feared on this account, there would be a large deflection of immigration to Canada. But owing to the public spirited policy of the Canadian government, and the energy and efficiency of the chief quarantine officer, Dr. Montozambert, the danger of introduction of cholera through Canada has been reduced to the lowest possible degree short of prohibition of immigration. All immigration into Canada is now via the St. Lawrence river. Forty miles below Quebec is stationed the Grosse Isle quarantine station, with perfect apparatus for scientific disinfection and accommodations for the sick and suspects. This station is reserved for infected vessels. Further up the river at Quebec, is the Louise Embankment, where is located a complete disinfecting plant; while at Point Levis, directly opposite, is located another. All immigrants, whether from infected or non-infected countries and though coming on non-infected vessels are obliged to undergo inspection at one of these two points, and all their baggage is disinfected by steam, the containers being washed with a solution of mercury. The disinfection is not one in name; but is thorough and complete. The Canadian government has very courteously assented to allow representatives of the marine hospital service, two in number, to be stationed at Quebec for the purpose of inspecting the disinfection and labeling the baggage and giving certificates to immigrants bound for the United States.

It was feared at one time that Halifax would be a point of danger during the present season. Halifax is the winter port of entry for Canada, and it was proposed to continue the landing of immigrants there through the summer, but the steamship agents were informed that the quarantine plant at Halifax is insufficient; and therefore immigrants arriving there and seeking entrance into the United States through Canada would be subjected at the border to every possible delay through inspection and disinfection by the United States officers, or perhaps be turned back into Canada. Assurances were thereupon given that no immigrants will be carried to Halifax.

Thus it would seem that protection against the introduction of cholera through Canada is as complete as it can be made.

With regard to the quarantine and maritime ports in the United States it will be remembered that the new law provided that an examination should be made of all State and local regulations, and if any were found insufficient, the secretary of the treasury should make additional ones. In accordance with this provision a request was sent to all quarantine authorities to transmit their rules and regulations to the marine hospital bureau. A general response followed, and after examination it was evident that to determine upon the sufficiency of all, a minimum standard must be established embodying what should be required of every quarantine station in the United States.

(To be continued.)

SOCIETY PROCEEDINGS.

American Surgical Association.

Buffalo, N. Y., May 30 to June 1, 1893.

(Concluded from page 670, Vol. XXI.)

Dr. Chas. B. Nanerode of Ann Arbor, thought that there was no danger of hemorrhage in the clamp and cautery method provided it was done properly, and the tissue not burnt off rapidly. He had never seen primary or secondary hemorrhage from it.

Dr. A. G. Gerster of New York, said that hemorrhage never occurred with the clamp and cautery method, provided the cautery was properly applied and not too much heat employed.

In the Whitehead or Lange operation profuse hemorrhage does not occur unless the incision is carried in too far. It should bug closely the inner margin of the sphincter, and the mucous membrane should be stripped off without the use of the knife. In the final transverse division of the mucous membrane a small portion only should be cut at a time, and this secured by suture before another portion is cut.

Dr. Roswell Park of Buffalo, exhibited anatomical specimens illustrating a method of preparation. Preparations of joints were shown made thirteen years ago, in which the joints were still movable, although they had been exposed to the air.

REPORT OF AN ATTEMPTED BLOODLESS OPERATION FOR MALIGNANT POLYPUS SPRINGING FROM THE BASE OF THE SKULL.

by Dr. Roswell Park of Buffalo.

The case was one of rapidly growing malignant tumor completely filling the pharynx, in which operation was attempted at the patient's request. In order to lessen danger from hemorrhage, he adopted the method suggested by Senn of isolating the trachea and passing a rubber tourniquet around the balance of the neck. While there was no

arterial hemorrhage, there was excessive venous bleeding. The jaw was resected and the malignant material removed. During the operation, respiration ceased and efforts at resuscitation were required for five or six minutes before the operation could be completed. The patient left the table in apparently good condition, but died the next morning from shock, there having been no bleeding.

The following were elected as the officers for the ensuing year:

President, Dr. J. Ewing Mears of Philadelphia; first vice-president, Dr. Roswell Park of Buffalo; second vice-president, Dr. Lewis S. Pilecher of Brooklyn; secretary, Dr. J. R. Weit of Richmond, Ind.; treasurer, Dr. John B. Roberts of Philadelphia; recorder, Dr. De Forest Willard of Philadelphia; member of council, Dr. J. Collins Warren of Boston; chairman of committee of arrangements, Dr. L. M. Lane Tiffany, Baltimore.

The following were elected to membership:

Drs. H. S. Burrell of Boston; Perry H. Millard of St. Paul; Albert B. Miles of New Orleans; Samuel J. Mixer of Boston; John W. Elliott of Boston; John Parmenter of Buffalo; J. McF. Gaston of Atlanta.

To honorary membership, Prof. Carl Gusenhauer of Prague.

THURSDAY MORNING SESSION.

The first paper, read by Dr. J. William White of Philadelphia, was entitled

THE PRESENT POSITION OF THE SURGERY OF THE PROSTATE.

In regard to the nature of the prostatic enlargement it was held that the prostate gland was a part of the sexual apparatus and not chiefly an accessory organ of micturition, and that the growth or growths which make up the enlargement are analogous to the fibromyomata so frequently found in the uterus.

The changes in the bladder are due to the mechanical obstruction, the circulatory disturbance produced by pressure on the prostatic veins and to septic infection.

The symptoms of prostatic enlargement were discussed at length. In regard to treatment, purely expectant treatment is proper only where the enlargement has produced no symptoms and catheterization is easy and shows no residual urine. Ergot is the only drug that offers any prospect of usefulness, but it is far from demonstrated that it has any destined effect. Palliative treatment consisting in the systematic use of steel sounds for dilatation and the employment of the catheter is of great value in a large number of cases.

The following operative measure discussed: Overstretching of the prostatic urethra. This is not likely to be followed by good results in cases where the median lobe and the vesical neck are chiefly involved. In lateral hypertrophy where the urethra is simply narrowed it may be of use; 2. Perineal prostatectomy should be regarded as that of choice in cases in which with marked diminution of the expulsive force, and with cystitis there are evidences of widespread degenerative disease or of distinct renal disease, toxæmia and general feebleness; 3. Perineal prostatectomy, where the growth can be reached by the finger and is of small size or pedunculated perineal prostatectomy can always be converted into a prostatectomy; 4. Suprapubic prostatectomy is the operation to be preferred in those cases in which palliative treatment having failed there are unmistakable indications that the local conditions are worse, the general health remaining unaffected.

In conclusion, the speaker said that some time ago the thought occurred to him that possibly if the analogy between uterine fibromyomata and prostatic growth was a real one, castration might have the same effect upon the

latter that oophorectomy does upon the former. At this time he had not read of the alleged prostatic hypertrophy in eunuchs, geldings, etc. He instituted a series of experiments on dogs to determine the effect of castration on the size of the prostate. It was found that the average weight of the prostate in dogs was 35.3 grams. The dogs were killed at varying intervals after the operation, the longest period being seventy-two days, and in all there was a marked diminution in the weight of the prostate, the gland varying in weight from 2.5 grams to 5.5 grams according to the weight of the animal and the period at which it was killed.

The author did not wish to be understood as advocating the measures which these studies would indicate. He simply presented the subject as a line of thought which had occupied his mind at odd times in order to have the criticism of the Association. As regards the employment of castration as a therapeutic measure in prostatic hypertrophy, the final answer must be left with the patient. If the time comes when we can promise equivalent results to those obtained by oophorectomy in uterine fibroids, there will probably be no lack of cases willing to submit to the operation.

Dr. Roswell Park of Buffalo, read a paper entitled

THE IMPORTANCE TO THE SURGEON OF THE BACILLUS COLI COMMUNIS.

The literature relating to the colon bacillus was thoroughly reviewed and evidence presented showing that this organism which is constantly present in the intestinal canal is not always a harmless inhabitant, but becomes at times an active invader, and does not confine itself to the intestinal mucosa where it may set up most active desquamative lesions, but may pass this barrier and penetrate into the general circulation and exercise pernicious activity in numerous other organs and toxic effects upon the system at large.

Herniary cholera so-called, is due to intoxication from the products furnished by the organisms in a virulent condition. From the intestinal canal the colon bacillus may ascend along the biliary passage determining lesions in the gall bladder or liver. It is known to be one of the frequent factors in peritonitis of intestinal origin. In the kidneys as well as in the bladder the colon bacillus may exert pathogenic and pyogenic properties. The organisms may be introduced from without as upon a catheter or may be transferred from their normal habitat by some traumatism of the natural channels. The endocardium, the meninges, the pleura, articular serous membranes and the lungs are at times not exempt from the manifestation of its activity. It is probable that there is a form of post operative septicemia due in no direct way to the operator or operation, but is in fact what it has often been called, an entero-sepsis, and due to the migration from the intestinal canal of the colon bacillus. Constant attention to the intestinal canal should therefore be the watchword of the surgeon both before and after operation.

The author reported six cases from his own practice in which the colon bacillus was found, and in some instances it was the only organism present. The cases were as follows: 1. Cancer of intestine with abscess; 2. Recurrent peri-appendicular abscess; 3. Acute abscess of the liver; 4. Gangrenous appendicitis; 5. Acute appendicitis, with perforation and obstruction of the bowels; 6. Cholecystitis suppurative.

Dr. James M. Barton of Philadelphia, presented a paper entitled

WHEN SHALL WE REMOVE THE VERMIFORM APPENDIX?

Surgeons still differ on this subject, but they are proba-

bly removing the appendix less frequently than formerly. The author had been less fortunate in those cases where he had removed the appendix, so that now in those cases where there is a circumscribed abscess with no general peritonitis and no symptoms of intestinal obstruction, he does not search for or remove the appendix. In nine cases of abscess of the vermiform appendix operated on last year, and when the appendix was not removed, all recovered. In this class of cases portions of the appendix have already sloughed away and the opening into the bowel is firmly closed, and there is little danger of fecal matter making its exit through the appendix.

By not searching for the appendix, the time of operation is much lessened and the loss of blood is not so great. The drainage tube and gauze keep their places better when the walls of the abscess cavity are unbroken.

The two most fatal complications after operation are septic peritonitis and obstruction of the bowels. There is of course less danger of peritonitis if the adhesions are not broken down. When there is obstruction, if the obstructing portion of bowel can be identified, it should be liberated. If it can not be, after the abscess cavity has been disinfected, all adhesions should be separated. In this case the appendix should be removed. If there is no obstruction and the adhesions are separated, they may unite in such a way as to cause obstruction.

The following conclusions were presented:

1. An unruptured appendix, distended and discolored should be removed.
2. When rupture of the appendix into the general peritoneal cavity has occurred, the appendix should be removed and the abdomen flushed.
3. When a localized abscess that has existed for some days or weeks has ruptured into the general peritoneal cavity, the appendix should be removed and the abdomen flushed.
4. When adhesions to the abdominal wall have formed, open the abscess and drain, being careful not to break the adhesions that separate the abscess cavity from the general peritoneal cavity. The appendix should not be searched for nor removed.
5. When symptoms of obstruction are present empty the abscess, with the general peritoneal cavity well protected with gauze; disinfect the abscess cavity, then examine for the adhesion causing the obstruction, and if able to identify it, separate those adhesions only. If it can not be identified then separate all adhesions and remove the appendix.

When abscess has formed and there is no general peritonitis or symptoms of obstruction open the abdomen, protect the general peritoneal cavity with gauze. Then open the abscess and drain; do not search for nor remove the appendix.

The following papers were read by title:

Cystic Growth Within the Internal Condyle of the Femur, by Dr. Thomas G. Morton, and Dr. William Hunt.

Gun-shot Wounds of the Intestines. Report of thirteen cases, by Dr. Albert D. Miles, New Orleans.

Dislocation and Injuries of the Semi-lunar Cartilages, by Dr. S. J. Mixter, Boston.

Report of Cases of Anthrax, by Dr. H. L. Burrell, Boston. Lymphangitis Accompanied with Blood Poisoning and followed by Multiple Abscess, by Dr. J. McFadden Gaston, New Orleans.

Clinical and Medico-Legal Observations in Certain Forms of Spinal Injury, by Dr. Perry H. Millard, St. Paul.

A Series of Operations on the Elbow, by Dr. J. S. Wight, Brooklyn.

The Association then adjourned to meet in Washington the first Tuesday of May, 1894.

THE

Journal of the American Medical Association

PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE \$7.00

SINGLE COPIES 10 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 68 WABASH AVE., CHICAGO, ILLINOIS.

All members of the Association should send their Annual Dues to the
Treasurer, RICHARD J. DUNGLISON, M.D., Lock Box 1274, Philadelphia, Pa.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Dunglison, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues and subscription for THE JOURNAL. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

SATURDAY, JULY 1, 1893.

INSTRUCTION IN PSYCHIATRY IN AMERICAN MEDICAL COLLEGES.

At the recent meeting of the Medico-Psychological Association in this city a paper was read on the subject of psychological instruction in American medical colleges. The writer followed the statistical method and as a result of his inquiries he reported that between sixty and seventy medical colleges now possessed chairs on psychiatry or mental diseases in some form or another and that this showed a large increase over any former figures.

The value of psychiatric instruction could not, of course, be estimated by this method. The reports received by the writer of the paper were naturally from all schools of medicine, and doubtless included some of the worst or poorest as well as some of the best institutions. One thing, however, may be accepted as a fact—that is, however gratifying the recognition of the fact that some instruction in this regard is or should be a necessary part of any medical education, the opportunities for affording this instruction in any adequate manner are far from being equal in the different localities. Mere oral instruction by lecturers has only a little advantage over the reading of text books, and clinical faculties are not everywhere available and when they are to be had are too seldom properly utilized. From the necessities of the case asylums are commonly located inconveniently for clinics and an occasional walk through their wards affords only a very imperfect notion of the realities of mental disease. Students are not likely in any large numbers, to make expensive excursions into the country at such frequent intervals as would be required to furnish them with any correct notions of insanity from actual clinical experience. Asylums or hospitals for the insane do not moreover promise attractive internships, certainly not as compared with the advantages of such positions in general hospitals. It is only

when the institutions for the insane are located in the great medical centers or are in their immediate vicinity so as to be readily accessible without too great expense of time or money, that they can be profitably utilized for clinical instruction. When all these conditions are met it too often happens that owing to unenlightened public opinion and indifference or hostility of officials they are altogether unavailable for the purpose. It would be easy to count on one's fingers the localities where proper clinical instruction is possible and it would be hard, we venture to say, to name half a dozen of these where all the advantages are fully utilized. The condition of affairs is not, therefore, one that justifies any too much complacency.

One point that seemed to give satisfaction to the reporter on the subject was the increasing number of superintendents filling these chairs. This ought to be an encouraging feature of the case, but in view of the methods of appointing these officials in some parts of the country our satisfaction must here also be a somewhat qualified one.

There is no place in the country where better opportunities for clinical instruction in mental disease are afforded than in the detention hospital in Chicago, were it in the hands of a properly qualified and skilled clinician who could act as chief of clinic, and who could direct the institution. The patients could be utilized with all due regard to their sensibilities and those of their friends and there should be no more difficulty than there is in conducting the clinics of the general hospital to which it is attached. At the present it is largely a wasted opportunity.

It may be some consolation to believe that the advantages for clinical instruction in psychiatry are limited in the same way in other countries. This, however, ought not to induce any undue satisfaction over the condition of things here.

CONSTITUTIONALITY OF GIVING EXAMINERS SUPERVISION OVER MEDICAL COLLEGES.

In Iowa there is a statute, as in many another State requiring that every person practicing medicine, surgery, or obstetrics within the State, shall first procure a certificate from the board of medical examiners of his right to do so; and, which, after providing that graduates in medicine desiring such certificates shall present his or her diploma to the State board of examiners for verification as to its genuineness, provides as follows: If the diploma is found genuine, and is issued by a medical school legally organized and in good standing, of which the State board of examiners shall determine, and if the person presenting and claiming such diploma be the person to whom the same was originally granted, then, the State board of examiners shall issue its certificate to that effect, signed by not less than five

physicians thereof, representing one or more physicians of the schools on the board, and such certificate shall be conclusive as to the right of the lawful holder to practice medicine, surgery and obstetrics within the State. This was claimed to be in violation of a provision of the constitution that all laws of a general nature shall have a uniform operation; and the general assembly of the State shall not grant to any citizen or class of citizens, privileges or immunities which, upon the same terms, shall not equally belong to all citizens; and, providing further, that no corporation shall be created by special laws, but the general assembly shall provide by general laws for the organization of all corporations to be created. But these laws are general and uniform, not because they operate upon every person in the State, for they do not, but because every person who is brought within the relation and circumstances provided for, is affected by the law. They are general and uniform in their operation upon all persons in the like situation, and the fact of their being general and uniform is not affected by the number of persons within the scope of their operation. The statute under consideration is clearly within this rule "because every person who is brought within the relations and circumstances provided for is affected by the law." It is uniform in its operation "upon all persons in the like situation," and grants no privileges or immunities that do not equally belong to all citizens. So holds the Supreme Court of Iowa in the case of the Iowa Eclectic Medical College Association v. Schrader, (55 N. W. Rep. 24). The State board is not a corporate body, but a branch of the government. The authority to refuse certificates to graduates of medical schools not in good standing does not extend special privileges or immunities to other schools that are determined to be in good standing. True, no appeal has been provided for, but the students of a school which has not been determined to be in good standing, in common with all other persons, have the right to go before the board and be examined, without regard to diploma, and, if found to have the requisite qualifications to receive a certificate. The board acts under the restraints of law that require proper inquiry into the matters to be determined, and it may not be presumed that the board will act arbitrarily and without investigation. The board can not arbitrarily determine whether a school is in good standing. If it does, its action is illegal. Consequently after the board has recognized a school as in good standing, it can not afterwards refuse to issue certificates to a graduate of such school until its standing shall have been re-determined. Neither is it legal for it, when charges are preferred against a recognized college, by a stranger, in May, to refuse it recognition and adjourn until November, leaving it in doubt in the

mind of the public whether or not the school and its graduates are in good standing. Such action is illegal as reversing a former action of the board without any investigation and without sufficient cause. This is not to say that the board is concluded, by having once determined that a school is in good standing, from thereafter determining differently, but only that it has no power to do so arbitrarily and without investigation. Nor is it to say that such inquiries must be attended with the formality of a trial in court, but the determination must be based upon inquiry and facts, and not upon the mere arbitrary will of the board. The standing of a school, as contemplated in the statute, is rather what the school is, in respect to the thoroughness of its course, then what it may be reputed to be. The board is fully authorized to determine, upon proper investigation, that a school is not in good standing that does not meet the minimum requirements as to extent and thoroughness of its course. While the graduation of an unusual per cent. may be ground for closer scrutiny, it may well be questioned whether the board may arbitrarily say that but forty-five per cent. shall be permitted to graduate. Much was said in argument about the composition of the board as to the different schools of medicine, but as the statute does not require that the different schools shall be represented on the board its composition can not affect its jurisdiction, or the legality of its acts in the respect under consideration.

THE DECREASING BIRTH RATE.

DR. J. S. BILLINGS contributes to the June issue of the *Forum* a brief but suggestive article on the decrease of the birth rate in the United States, as shown by the figures of the recent census. The subject is not entirely a new one, but its treatment by so high a medical authority in an article for popular information merits notice. It will probably call some general attention to the subject, and it is well that it has been handled by one who can give a fair statement of the facts with judicious scientific deductions from the same, instead of by a popularizer whose main idea might be to produce a sensational and alarmist article. DR. BILLINGS, while he sees certain evil tendencies in the causes of this decreased birth rate, does not make them the sole text of his paper, nor does he consider the falling off in the number of births as necessarily an unmixed evil. Even were it altogether an evil, the comparative statistics do not show that this country as a whole is worse off than most other highly civilized nations, and they do show that its birth rate is decidedly above that of some portions of western Europe.

The causes of a decreasing birth rate are very numerous, and some of them are undoubtedly such as can not rightly receive medical commendation or

countenance. The underlying cause, however, as any one may see, is the increasing difficulty of the struggle for existence, and the ratio of births to the population may be taken as one of the principal indices of the intensity of this struggle. Of course, the greater the number of wants the sooner will this difficulty be felt, hence the ratio of births will decline sooner amongst the educated and cultured than in what may be called the lower classes, whose needs are fewer and whose ideals of life are less refined and luxurious. Perhaps, also, physical causes may come in play here; the relations of the sense of hunger to the generic appetite, and the fact that overfeeding reduces fecundity even in the lower animals, are suggestive in this connection. The spread of education and of habits of comfortable if not of luxurious living are therefore enough in themselves to largely account for the facts in this regard, as we find them.

The fact that the greatest decrease in the birth rate seems to have occurred in the regions where the colored race is most numerous seems a little anomalous to Dr. BILLINGS, and he is inclined to account for it, in part at least, by imperfections in the statistics. These may have existed either in the figures of the late census or that of 1880; in either case the apparent increase might be partially thus accounted for, but it seems not unlikely that the great changes in the conditions in the southern States within the past two or three decades are now having a more decided effect than ever before, and affecting the colored race as much or perhaps even more than the white.

A noteworthy fact pointed out by Dr. BILLINGS is that the present conditions as to population were predicted as long ago as 1843 with a very close approximation to absolute accuracy. Looking to the future a still further decrease in the birth rate may be reasonably expected before population, with its present tendencies, reaches what we may call its regemen or equilibrium. Under present conditions, with the increased knowledge and success of sanitation, the infrequency of wars and general pacific tendency of our civilization, and the gradual filling up of all lands suitable for civilized habitation, a decreasing birth rate would seem to be almost the only protection against the realization of the worst anticipations of the Malthusians. While this is true of the United States, it applies still more forcibly to the overpopulated sections of western Europe, which can not very much longer relieve themselves by sending their surplus population to this country.

PIT BURIALS IN LONDON.

Some curious testimony has been recently brought out incidentally in an inquiry by a committee of the British House of Commons in regard to the certifi-

cation of deaths in England. It seems to be the custom in some of the cemeteries around London to make large graves or pits which are kept open for days and weeks to receive bodies which are piled one upon another till the coffins are often crushed by the superincumbent weight. One of these pits for example, was kept open for forty days from June 6, 1892, according to one of the witnesses, who mentioned also other instances. The chinks between the adult coffins were filled in with those of children and there seems to have been nothing to prevent surreptitious abstraction or insertion of bodies had any one been so inclined. Identification was apparently totally disregarded.

The medico-legal and sanitary objections to such a condition of affairs are sufficiently obvious, and it is surprising that it has been so long permitted to exist in a civilized country like England when sanitary authorities are supposed to have full sway and law is so preëminent. As the *British Medical Journal* says, very justly, it is a satire on their civilization.

DOMESTIC CORRESPONDENCE.

The Present Status of the Medical Profession.

To the Editor of the JOURNAL of the AMERICAN MEDICAL ASSOCIATION:

Dear Sir:—An article on this subject by Dr. Dudley S. Reynolds, in the June 3 issue of THE JOURNAL, reminds me of the case of a real estate friend of mine who has invested largely in acreage near our city, the demand for which has never been very brisk. Notwithstanding that he has been unable to unload, my optimistic friend periodically takes stock of his investment and adds a good round percentage to his estimate of its value. This he has been doing for a number of years and, as a matter of consequence his books show him to be a very wealthy man, while as a matter of fact he would have difficulty in realizing the original purchase price of the property.

Dr. Reynolds' article shows the present status of medical education and the requirements for graduation to be eminently satisfactory and pregnant with hope. Unfortunately, however, his article is based on nothing more substantial than the copies of College Announcements in his possession. While his paper showing has, therefore, so much of the color of the rose the question recurs whether the rock bottom facts warrant his conclusions. I venture the opinion (an opinion, moreover, which is not merely an opinion) that they do not. The announcements of our colleges are far from being guarantees that the requirements as therein published are faithfully lived up to. I am, for instance, cognizant of the case of a young man who, without previous attendance at lectures in any other medical school was graduated at the end of a single session from an institution which advertises a requirement of attendance on three six months' courses. Again, let me give you a few extracts, *verbatim et literatim et punctatim*, from papers submitted by students who were graduated from a so-called medical college in good standing in the Association of American Medical Colleges, and whose announcement would lead you to believe that it is devoted to the cause of the higher medical education:

"Inflammatory rheumatism is lactic acid in the blood it is complicated some times with gonorrhea and inflammations

and severe colds. Increase of blood to the part accumulation of white corpuscles to the part braking down into puss pain heat rise of temperature swelling pain on bending the part or on pressure redness swelling emation. Treatment give salicilate soda salicic acid apply oil of wintergreen over the parts give rest to the parts and apply hot or cold applications."

Treatment of eclampsia: "To keep the patient from striking his head or limbs against and place the patient in a horizontal position to favor respiration circulation. Give bromide of potass. to act as a direct sedative or to excite motor susceptibility of the medulla oblongata of the nerve centers and keep perfect quiet."

"Chlor infantum is due to a tomen symptom comences with Diarrhea first stools partly soft yet Liquid and stains the clothing a green color with a musty Odor vomiting pain and Rise of temperature and rapid prostration. May effect the brain when the patient Roles heat and sleep with eyes open give Bromide potass for this first give Hyd chlor mit in small doses every hour and epecae at first and then Bismuth and Shlicylye acid give stimulent to keep up the strenth."

"In false croup the farinx is not involved there is false membrane we dont get the spasms."

"There are 3 Varietys of pneumonia lobor Lobular intersticial lobor is where we have all the lobes of the lung involved we have 3 stages. The inflammation extends from below upwards the seat of inflammation is in the alveoli or air vesicle. Stage of ingorgement last 24 to 70 days red hepatization 5 days."

"The Theory of diabetis is an eretation upon the floor of the 1th ventrecle, may be do Violence or High living."

The only hope for improvement in medical education lies in the divorce of the licensing from the teaching power. While there are many well equipped medical schools, and many honest medical schools, which endeavor with their limited facilities to do honest work, it is a notorious fact that in very many others there is no attempt at imparting the "laboratory instruction in chemistry, toxicology, urinalysis, normal and pathological histology, bacteriology, pathology, and hygiene" which Dr. Reynolds tells us "nearly every medical college in the United States now requires."

The fact that students are graduated on the strength of papers from which I have given the above extracts, is its own commentary but when I tell it not in Gath such students are immediately after graduation appointed to positions as teachers in their *alma mater* (Heaven save the mark!) is it not high time that something more were done for the cause of medical education than the writing of gratulatory papers founded on rose colored announcements?

I am pleased to observe that the Illinois State board of health has, since my presentation to it of certain facts, refused to license the graduates of one institution on the strength of the diploma of that institution.

J. J. MULHERON, M.D.

Detroit, June 15, 1893.

Altitude Per Se.

TO THE EDITOR OF THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

The relative importance of different climatic attributes in the cure of phthisis is one of the most difficult problems in climatology to solve.

The arduousness of the task is not lessened because the inquirer is an invalid himself seeking the total elimination of his tubercular bacilli. The liability of his being unduly influenced by his own experiences and environment is too great. Nevertheless it has to be acknowledged that much of the good work which has been done in climatology has

been actuated by the intense interest of personal need. I am reminded that in our own country this field has been covered by such men as Solby, Fisk, Anderson, Keating, Tindale, Loomis and Gleitzman, whom I happen to know were one time invalids. Nor would I wish to dodge the applicability of the criticism to my own writings simply because I waited three years after starting out as a health seeker, before announcing my conclusions to the Centennial medical congress in 1876. I refer to the argument presented and afterward embodied in a brochure, "The Preferable Climate for Consumption," which the legislature of Colorado did me the honor to order printed for public distribution. This treatise has never received so thorough and withal so complimentary an overhauling, as appeared in the issue of THE JOURNAL of June 10, by Dr. Boyd Cornick of Knickerbocker, Texas.

While I have to question the proving in this well written article, of any point against rarefaction of the air as an important factor in "the preferable climate," yet I wish to express my great pleasure for the important position in this controversy accorded my work. It is not otherwise than gratifying to me to be charged with so much of the molding of the medical opinion as to the best make up of climate for combating pulmonary consumption. There are indeed, only a very few points in Dr. Cornick's article I would wish to correct.

Except for taking your valuable space with my personal views, I would *in extenso* remind the doctor and his readers—I. That he reasons from his own peculiar experience commencing, as I understand it, last October, and that the approaching hot weather in Texas may enforce, even in his own case, a better appreciation of the "coolness or cold" which will be found as summer comes on in the elevated regions northwest of his locality. 2. That the argument in favor of the mechanical influence upon contracting and diseased processes in affected lung areas (which effect must be attributed to rarefaction of the air or elevation above sea level) is not given due consideration in his paper. It appears that one would need no better proof of some positive effect than the doctor's statement of his own case. How, having gotten along so nicely in elevated southern New Mexico, (after a breaking down of one apex had occurred in the east; fever gone and expectoration ceased) he took cold and probably (?) had some fresh inflammatory process around or near his apical cavity, the cough or irritation due to which subsided on his going down to a lower elevation.

Very well; like the pleurisies which, under similar circumstances, or due to over exertion, are relieved by rest, counter-irritation and strapping the affected side with belladonna or rubber adhesive plasters, he may also have had an acute condition which demanded the temporary suspension of exercise or high altitude treatment, which are very much alike in their effects upon actively tubercular areas of lung tissue. Considering the elements of time and the need of the *classification of cases*, this instance should be looked upon as exceptional, and not the rule for invalids generally. 3. The conclusion drawn from the extreme humidity of that extremest of elevated observation points—Pike's Peak—must be ruled "out of court." It is not "in it" at all. People do not and should not try to live there, least of all a pulmonary invalid. That the Pike's Peak station goes on my climatic charts of the United States in the blue shade of extreme moisture is rather a proof of the faithfulness of that climatic delineation, and is thus explained: Any equable association of moisture statistics, as relative and absolute humidity and cloudiness, to determine the relative moisture of the air will be over balanced at that high station by the high relative humidity of the

air there, because Pike's Peak is so much in or above the clouds, and yet so cold that a very little absolute humidity relatively goes a great ways.

Let us keep down where the experiences of invalids are, and then try to compare these experiences with the attributes preferable for consumptives. Then rarefaction will, as it should, rank up in the scale along with *degness, coolness, sunshine*, and important because necessary, *variability*. 4. I must hold firmly to my views as to the importance of increased aqueous transudation of vapor from the lungs due to rarefaction and cold, notwithstanding this criticism because, chiefly, Dr. Cornick does not take into consideration in his above calculation, the greatly increased amount of air which has to be breathed due to the element of rarefaction. It should be borne in mind that the necessity to breathe more air brings correspondingly increased lung action, and this brings with it increased heart action. The aspiration of blood from the right heart to the lungs and the propulsion of pulmonary blood on to the left heart, are both augmented. These internal effects, together with the lessened pressure on the periphery of the body increase capillary action everywhere, and much desired elimination is thus produced, enhancing the remedial effect of exercise and almost every other useful agent, at elevations from three to eight thousand feet above sea level. 5. It only remains for me to explain the seeming severity of my "contra indications to an otherwise preferable high altitude climate."

Individually I would myself, and I would expect others to, take these contra indications with a considerable "grain of salt." One does not like to, and can not lightly, assume the responsibility of the risk the invalid assumes in utilizing so positive an agency for good or for evil to affected lung tissue, as is a decided rarefaction of the atmosphere.

If the *diagnosis* which is the basis of any change to be made could always be assumed to be accurate and fully comprehensive, there would be, I think, a considerable leeway for modifying any contra indications.

CHARLES DENISON, M.D.

Lake Geneva, Wis., June 12, 1893.

Denver, Col.

BOOK REVIEWS.

A DICTIONARY OF PSYCHOLOGICAL MEDICINE. Giving the definition, etymology and synonyms of the terms used in medical psychology with the symptoms, treatment and pathology of insanity. Edited by D. Hack Tuke, M.D., LL.D. Philadelphia: P. Blakiston Son & Co. 1892.

It is indicative of the rapid advance of psychological medicine that a special dictionary should be issued, containing 1,477 octavo pages devoted exclusively to a definition of its terms.

Taking the work as a whole it is apparent that the editor and his assistants have performed their tasks exceedingly well. While minor defects can be pointed out yet they are so insignificant when compared with the general value of the work that they scarcely deserve mention.

One hundred and twenty-eight authors including some of the ablest living writers on psychology have contributed to its pages. Among these names we note those of Allbutt, Ball, Beeror, Benedikt, Bernheim, Bloq, Brunton, Buzzard, Charcot, Clouston, Erlenmeyer, Horsley, Lewis, Mendel, Norman, Page, Pontoppidan, Ribot, Savage, Sully, Tamburini and Yellowless. It was but natural that the bulk of the contributors should be drawn from the English and Scotch writers, though there is a liberal admixture of French and German. Americans have on the contrary been almost wholly ignored, but five contributing to its pages of

whom only two, Donaldson and Earle are fairly well known to readers of American medical literature. We can not but regard this omission as significant, especially when America presents such an able record in psychological research.

The work opens with an historical sketch of the insane by the editor and one on the philosophy of the mind by W. E. Coupland and then passes to special definitions. This, the main part of the work has been well done, and reflects credit upon the editor, who has certainly performed no mean task in coordinating the work of so many writers. The work is not only a dictionary but an encyclopedia as well. Some terms receive but a line while other definitions are expanded into pages. Thus "alogus" receives two lines while alcoholism takes up sixteen pages. If space were not too limited it would be interesting to consider some of the more lengthy articles, but the views of most of the writers are already well known, and in the sense of the work advancing our knowledge it contains nothing worthy of comment. As an index of what is already known, and as a guide and help to the students of psychiatry it will prove invaluable.

MINERAL SPRINGS AND HEALTH RESORTS OF CALIFORNIA. With a complete chemical analysis of every important mineral water in the world. Illustrated. A prize essay; annual prize of the medical society of the State of California, awarded April 20, 1889. By WINSTON ANDERSON, M.D., M.R.C.P., Lond., M.R.C.S. Eng., etc., joint editor and publisher of the *Practitioner Medical Journal*, teacher of chemistry and materia medica in the University of California, etc. San Francisco: The Bancroft Co. 1892. Pp. 384.

Dr. Anderson has produced a book that should command the thanks not only of California, but of all medical practitioners. The profession and people of his State are under especial obligations to him for his patriotic services, and any physician who desires to profit by a personal or professional acquaintance with hydrotherapy can not read this book without appreciating the large amount of research and analytical labor involved in its compilation.

However, it is more than a compilation. For several years the author has been investigating and analyzing the mineral springs of California, and comparing them with those of the eastern States and Europe. The comparisons result favorably to the home springs, so far as all the natural advantages are concerned. He concludes that nothing more is needed, to make them as beneficial as the better known water cures, than their further development and scientific use.

There are alphabetical lists of most of the well known springs of Europe and America. There are 200 analyses of the mineral waters of America and other countries, besides about 100 analyses among 200 springs of California. The various springs are classified, and the therapeutics of the different kinds are given.

The climatic, scenic and domestic advantages of the California health resorts are dwelt upon in a very attractive, not to say fascinating way. Indeed, the descriptions and the many charming illustrations that adorn these pages are enough to create a strong desire to visit this golden garden of the gods.

While the author sensibly deprecates the commercial cant of those resort promoters who claim cure-all properties for their springs, he lucidly places the various waters in their rightful relations to health and disease. He points out the ailments that will be benefited or injured by certain mineral waters, and how the uses and abuses of the baths result.

With the natural advantages of climate, proximity and economy of these water resorts, it is difficult to understand the American fad of visiting such springs as Carlsbad, where one witnesses every morning the depressing, death-suggesting pageant of the marching miseries of all nations

in funeral procession about the springs, accompanied by the fantastic strains of the Straus waltzes. The scene is grotesque to the spectator who glories in good health, but the writer felt when looking on this picture that it was the last place on earth to choose as a stepping stone to health and good cheer.

An infinite contrast to this melancholy spectacle is presented by the quiet and isolated health resorts of our own luxurious king State of the Golden Gate. Here the sufferer has for his companions, not wasting disease and waiters upon death, but the refreshing songs of the birds and brooks, the health-inspiring looks of the gatherers of fruits and the miners of precious metals, the most lavish growths of plants and trees, the most luscious of fruits, the most gorgeous of flowers, the most invigorating air, the sublimity of mountain scene and ocean expanse, and the most hospitable inhabitants of the globe.

TRANSACTIONS OF THE FOURTEENTH ANNUAL MEETING OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION, held in the City of Boston, June, 1892. New York: D. Appleton and Co. 1893. Pp. 120.

Nineteen of the forty-five active members were present at this meeting, and nineteen papers were read.

The volume opens with an address by the president of the society, Dr. S. W. Langmaid, outlining its history and work briefly, and proposing an increase in its membership.

Dr. D. B. Delavan presented a paper on "The Influence of certain Diathetic Conditions upon the Prognosis in Operations upon the Throat," in which he concludes that: "1. Rigid examination as to the possible existence of the hemorrhagic diathesis should be made prior to operation in every case. 2. In the existence of hemophilia, operation by any procedure at present known is absolutely contra indicated. 3. Since many of these cases urgently require relief, it is most desirable that a method reaching them more satisfactorily than any heretofore practiced be suggested." However, according to the observations of Dr. J. L. Watkins, this condition is due to the deficiency of calcium salts in the blood, especially of chloride of calcium, and the administration of these salts will cause the blood to coagulate.

Dr. S. H. Chapman related some unusual pathological conditions of the upper air passages coincident with attacks of the grip. One of these was the formation of a false membrane, not diphtheritic, in the larynx. The discussion on his paper brought out other like cases.

The paper that seemed to arouse the most interest and debate was on the use of sprays, by Dr. C. C. Rice. The types make him refer to lanolin as a petroleum product, although it is a solid fat obtained from sheep's wool. It is probable that he wrote lavoline, which is a liquid like alcoholene. The writer has seen this change made by printers a great many times, and persistently, even after corrections of proof. There are some of the most surprising statements in this paper and the discussion following it. The author deserves credit for advising against the use of the nasal douche. He prefers the oily to the watery solutions. While he warns against employing too much pressure with these sprays, he uses from fifteen pounds for the anterior nares to thirty pounds for the larynx, which is about 30 per cent. more pressure than is necessary with the most improved spray producers. He insists that the sprays should be warmed before using: why not insist that the air we breathe should be warmed? In this paper and discussion will be found a number of examples of the erotichets of our specialists. Dr. Rice emphasizes one excellent practice: that of having patients assist in their own treatment by keeping the naso-pharyngeal passages cleansed and disinfected by the use of hand atomizers at their homes.

Dr. Bosworth criticised this paper in a very caustic manner, condemning sprays of every kind. He says: "There is no such disease as catarrh, and supersecretion is a condition which we seldom have to meet. In a vast majority of cases deficient secretion exists. I except from this statement naso-pharyngitis, and really know but little about naso-pharyngitis." He unhesitatingly places the nasal douche in the hands of his patients. He says of hypertrophic rhinitis: "We do not cure these cases; the patients cure them for us." While the essayist lauds cocaine for its astringent action, Dr. Bosworth says: "It is not astringent; it does not constrict the secreting apparatus." He has abandoned it, together with his compressed air apparatus.

Dr. Wright discredits oily sprays.

Dr. Asch, speaking of the nasal douche says: "Accidents do occur and patients never forgive."

Dr. Mackenzie and others bombarded the position of Dr. Bosworth with some pretty luminous pyrotechnics. In fact, the discussion of this paper alone is worth the price of the book. It is a treat.

Dr. C. E. Bean reports three cases of that very rare and distressing affection, nasal hydrops. Two were associated with asthma and the third with hay fever. No satisfactory treatment has been found.

Another very interesting discussion is found at the end of Dr. De Blois' paper on the "After Results of Nasal Cauterization." The discussion is twice as long as the paper, and some of the discussions are even more valuable than the papers themselves.

MISCELLANY.

AMERICAN ELECTRO-THERAPEUTIC ASSOCIATION.—The third annual meeting of the American Electro-Therapeutic Association will be held in Chicago, September 12, 13 and 14, at Apollo Hall, Central Music Hall Block. Members of the medical profession interested in electro-therapeutics are cordially invited to attend.

AUGUSTIN H. GOELET, M.D., *President*.

MARGARET A. CLEAVES, M.D., *Secretary*.

OFFICIAL LIST OF CHANGES in the Stations and Duties of Officers serving in the Medical Department, U. S. Army, from June 17, 1893, to June 23, 1893.

Capt. Charles E. Woodruff, Asst. Surgeon, is granted leave of absence for one month and twelve days, from August 1, 1893.

First Lieut. Harry M. Hallock, Asst. Surgeon, will on July 6, 1893, proceed to Grifton, Ga., and report to Capt. George G. Greenough, Fourth Artillery, for duty in connection with the encampment of State troops at that place.

First Lieut. J. D. Glennau, Asst. Surgeon (now at Ft. McIntosh, Tex.), will report to the commanding officer, Third Cavalry, to accompany Troop I of the regiment to Ft. Sill, O. T.

Capt. Daniel M. Appel, Asst. Surgeon, is relieved from further duty as attending surgeon for the officers and enlisted men on duty at the World's Columbian Exposition, and will report to the commanding general, Dept. of the Missouri, Chicago, Ill., for duty as attending surgeon and examiner of recruits in that city.

Capt. A. R. Chapin, Asst. Surgeon U. S. A., is granted leave of absence for one month.

OFFICIAL LIST OF CHANGES in the Medical Corps of the U. S. Navy, for the Week ending June 24, 1893.

P. A. Surgeon P. M. Guiteras, from Naval Hospital, Philadelphia, and to Naval Laboratory, Brooklyn, N. Y.

Asst. Surgeon R. M. Kennedy, from coast survey Str. "Bache,"

and to examination for promotion.

P. A. Surgeon George H. Barber, from the U. S. S. "Miantonomoh," and to the coast survey.

The Journal of the American Medical Association

VOL. XXI.

CHICAGO, JULY 8, 1893.

No. 2.

SECTION ON PRACTICE OF MEDICINE.

CHAIRMAN'S ADDRESS—A REVIEW OF ULCERATIVE ENDOCARDITIS.

Read before the Section of Practice of Medicine at the Forty-fourth Annual Meeting of the American Medical Association, held in Milwaukee, Wis., June, 1893.

BY CHARLES G. STOCKTON, M.D.

PROF. OF MEDICINE IN THE UNIVERSITY OF BUFFALO.

Gentlemen:—To begin with, let me thank you for the very great honor that you have done me in electing me your chairman, and also for the ready assent that many of you have given to read papers and to take part in the discussions at this meeting. Your estimable secretary, Dr. Webster, and your chairman have done their best to provide a program that should be of interest to the Section and a profit to the profession, and it is to be hoped that before the conclusion of the session the members will congratulate each other upon the good work that has been accomplished.

In turning to the matter of the address which the chairman, by the requirement of our by-laws, must read before the Section, it has seemed to me better to select a single topic that is likely to be of general interest, rather than to make the vain attempt of reviewing the progress made in internal medicine throughout its wide field. Therefore, as a subject that seems to be as yet very unfinished, and one that has received, and yet will receive much careful study, and one that is likely to provoke differences of opinions, and perhaps interesting discussion, I have selected ulcerative endocarditis and its relations to other inflammations of the endocardium. Only a few years have passed away since the profession was content to say of endocarditis that it was a simple inflammation of the lining membrane of the heart, generally the result of rheumatism. After the appearance of Osler's classical lectures in 1885, it became clear that in some cases at least, the disease was special, and so arose the custom of speaking of simple endocarditis, acute and chronic, and malignant or ulcerative endocarditis. The extremes of this position as a result of further study, have gradually approached each other, until it seems proper to efface the separating line, and to speak of the inflammations of the endocardium not merely as one process, nor as two processes, but as the results of a great variety of specific diseases which express themselves—sometimes by hyperemia swelling, and connective tissue proliferation, sometimes by vegetations, sometimes by loss of substance and sometimes by combinations of these processes.

Apparently the time has come for abandonment of the term simple endocarditis as a really distinctive term. True, we can not always say just what special infection is at work, nor can we always discover the

path of the invading organisms; but that, we perceive, is unnecessary, since many bacteria remain latent, dormant tenants of the body until the powers of resistance are depressed by some purely incidental influence or affection, upon which the parasites finding the individual no longer refractory, are able to reproduce themselves, and take on hurtful attributes, of which formerly they were not possessed. They naturally select a convenient and fertile soil, and while they occasionally find this in the lungs, liver, spleen, kidneys, the meninges, and the serous coverings of joints, they not infrequently find in the tissues of the endocardium the most appropriate field for their manifestations.

This view of the matter is substantiated by bedside studies and by experiments upon animals, and is apparently satisfactory except when the acknowledged intimate relationship between rheumatism and endocarditis comes up for settlement.

With this rheumatism question there is undoubtedly a difficulty, and it will not be removed until we are able to explain the nature of rheumatism. If we adopt the theory of rheumatism, the cloud becomes dissipated, but if we still cling to the chemical theory of Prout, or the nervous theory of Mitchell, we can not maintain that endocarditis is always infectious. Time and space forbid an adequate discussion of this matter here, but the opinion is offered that while undoubtedly specially favored by certain conditions of the fluids of the body, and exposure to cold and damp, and by unknown hereditary influences, true rheumatic fever can be accounted for better on the supposition that it is an infectious disease than by any other hypothesis so far constructed. Of the irregular, atypical and more chronic forms of the disease it may be said that many of these are not rheumatism at all. No one can safely claim that the arthritis of gonorrhea, scarlatina or dysentery are rheumatic, but how many other specific arthropathies are thus summarily disposed of we do not know. Before leaving this part of the subject, some allusion should be made to endocarditis arising apparently as a direct result of gout, Bright's disease, etc. In such cases it is difficult to determine that the heart involvement is owing to the diseases in question unaided by other factors. Very likely the circulating ptomaines resulting from Bright's, and the nitrogenous waste products belonging to gout may lead to changes in the heart as they do in the arteries. Whatever will produce endarteritis may produce endocarditis. But it is highly probable that this chemical abnormality of the blood is potent in a second way; that is, in making the tissues more vulnerable to other and special influences. We are not in a position to deny that the chemical faults alone are competent to induce the affection; experience leads us rather to affirmation. Still, we are not able to say in a given

case that the toxæmia has not reinforced, rather, and made potential the microbic parasites of the body. And now to ascend from the level of personal opinion it may be held that, in view of facts in our possession, endocarditis is a condition which may arise from any one of a multiplicity of special causes under favorable conditions, and that in its course it may be as variable as the causes are dissimilar.

It will be seen that all forms of endocarditis bear an intimate relation to each other, and that their causes are somewhat interdependent. Nevertheless, it is evident that certain classes of endocarditis are prone to cell proliferations with subsequent adhesions, contractions and further deformities, while others are characterized by ulcerations, soft vegetations and resulting embolic infection, accompanied by severe and somewhat constant constitutional disturbances, and usually having a fatal termination. And so has come about a natural, although somewhat imperfect division of the subject into two classes, one having malignant tendencies and the other not. The former class, with which this paper particularly deals, is now commonly described as ulcerative endocarditis; but the term is faulty for the reason that ulceration may occur in cases following a benign course. The whole matter is too recent for positive assertion.

Cases of ulcerative or malignant endocarditis, depend upon the presence of one or more of a variety of microorganisms. These generally attack the heart as a result of some preceding affection, cardiac or otherwise, and for the most part are capable of exercising their special influence upon various parts of the body.

Of the special causes of endocarditis above alluded to, some excite the disease in a malignant form, and generally induce ulcerative processes. It is of these that I particularly have to speak. We know that it is no longer correct to regard these cases as identical in nature, and the suspicion, first suggested by clinical study, that the cases were open to a kind of classification has been justified by bacteriological investigations. Indeed, certain forms of microorganism have apparently the faculty of inducing endocarditis when introduced into the healthy organism, and a number which have been isolated and cultivated are regarded as special to this form of disease, not having been encountered in other affections.

Weichselbaum has discovered four such, which he calls respectively: *bacillus endocarditis griseus*; *bacillus endocarditis rugatus*; *bacillus endocarditis capsulatus*; and a fourth form which he has neither named nor succeeded in cultivating.

Fraenkel and Saenger have described a motionless fetid bacillus endocarditis, and Lion and Girode have isolated still another.

Josserand and Roux have found a peculiar staphylococcus larger than the aureus, and Vetti has isolated a septic diplococcus and a micrococcus in cases of this disease.

The *bacillus coli communis* has been found the active agent in the development of several cases of ulcerative endocarditis. Indeed, the *bacillus endocarditis griseus* of Weichselbaum, and the *bacillus endocarditis* of Gilbert and Lion, which have been considered as special to malignant endocarditis, are now thought to be identical with the *bacillus coli communis*, an organism, as is well known, whose pathogenic effects are observed in diverse parts of

the body, and with varying degrees of intensity.

These facts should make us careful as to accepting any single organism as special to endocarditis.

The different varieties of streptococci and staphylococci, either alone or in company, may originate inflammation of the endocardium.

Microbes have been isolated in endocarditis accompanying erysipelas, puerperal fever, typhoid fever, influenza, pneumonia, tuberculosis, gonorrhœa, diphtheria. Interesting in this connection is a case just reported by Dr. W. T. Howard, Jr., of Baltimore, (*Johns Hopkins Hospital Bulletin*, April 1893) in which a malignant endocarditis was found to depend upon a bacillus having morphologically and by culture tests all the characteristics of the bacillus diphtheria, although the patient appears to have presented no history of having had diphtheria.

And although the special organisms have not been recognized, it is interesting to remember that the endocarditis either goes with or follows many instances of the eruptive fevers, malaria, rheumatism and malignant neoplasms.

Before the New York Pathological Society, Nov. 9, 1892, Dr. Hoenig in presenting two specimens from cases of the disease, spoke of the varied microorganisms found in malignant endocarditis and said that in forty-three reported cases the *staphylococcus pyogenes albus* had been found twice, the *staphylococcus pyogenes aureus* fourteen times, the *streptococcus pyogenes* six times, the *bacillus typhosus* once, the *diplococcus pneumonia* six times, the *tubercle bacillus* once, and the *bacillus fatidus* (probably the *bacillus coli communis*) three times, while in ten cases the variety of microorganism had not been determined.

We habitually speak of the disease as ulcerative, and yet in some instances there is found very little or no ulceration whatever, but vegetations are luxuriant. A review in *Le Bulletin Medical* (Jan. 13, 1892) says on this matter: "Infectious endocarditis may be ulcerating and vegetating and, to speak the truth, there is no line of demarcation between the two anatomical states. If it is true that in certain affections, acute articular rheumatism for example, vegetating endocarditis ought to be the rule, there can, nevertheless, be produced under the same conditions an ulcerative endocarditis. In the same way puerperal endocarditis, ordinarily ulcerative, may be vegetating. The mode of evolution depends principally upon the medium."

Dr. Frederick Taylor, in the last Guy's Hospital report, presents an admirable contribution on malignant endocarditis in which he says: "From the observations on the bacteriology of this subject already referred to, it appears that the different microorganisms are apt to produce different pathological clinical results. Thus it is stated that some organisms invade the mitral by preference, others the aortic valves; that the conditions of ulceration or vegetation are dependent on the organism."

It will be seen that the French is broader than the English view just quoted; it includes the truth stated by Dr. Taylor, and adds the results of authenticated investigations, showing that the same infection produces results in different individuals.

It therefore seems just to conclude that the nature of the lesion is dependent upon both the infective agent and the condition of the subject infected.

As to the actual seat of the lesions, many careful observations have been reported, and the results

show the interesting fact that in the main the valves are first invaded.

Dr. Taylor remarks that in the majority of his cases, the ulcerative or fungating condition was engrafted upon a preceding valvular disease of the heart. Of the fifty-three cases which he describes, eleven were upon the right side, and the remainder on the left, and in all but one case the process was valvular.

Continental observers have devoted attention to determining whether the malignant process begins upon the surface of the valve or within the structure of the valve.

Saenger maintains that in a pathological state the valves may contain vessels, and in these vessels colonies of bacteria have frequently been found.

So there seems to be ground for the position that the process may be primarily intra-valvular.

Indeed Cornil and Babes have found microbes here when none could be discovered on the surface of the valves, and Hanshalter and Lion were able to discover the organisms in the connective tissue of the valves, when the surfaces were free.

On the other hand, in many cases, the disease undoubtedly first appears upon the free surfaces of the valves, and the invasion is most likely to be at that part where the valves strike together when forcibly closed.

The blood within the heart cavities may be free of bacteria while the diseased valves lodge large colonies, as in the case reported by Sidney Martin in the *Gulstonian* lectures recently delivered. (*Lancet*, April 9, 1892.) Yet in this case there were found infectious emboli in the cerebral and femoral arteries. Here the disease appeared in the left auricle, and the exciting organism was a staphylococcus growing in clusters and not in chains.

The relative frequency with which this form of endocarditis occurs in the right side is a matter worthy of consideration. The proportion occurring in Taylor's series practically corresponds with the findings of others, namely: eleven out of fifty-three cases.

Lion has made the suggestion that certain bacteria being aerobic, would grow best in the arterial blood of the left side, and that the anaerobic bacteria would flourish best in the carbonized blood of the right heart, and alludes to the frequency of right endocarditis in the fetus.

However this may be, it will scarcely hold good of all instances, as for example the case reported by J. Jackson Clark at the meeting of the London Pathological Society, November 1, in which an excessively ulcerating and fungating inflammation limited to the right heart and lungs was found to depend upon a streptococcus.

In Martin's *Gulstonian* lectures above mentioned, he particularly showed that many of the changes and symptoms seen in malignant endocarditis were the result of certain albumoses found in the blood, and more particularly in the spleen. Chemically, these were indistinguishable from similar substances found in subjects of diphtheria and anthrax, although it was not so fatal in the same dose when injected into guinea pigs. It was found, however, to be a potent poison: it excited temperature, and in sufficient amount produced death.

Finally, after these reflections, the claim put forward that, clinically, cases of malignant endocarditis

progress with very different symptoms, will seem unreasonable.

Those who have observed even a few cases, must have remarked this fact. The physical signs may be of the most striking character or sink into insignificance, and the patient may succumb from the systemic poisoning without evidences of heart lesions or embolic disturbances.

The affection may pass for an acute pneumonia when the invasion is in the right heart and septic plugging of the pulmonary vessels follows; and, as is well known, the distant lesions seen in many cases may distract the attention of men of only ordinary carelessness from the actual seat and nature of the disease.

One often inquires, is the disease uniformly fatal? To my mind the answer must depend upon what one regards as malignant endocarditis. I saw a case succeeding a vulvar abscess, and accompanied by a septic inflammation of the neck and right hand, which went on to complete recovery.

Instances of puerperal endocarditis resulting in recovery are reported. Personally, I believe that cases recover, and that it is an error and a misnomer to apply the term simple endocarditis so unhesitatingly to all cases that have a favorable termination.

SOME CONSIDERATIONS BEARING ON THE TREATMENT OF PNEUMONIA.

Read before the Section of Practice of Medicine, at the Forty-fourth Annual Meeting of the American Medical Association.

BY W. H. WASHBURN, M.D.
MILWAUKEE, WIS.

The conclusion seems forced upon us, by recent investigations as to the comparative mortality in cases of pneumonia, that the death rate from this disease is on the gradual increase, and has been on the increase since 1822.

When we eliminate all elements of uncertainty and unfairness in the comparative statistics of various hospitals and institutions, we are compelled to admit that if the death rate has not actually very materially increased, it has not been reduced by our modern methods of treatment. Those methods of treatment differ very markedly from those in vogue during the first sixty years of this century. The best authorities during that period insisted that in this disease blood letting was "a remedy of indispensable necessity," and they were almost equally unanimous in their use of cathartics, blisters, and occasionally emetics.

Subsequent to 1860 our treatment has been greatly modified, being less active and heroic, and styled expectant. This expectancy consists in doing little or nothing during the first stage of the disease unless the temperature ranges high and the cough becomes harassing, when antipyretics, such as large doses of quinine, veratrum viride, and later the newer antipyretics of the antipyrine order are given with opium to allay cough. Later in the course of the affection, when the heart begins to show evidences of failure, alcoholics have been chiefly relied upon, being strongly recommended in all the recent text books to which I have had access.

When we bear in mind these striking differences in method of treatment in connection with the fact that the death rate has increased, or at least has not

decreased, under the newer system, which state of affairs can not be accounted for on the theory of change in the type of the disease, the conclusion seems forced upon us that there is something wrong somewhere.

A recognition of this fact has resulted in the production of a considerable volume of current literature bearing upon the subject of treatment. Those who have thus written, I think, may be divided into three classes: First, those advocating a return to the methods of our fathers. Second, those advocating the free use of such remedies as veratrum viride, aconite, tartar emetic, etc., in the early stages of the disease; and third, those advocating expectancy: that is, little or no treatment in the first stages, and alcoholics when evidences of cardiac weakness supervene, and perhaps cold externally for the reduction of excessively high temperature.

If we can believe the advocates of these different methods of treatment, pneumonia is the simplest of diseases to treat; the first two classes claiming to abort nearly all their cases in the first stage, and the third, to conduct nearly all their cases to a favorable issue. Nevertheless, the mortality rates are before us; in view of which, and our individual experience with the disease, we are compelled to accept these statements with a very large grain of salt.

As to venesection, it may be admitted that good may sometimes result in certain cases. The advocate of blood letting has this in his favor, that with the blood withdrawn there escapes a certain amount of toxalbumin; and I apprehend that the amelioration in the symptoms, which it is claimed often follows the operation, is due to this fact rather than to any relief which the right heart may receive by reason of a temporarily reduced total quantity of blood in the vessels; the *modus operandi* of venesection in this case being the same as in uræmic intoxication, where marked temporary relief often follows the operation, by reason of the coincident removal of uræmic poisons with the blood. On this supposition the fact would be explained that venesection is indicated, as its advocates claim, in all stages of the disease.

The veratrum viride treatment has always seemed to me to be unscientific and illogical from whatever point of view we regard it, and only capable of doing harm.

The immediate effect of increased body temperature is increase in rapidity of the pulse and respiration. This appears to be directly due to the action of the superheated blood upon the cardiac muscle and upon the respiratory nerve center. And this is the very thing necessary to increase heat dissipation and thus prevent a further rise in temperature. If, by means of such an agent as veratrum viride, we succeed in reducing the pulse rate to sixty or less per minute, it may well be doubted whether any good has been accomplished. On the contrary, in view of the impaired action of the heart, which we look for later in the course of the affection, the fact can never be lost sight of that drugs of this nature may add to the dangers under which the patient already suffers, and may be the determining lethal factor in what otherwise might be a favorable case.

We can never treat pneumonia truly scientifically until we are able to strike at the *materies morbi* of the disease, destroying the pneumococcus in the alveoli, or antidoting the pneumotoxin in the blood.

This we are as yet unable to do, and hence our efforts will be palliative only.

We must abandon the idea that the peculiar cardiac weakness in this disease is due to obstruction of the pulmonary capillaries. The evidence all goes to show that such is not the case. Tying off part of a rabbit's lung produces no such effect upon the heart, and in pleurisy, with effusion, where the lung is compressed into the apex of the thoracic cavity, we do not find a heart so embarrassed as in cases of pneumonia. Again, we often see cases of pneumonia with extensive areas of lung involved, and with only comparatively mild systemic symptoms.

A case occurred in my practice last fall in a man forty-seven years of age, in which the lower lobes of both lungs were involved. The maximum temperature was 102.6 degrees, respiration rate 36, and pulse 108, the disease terminating by crisis on the seventh day. If cardiac embarrassment is due to pulmonary engorgement, then it should have been extreme in this case. The ordinary history of cases that terminate favorably is that when crisis occurs there is an immediate fall of temperature and change for the better in the character of the pulse, notwithstanding the fact that the condition of the lung remains for some time unchanged. The widely varying clinical history of this disease in cases where the same amount of lung substance is involved, must have convinced us all that we need pay but little attention to the lung itself, and that the gravity of the case depends more upon the accumulation of pneumotoxin in the blood than upon the local lesion.

All the vital processes are carried on by the agency of the nervous system, the great sympathetic presiding over all the so-called involuntary or vegetative functions. As long as these functions are maintained, so long will life continue. We recognize the *vis medicatrix nature*, and this force it is which calls forth those internal responses to external impressions which alone render life possible. When the germs of disease or their products gain an introduction into the human body, if there is not a counteracting internal action set up, then the patient dies. And when we come to study the effects of these germs or their products upon the individual, we find that they gradually reduce or almost abolish nervous sensibility, and that then the vital processes are at their lowest ebb, and if we are unable to reawaken nervous sensibility, death is inevitable. We see this condition of obtunded nervous sensibility very markedly in typhoid fever and pneumonia. In pneumonia the heart becomes very much weakened, and its action inefficient; not from any impairment in its muscular substance, but from impaired innervation, nervous sensibility being diminished by the toxic effects of poisons generated in the system and imperfectly eliminated, and probably in a higher degree by the poison peculiar to the disease—the so-called pneumotoxin.

The objects, then, to be accomplished are the increase of nervous sensibility and the elimination of the specific poisons of the disease and the products of retrograde metamorphosis. We have seen that the treatment almost universally recommended under these conditions of obtunded nervous sensibility has been alcoholics, freely and often administered, in order to stimulate the nervous system to renewed activity.

Alcohol has always enjoyed the reputation of

being a stimulant, but I am firmly convinced that such is not the case, and fully believe that this view of the question will ultimately prevail. Symptoms of this are becoming more and more numerous every year. The most commonly observed effects of alcohol are all sedative. Samuel Wilks enumerates these effects at some length: the dilated capillaries from vaso-motor paralysis, the semi-stupor sought by those who "drown their sorrows in the flowing bowl," the forgetfulness of evil done or wrongs sustained, the insensibility to cold and other unpleasant external impressions.

Cosgrove, reviewing the experimental work done by Ridge, Lauder, Brunton, Parkes, B. W. Richardson, W. A. Hammond, Prout, Fife, Vierordt, Smith, Perrin, Lehman and others, says that, contrary to what has been and is supposed, they found that small doses of alcohol produce from the first a narcotic rather than a stimulant effect. That all these observers, with the exception of Smith, also found that alcohol in small doses diminished the amount of carbon dioxide exhaled.

H. C. Wood, before the International Medical Congress in 1890, said that his doubts as to the stimulating effects of alcohol on the heart during anesthesia had grown stronger and stronger for the past ten years, and that his own experiments showed that alcohol does not increase the size of the pulse or arterial pressure, but rather appears to increase the rapidity of the fall of arterial pressure, and thus hastens death.

N. S. Davis summarizes the physiologic effects of alcohol as determined by very many and elaborate experiments by many experimenters, including himself, as follows:

In doses of any size, from the least to the greatest, it is an anæsthetic, lessening nervous sensibility to all external impressions—heat, cold, weariness, dependency, weakness, pain; it also diminishes the oxygen carrying power of the red blood cells, thus materially interfering with the processes of katabolism, thus impeding nature rather than aiding her in the elimination, not only of the ordinary products of retrograde metamorphosis, but also of those foreign disturbing elements which constitute the poisons of disease.

Experiments with alcohol on digestion are no more favorable to its use in cases of pneumonia than those already mentioned. Blumenau says that as a result of a long series of experiments with alcohol on digestion, he has proven that the functional activity of the gastric juice, its general acidity as well as amount of hydrochloric acid present and its corresponding digestive powers are diminished, and that this diminution of power is relatively greater in persons not accustomed to the use of the drug; also that the motor power of the stomach and its capacity for absorption are diminished in direct proportion to the strength of the alcoholic solution.

If these conclusions as to the physiologic action of alcohol are warranted by the facts, and I do not see how they can be doubted, we are justified in the conclusion that its use in cases of pneumonia is illogical; that it is utterly incapable of doing good; and that it is largely responsible for the high mortality rates in this disease.

We ought therefore to abandon the use of alcohols in the condition in question, and extend our observations in other directions, in order to ascer-

tain whether we are in possession of that etiological agent from whose physiologic action we have any reason to expect aid in the accomplishment of the objects to be attained, namely, the increase of nervous sensibility and the elimination of the specific poison of the disease and the products of retrograde metamorphosis. I think we have such an agent in strychnia.

There appears to be no difference of opinion as to the action of this drug. By its administration the sensibility of the nervous system is heightened in every part, not only the cerebro-spinal system but also the sympathetic. It acts as a stimulant on the respiratory nerve center, upon the cardiac ganglia, and increases the sensibility of the nerves of special sense, touch, sight, hearing, and also increases the activity of the olfactory sense. Its stimulant action on the involuntary muscular system is witnessed in its increase of intestinal peristalsis and in increased force of uterine contractions when the drug is administered in the progress of parturition. It increases the mechanical movements of the stomach as well as the amount and acidity of the gastric juice, thus assisting the process of digestion, and at the same time there is an increased action of the kidneys, witnessed by an increase in the quantity of urine eliminated.

We have, then, in strychnia, a drug which, in its action is diametrically opposed to alcohol and one which is above all others, by reason of its physiologic action, indicated in the treatment of pneumonia at the stage which we are considering, but which, so far as I am able to judge from text books and current literature, has as yet received but little recognition; and it is the purpose of this paper to urge the abandonment of alcohol as a stimulant in this disease and offer strychnia as one substitute therefore.

303 Grand Ave.

REFERENCES.

- MOORE, Emptive and Continued Fevers, Chapter 1. The Intimate Nature of Fever.
BRUNTON, Pharmacology, Therapeutics, and Materia Medica.
ECHEVEZ, *Arch. de Med.*, 2, 1882, 155.
DEGRANGE, *Med. et Chir.*, N. S., 1882, 155.
GAMBER, *Therap.*, 1882, 155.
H. M. FIELD, *Therap.*, 1882, 155.
PEREIRA, *Materia Medica and Therapeutics*, 1882, 155.
ROKITANSKY, *Arch. de Med.*, 2, 1882, 155.
ROTHERGILL, *Antagonism of Therapeutic Agents*.
RUSSEMAN, *Arch. de Med.*, 2, 1882, 155.
MOLLER, *Arch. de Med.*, 2, 1882, 155.
M. HAMEAL, *Abstract of Medical Science*, June, 1882, 155.
DEWEES, *Practical Therapeutics*, 1882, 155.
WATSON, *Practical Therapeutics*, 1882, 155.
WOOD, *Practical Therapeutics*, 1882, 155.
TOWNSEND, *College of Medicine*, 1882, 155.
WELCH, *Arch. de Med.*, 2, 1882, 155.
GORDON, *Arch. de Med.*, 2, 1882, 155.
WILKES, *Arch. de Med.*, 2, 1882, 155.
H. C. WOOD, *Med. News*, vol. 18, p. 120.
N. S. DAVIS, *Med. News*, vol. 18, p. 120.

1893.

TO BLEED OR NOT TO BLEED IN PNEUMONIA?

Read in the Section of Practice of Medicine at the Forty-fourth Annual Meeting of the American Medical Association.

BY JOHN NORTH, A.M., M.D., Ph.D., F.R.S., London.

(LIFE.)

Professor of Diseases of the Nose, Throat, and Lungs, and Honorary Editor of Laryngology, Toledo Medical College, Surgeon in Charge of Nose and Throat Department of the Toledo Hospital; Rhinologist to the Toledo Post-office.

Fifty years ago when pneumonia was recognized as a pure and simple local inflammation of the lungs this question would have been answered in the affirmative, and no reputable physician would dare raise his voice against it. But in this, the last decade of

the nineteenth century, the physician that resorts to bleeding in pneumonia offers an apology for so doing. Our modern views of pneumonia have undergone a radical change during the past few decades. The histological structure and the physiological function of the lungs are better understood than they were fifty years ago. Our knowledge of the pathological anatomy and the pathological functions of the lungs have undergone wonderful changes during that time. The bacteriologist with his cultures, his microscopic and microorgans the chemist with his reagents, his test tubes and ptomaines have greatly changed our opinions in regard to the causes and progress of pneumonia, and with these advances and changes must of necessity come modern and improved methods in treatment. The physician that still consults his old books upon pneumonia for the purpose of gaining a knowledge of this disease and its treatment, might with as much profit consult the laws of the Medes and Persians or the blue laws of Connecticut as to his knowledge and duty under our present civil laws.

With our modern knowledge of the causation, pathology and treatment of pneumonia, we ask the question, "To bleed or not to bleed in pneumonia?"

What do we learn by examination of statistics? The advocate of blood letting in pneumonia compiled from the statistics of the last fifty years and arrived at the conclusion that the mortality of pneumonia has gradually increased as blood letting has diminished. While the opponents of blood letting take the same statistics and by their compilation of them prove as conclusively that the mortality of pneumonia had decreased in proportion to the decrease in blood letting.

This shows us how unreliable statistics are in the hands of those that wish to pervert them. The circumstances and conditions under which the statistics are gathered must all be taken into account and carefully studied before they can be of use to us. I might take up this entire paper quoting statistics and I would arrive at the following conclusions: That the statistics of the mortality from the advocates of blood letting prove that pneumonia has increased from 64 per cent. to 31 per cent. during the past fifty years. The statistics of the opponents to blood letting prove that the decrease of mortality from pneumonia has been from 40 to 4 per cent. in the past fifty years.

Dr. G. M. Smith says that, "Any one at all familiar with metropolitan hospital affairs, distinctly understands that hospital statistics can not always be quoted as exemplifying the results of treatment unless the cases are classified. Many cases of sickness and injury are brought to a hospital in a moribund condition; treatment can scarcely be initiated, and so far as the institution is concerned, they are really coroner's cases. The modern hospital ambulance system, which is such a blessing to humanity, is doubtless often employed to foist into an infirmary dying cases. Many without friends in lodgings, or among heartless friends or relatives, are shuffled to an institution to die while in their last moments."

A much larger proportion of bad cases of pneumonia are sent to the hospitals now than fifty years ago. The risk of removing such cases is attended with great danger. A case of pneumonia is not certainly benefited by removing it from a warm bed to a cold ambulance and then the exposure incident to

a long ride does not add to his chances of recovery and the case dies and is reported as one showing the increased per cent. of mortality from pneumonia where blood letting is not resorted to. We all know that pneumonia is more fatal in some localities than in others, and that in the same locality the mortality is greater some years than in other years, and that the per cent. of fatal cases vary much in different seasons of the year.

The *apparent* large per cent. of deaths from pneumonia in private practice can be accounted for in several ways. A large number of infants and children's deaths are now reported as from pneumonia, which at one time were reported under some other name. Secondary lung complications are now usually reported as pneumonia, and then the reports of death are more complete than they were fifty years ago. When I was a boy a great many cases died of *old age*. Who ever hears of a death certificate made out with the cause of death as "*old age*?" All of these cases are now reported as pneumonia, most of these in old persons not being true pneumonia but hypostatic congestion. All of these causes and cases are reported as deaths from pneumonia and it swells the per cent. of fatal cases of pneumonia when blood letting is not resorted to.

Twenty-five years ago when I graduated, the idea that a certain class of cases of pneumonia would die if I did not bleed them, was thoroughly impressed upon my mind. They were so vividly described that I could tell them at the first glance. That the death of these cases should not be laid at my door, the first instrument I bought was this lance (showing a lance) with the determination to use it *well* and to use it *often*. I carried it with me every day for twenty years, expecting to find a suitable case of pneumonia in which to use it. The case requiring bleeding never came to me. It has never been used to bleed a case of pneumonia, and for the past four years it has done good service in a manicure set. In my twenty-five years of practice I have never found a case of pneumonia in which I thought bleeding would be beneficial, and I have *never regretted* not having bled a case.

What are the physiological effects of blood letting, and what results do we expect to obtain from it in pneumonia? Huxham, Cullen, Sydenham, and others of the old sanguineous school took large quantities of blood from cases of pneumonia. Day by day, with the progress of the disease, fresh blood letting was practiced. Dr. Gregory after bleeding a young man into convulsions by the abstraction of between four and five pounds of blood in three days, concluded that he had cured him. Bonilland recommended a daily bleeding to the amount of fourteen to sixteen ounces until the disease is cured (or dead.) Andral asserts that "no period of the disease contra indicates venesection and that age is no barrier to this treatment, the slightest threatening of a relapse calling for further bleeding; it is not to be omitted without the greatest danger, no amount of prostration to prevent it, if the respiration be seriously impeded." Grissolle recommend the abstraction of from two to four pounds by repeated venesections, and still regards this plan as the most successful in the treatment of the disease. Within a few years Professor Hardy has bled patients with pneumonia three times in twenty-four hours. Within the past few years several efforts have been made to revive this so-called

"Lost Art." It is not only recommended by some of the older medical men who graduated during the period of bleeding, but some of the younger members of the profession, who have failed so far to make progress forward, start on a backward track and attempt to resurrect some old idea of treatment or operation that the progressive portion of the profession have discarded long ago.

The late Prof. George B. Wood in his work on "Therapeutics and Pharmacology," in speaking of blood letting says: "There is no remedy more important than this; perhaps none which so frequently saves life. The indications which bleeding is calculated to fulfill, are, first: to lessen the quantity of the blood when in excess. Second: to lower its quality when abnormally rich or stimulant. Third: to relieve vascular irritation and inflammation through the two agencies just mentioned. Fourth: to obviate local determination of blood dependent on excessive action of the heart. Fifth: to relax spasm and relieve nervous irritation in general by directly depleting the nervous centers. Sixth: to awaken the susceptibility in any organ rendered insensible by active congestion of the nervous centers, and seventh: to promote absorption by depleting from the blood vessels." In another place he says: "The effects of bleeding are to lessen the quantity of blood for a time, and to impair its quality. After the loss of blood, absorption of liquid takes place immediately in order to supply the deficiency, so that the blood vessels are soon as full as they were previously to the bleeding. Therefore, though the immediate effect of bleeding is to diminish the mass of the blood, the loss in this respect is soon repaired, and the permanent effect is a depreciation of the quality of that fluid, which is rendered more watery, and less able to supply influence and nutriment to the systemic functions." Again he says: "The immediate phenomena attending on the loss of blood are a diminution in the fullness and force of the pulse, paleness of the surface, and reduction of the temperature of the body. As the loss proceeds, the pulse becomes more and more feeble, till it can scarcely be felt; the lips, face and general surface become increasingly pale, and the skin cool; feelings of languor, nausea, muscular weakness, giddiness, mental confusion and faintness come on, and at the last syncope takes place, with a temporary suspension of all the obvious vital processes, from which the patient gradually recovers."

I have quoted so extensively from Prof. Wood because he was a conservative type of the old school. Do we find in his picture of the physiological effects of blood letting a remedy of great value in the treatment of pneumonia, viewed through modern pathology?

Pneumonia is an infectious disease produced by the presence of the diplococcus pneumoniae. Whether we call it primarily a local disease of the lungs followed by constitutional symptoms, or whether we consider it a general disease with local manifestations in the lungs makes but little difference. What concerns us is, what are the conditions that we have to deal with and what produces them, and how can we best relieve them?

In a paper I read before the Section of Practice of the American Medical Association in 1888, on some of the "Influences of the Sympathetic Nervous System in Disease," I took the ground that most of

the so-called inflammatory and catarrhal diseases could be more thoroughly understood by considering them as conditions dependent upon paresis of the sympathetic nervous system. I said in this paper that: "Pneumonia can be more easily explained in this way than in any other." I will not take up your time with the pathological anatomy of the lungs or blood in pneumonia. The conditions that are spoken of, that of engorgement, red hepatization and gray hepatization are only the conditions that we find where the efferent nerve filaments of the sympathetic ganglia have been severed, or held in temporary suspension,—the rapid pulse, elevated temperature, difficult breathing, weak heart, etc., are the effects of paresis of the vaso-motor system, as has been demonstrated by the experiments of Pettit, Dupuy, Barnard, Bidder, Brown-Sequard, Samuel Fox, Flint and others.

The diplococcus pneumoniae find lodgment in the lungs; by their local action they produce an irritation and by the action of the ptomaines produced by them which enter the circulation and act upon the ganglionic nerve centers produce every condition and symptom we find in pneumonia. The action upon the nerve centers in connection with the local irritation of the microorganism cause the engorgement of the lungs and following this, we have the stages of red and gray hepatization. With the loss of tone of the vaso-motor contractors the vessels become dilated and press upon the air cells cutting off the supply of air and with it the oxygen, producing dyspnoea; at first the current of blood passes more rapidly than normal, but after several hours the current becomes slower and slower. The right heart using all its force to propel the blood through the lungs at last becomes exhausted. The left heart not receiving sufficient blood from the lungs becomes rapid and irregular in its action.

Heart failure and exhaustion being generally the causes of death in pneumonia, every effort should be made to preserve the strength and not waste it by blood letting.

If we carefully consider the physiological effects of blood letting referred to in this paper, and then study the conditions and symptoms and their causes in pneumonia, what valid reason can we give for the removal of blood? If the point is raised that it gives relief in the stage of engorgement by reducing the volume of blood passing through the lungs, would it not be much better to preserve the blood in the body and regulate the amount passing through the lungs by ligating the extremities, or by means of well known therapeutic remedies, and then we have the full amount of blood to husband the strength of our patient after the urgent symptoms have passed off. When we consider, therefore, that the most urgent symptoms of the disease, the dyspnoea and the pyrexia are only temporarily diminished by blood letting and that they both tend in most cases to return after a few hours, the reasons for the adoption of this method of relief lose much of their force.

The mortality from pneumonia depends much more on prostration in the later period than on asphyxia in the earlier stages of the disease and the prostration is much more likely to occur when the strength of the patient is weakened by bleeding. Wilson Fox in speaking of blood letting in pneumonia says: "With regard to the possible effect of this treatment

in cutting short the disease, it may be stated that the chances in any given case are strongly against such a result. Looking at the general effects of this procedure, patients will on the whole be probably in a worse condition for passing through the latter stages of the disease when weakened by an artificial loss of blood than they are likely to be if their resources in this respect are husbanded."

Dr. Whittaker says: "There could be no justification of venesection in pneumonia, except upon the theory of a local inflammation. That pneumonia is, however, not a simple inflammation, is proven by well established facts. Pneumonia is due to a poison entering the blood and affecting the whole body, and no amount of blood letting could let it out, any more than we can drain out the impurities of a stream with a bucket."

After twenty-five years spent in the careful study and treatment of pneumonia, I do not think I would be any more justifiable in bleeding a patient with pneumonia than I would in picking the pocket of a millionaire because he had more money than required.

If I believed that blood letting would decrease the mortality from pneumonia, I would bleed my patients, even if the entire medical profession should condemn it.

321 Superior Street.

EARLY ASPIRATIONS IN ACUTE PLEURITIS.

Read in the Section of Practice of Medicine, at the Forty-fourth Annual Meeting of the American Medical Association.

BY E. J. C. MIXARD, M.D.

BROOKLYN, N. Y.

Pleuritis is a disease as old as medicine and common as spring and autumn, but as many mistakes, perhaps, have been made in the diagnosis and treatment of it as have been made in the more obscure and less common diseases.

In the present light of medical science, blunders or neglect are inexcusable in treatment or operation in any branch of medicine.

The authorities teach that this disease will run its course often with little or no treatment, and is easy of diagnosis. So one may say of scarlet fever, sometimes. But any disease, common, obscure or rare, which will vitiate or interfere with the issuing of a life insurance policy, may not be considered slightly, or treatment assumed without duly considering the gravity of the case, with the many stages, types, complications and dangers.

In the cities of the Atlantic seacoast, especially New York and Brooklyn, pleuritis becomes one of a series of our deadly diseases, especially when pneumonitis plays the final role.

The above teaching tends to mislead when the sudden attack, the rapid course, the intense suffering and final dissolution scatters to the wind the set rules of the books, the best therapeutics and the skill of the most experienced.

The business man in whom the habit of concentration becomes so fixed that a small amount of pain does not alarm so long as the brain keeps clear and the hand steady, sinks at the threshold of his own door or in his office, and in spite of consultants, specialists and trained nurses succumbs in three to fifteen days. If the victim be a frail woman who

has always known pain somewhere, dyspnoea and acute pain set in at once, and with a scared look indicative of the approaching dissolution, she loses heart, so to speak, and in the home her place becomes empty, while the family physician, who becomes so attached to his patients that their home hopes and home joys are his, sits dumb with defeat. Autopsies are seldom asked for and rarely allowed, hence medical knowledge grows slowly and only by years with the general practitioner not attached to a clinic or hospital.

In this short paper or in a longer one, it would be beyond forbearance to dwell upon the causes and types, the many views of treatment, the discarding of many of the old and acceptance of some new remedies the manner of administering them, the weary convalescence and crippling adhesions—for well I know I am speaking before the gods after being present at the battle of the giants this morning—all these have been told well by the latest authorities, and their sanction given to the changes.

Every practitioner has his happy combination of a large repertoire of drugs and his favorite prescription, also his studied mode of action. But routine practice can not be tolerated.

The advantages of the new therapeutics—the aniline carbon group—must be admitted, of which phenacetine takes foremost rank. Yet Loomis still holds, with most Americans, "that the only controlling power over acute pleuritis is opium." There still remains to us, however, of the old system of therapy, calomel, opium, veratrum viride, aconite and digitalis, the integrity of which can not be impeached. The counter-irritations and even poultices have followed the fate of the untrained nurse. Yet how much comfort these have given to the sufferer when properly applied, or before the arrival of the physician.

It does not take many cases of pleuritis to convince the practitioner that a diagnosis is not always an easy matter. Complication with pneumonitis, abscesses of adjacent organs and intestinal engorgement direct the attention away from the seat of disease till suppuration renders the case hopeless, ending in acute tuberculosis if there be predisposition.

The reader once held a diagnosis in abeyance for eighteen hours in favor of appendicitis where intestinal engorgement complicated an operative case of pleuritis. To auscultate and make out the different sounds which are taught by the specialists as indicative of this or that condition; to hear the pleuritic rales of a Leaning, whose acute hearing could discern vesicular breathing after death, the cause of which he attributed to changes taking place in the pleural walls; in palpation to distinguish the musical tone and pitch of a quimby upheld by Damrosch, or to have had the clinical training of a Loomis, whose eagle glance can descry the prey afar off, only a few can hope to aspire. By the way, this fine sensibility might develop in some medical westerner who is accustomed to hear the grass grow, according to a facetious editorial. But it must not be ignored that the beginning of a successful ending in treatment of any kind, however tedious, is in a careful mapping out of the involved parts by "palpation and auscultation during inspiration and expiration," as laid down in the books and taught in the clinics, noting the type, duration, history and complication.

It will not be surprising that a treatment which will cut short the tedious and dangerous methods of the past should be welcomed in the cure of this disease. The majority of the profession now accept early aspiration as this remedy, and that it belongs to the realm of general practice and not to be delegated to the field of surgery.

Since Trousseau taught that there was more than palliation in the method, time has proven it. From Trousseau to Lister we owe progress in the past to all the brilliant minds who have helped to perfect the methods, instruments and the applications of these, by which aspiration is now applied as a remedy in the cure of acute pleuritis.

Dr. Matas' indications when to operate are clear and explicit: "1, the abundance of the effusion; 2, the rebelliousness of the effusion to absorption in spite of appropriate medication." Again we quote his reasons for immediate operation:

"Excessive effusion, asphyxia, cyanosis, large accumulations, displacing the heart, interfering with thoracic circulation, which may cause instant death." His rule is that "when fluid can be detected on a level with the second rib, operation is indicated."

After a clear diagnosis has been made out and the fever and pain controlled, the preparation for aspiration is simple to one accustomed to minor surgery, but must be thorough, also the careful selection of a proper instrument, and there are thirty or more to choose from. It must have the guarded point, must be easily cleaned and comfortably carried about with one. It must be thoroughly cleaned, and we here give Dawbarn's method of sterilizing:

"Boil the trocar and canula separately for twenty minutes in a solution of one drachm of sodium bicarbonate to a pint of water, then after drying keep them permanently immersed in a sterilized bottle filled with absolute alcohol." Other methods of sterilization may be employed, only one is to remember to guard against microorganisms.

The patient is to be prepared by thoroughly cleaning the parts with carbolic acid solutions (surgical solution), or wipe off with ether and absorbent cotton if the skin is not broken.

"There is no classical point for operation," says Matas. "Select a point near the fluid; be sure of the anatomy when the patient is in a semi-recumbent position. Avoid the point of the shoulder blade so as not to give the patient discomfort afterward in moving in bed, especially with nervous children. Keep the canula clear if it become stopped with mucus. Evacuate the fluid slowly and sustain the patient by hypodermic injection of stimulants. The reader has had the temperature fall from 104° to 90.8° in three hours after taking ten ounces of fluid."

The pleural cavity may refill, but a second evacuation is seldom required. The patient is not yet cured. Great care must be taken, to expand the contracted lung and restore the displaced heart to its proper place by gymnastic exercises; local massage to correct the deformity of the chest. Open air exercise, proper food and tonics must be ordered. In suppurative cases the opening of the thorax must be resorted to, with drainage and washing out with antiseptic mixtures. With asepsis, care and medications to produce sleep, if death ensue it must be from bad methods or unforeseen complications. Chloroform may be given with good results, especially to nervous children; cocaine also may be used with advantage.

As in any other surgical operation, unnecessary pain is to be avoided.

The lesson of the hour to the general practitioner in the treatment of this seemingly simple disease, teaches that the field of practice is being shadowed in its usefulness by consigning aspiration to the surgeon.

The general practitioner must be an all round physician, not a specialist. He must think anatomically as well as physiologically. He must diagnose correctly and do all his minor surgery himself in order to keep the respect of his patient, and only in the capital operation should he surrender his patient to the specialist. And even then he should be able to so correctly locate disease that he may command the surgeon rather than retire.

DEMONSTRATION OF GASTRODIAPHANY.

Read before the Section of Practice of Medicine at the Forty-fourth Annual Meeting of the American Medical Association.

BY MAX EINHORN, M. D.

PHYSICIAN TO THE GERMAN DISPENSARY AND INSTRUCTOR IN CLINICAL MEDICINE AT THE N. Y. POST GRADUATE MEDICAL SCHOOL.

Although our means of diagnosis in diseases of the stomach are quite manifold, and have of late been increased (chemical analysis of stomach contents; inflation of the stomach with gas; the splashing sound), nevertheless I do not hesitate in bringing in a new method of examination before your learned body, as I am convinced it will prove of value. In no other region of the body does there exist at times so many difficulties for making an exact diagnosis as in the abdominal cavity. Here so many important organs are crowded together, and though in the normal state they are friendly neighbors and hold their own places, it is quite different in sickness. This often necessitates changes in the size and position, and thus the normal limits are obliterated, and at times hardly recognizable. This has special reference to the stomach, which is the most frequently afflicted organ in the abdomen. All means tending to give us a clear idea of the position and size of the stomach must be appreciated. Gastrodiaphany or transillumination of the stomach serves best this purpose, and after a few short remarks I shall demonstrate to you the method.

With a light inside, the stomach forms a kind of lantern, which is recognizable through the translucent tissues. As small streaks of light are more perceptible in the dark, it is best to illuminate the stomach in a dark room.

For examination, I make use of a very simple apparatus. It consists of a soft rubber tube, at the end of which is fastened an Edison lamp (of hard glass) by means of a small metal mounting; from here conducting wires run to the battery; at some distance from the rubber tube there is a current interrupter. The insertion of this apparatus into the stomach is no more difficult than that of the ordinary tube alone. I usually have the patient in a fasting condition, drink one to two glasses of water, and thereupon insert the apparatus, lubricated with glycerine.

In 1889 I had first described this method of examining the stomach and designated it "gastrodiaphany" for the stomach becomes translucent and called the apparatus serving this purpose the "gastrodiaphane."

It is best to examine the patient either in a standing or a recumbent posture. The stomach presents itself as an illuminated zone of a reddish hue on the abdominal walls; its contours can be discerned more accurately by pressing with the hand on the abdomen in the neighborhood of the transillumination figure, or, speaking more correctly, by counter-pressing the stomach. By means of this manipulation the point in question is brought nearer to the source of light in case the stomach is situated beneath it. Normally the transillumination zone of the stomach is found in every individual. It is of interest to observe that the stomach moves farther down during a forced inspiration, *i. e.*, the transillumination zone is seen to descend. During a strong contraction of the stomach the transillumination figure becomes considerably smaller. This can be frequently observed as soon as the patient tries to vomit during the examination. If the stomach is considerably dilated, one can see by means of the gastrodiaphane on the abdominal walls of the patient an intensely lucid lower zone, which is situated between the navel and the symphysis and goes over into a less intensely clear zone which sometimes borders the left margin of the ribs. The transillumination figure corresponds with both that part of the stomach which is filled with water and that which is filled with air.

In contra distinction to dilatation of the stomach, the cases of gastropotosis (low position of the stomach), show a relatively small transillumination zone, which is situated far below and extends from about the symphysis to the navel.

In the past four years I have often made use of gastrodiaphany as a diagnostic means. In my paper "On Gastrodiaphany" *Medical Journal*, December 3, 1892, I have pointed out the value of gastrodiaphany in the following:

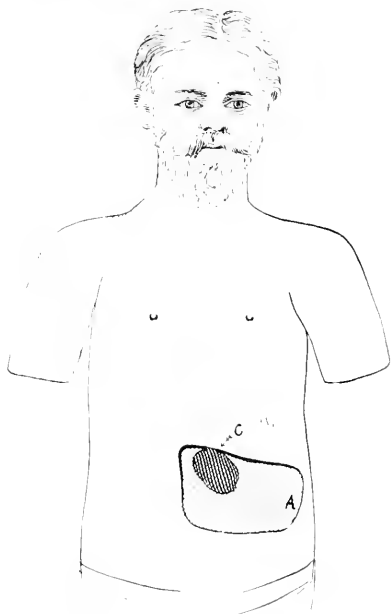
1. We are enabled to recognize quickly a dilatation of the stomach.
2. The condition called "gastropotosis" can with certainty be pointed out.
3. One is enabled to perceive tumors or thickenings of the front wall of the stomach by their lack of translucency.

In that paper I described a case of cancer of the front wall of the stomach, where the transillumination of the stomach was not apparent, *i. e.*, the field of translucency of the stomach was entirely absent. This negative result of gastrodiaphany proved to be important for the diagnosis of the case in question, as the orifices of the stomach (cardia and pylorus) had not been affected.

To-night I would like to report to you the result of gastrodiaphany in a patient with carcinoma pylori, whom I had the opportunity to examine several times. There the tumor could be very well felt; there was stagnation of food in the stomach for several days; no free HCl; organic acids present. The diagnosis was carcinoma pylori. The picture of diaphany showed a large illuminated zone going from the left margin of the ribs downward ($\frac{3}{4}$ finger width below the navel) and horizontally to the right about 12 inches beyond the linea alba. The upper part of the transilluminated zone was dark or shadowy just in the region of the linea alba stretching to both sides of it having a horizontal diameter of 3 inches and a vertical of 2½. This shadowy figure was embedded in the transilluminated zone and the reddish hue could be perceived almost around ($\frac{1}{2}$ of

the circumference) it. The drawing represents schematically the transilluminated stomach with the figure in it. (See figure.) Although in this case the tumor could be felt and the diagnosis was made without the aid of the gastrodiaphane, nevertheless, the result of the diaphany examination was very interesting and instructive.

Mr. President and gentlemen, gastrodiaphany in man as first practiced by me has found its way to Russia, Germany and France (Reichmann, Heryng, Parisot, Boas, Renvers, Dommer) and in this country others (D. D. Stewart and M. Solis Cohen) besides myself, practice it. Let me hope that after this demonstration the use of gastrodiaphany will be more promulgated and that it will be of continued value to the profession.



A—Trans-illumination zone of the stomach.
C—Tumor.

IMMIGRATION INTO BRAZIL.—The Brazilian Congress recently repealed the laws prohibiting Chinese and Japanese immigration. There is great demand for labor supply among the farmers. All immigration into Brazil is now through a company who have a contract with the government to introduce not less than 20,000, or more than 100,000 immigrants per year.

Among other conditions, it is specified that 90 per cent. must be families of agriculturalists; they must be of different nationalities, not more than 60 per cent. coming from the same country. Ages are specified and all must be strong and apt at their profession. Paupers and criminal classes will not be received. When accepted, immigrants are housed and fed until the government transports them to their places of destination in the interior. The government will send back to their native country, those who become widows or orphans or incapacitated by accidental injury during the first year.

THE MUTUAL INTEREST OF THE MEDICAL PROFESSION AND INSURANCE COMPANIES IN THE PROLONGATION OF LIFE.

Read before the Section of Medicine at the Forty-fourth Annual Meeting of the American Medical Association, held in Milwaukee, Wis., June, 1893.

BY CHARLES DENISON, A.M., M.D.

DENVER, COLORADO

Professor of Diseases of the Chest and of Climatology, University of Denver; Ex-President of the American Climatological Association; Author of "The Rocky Mountain Health Resorts," "The Annual and Seasonal Climatic Charts of the United States," etc.

This is a new inquiry, seeking to bring into better harmony and successful cooperation two great institutions, *i. e.*, scientific medicine and life insurance business. Those satisfied with what is already the rule will oppose with the argument, *en bono*, the two callings are wholly distinct and entirely sufficient as they are. The argument is both fallacious and deceptive, besides being useless.

We, the medical profession, are not and do not pretend to be perfect. We are simply on the road to perfection, constantly passing many things by the way with regretted and unregretted, if unknown, ignorance of their real nature.

If Lawson Tait had any reason to make the statement attributed to him, that "that man would be rash who would make a positive diagnosis of any given condition within the abdominal cavity," then certainly every physician must appreciate the equal necessity of the largest possible array of evidence of disease within the thorax in order to reach any positive conclusion. Time is evidence, and memory is unreliable, hence the great need of the systematic recording of the evidence in chronic cases. A complete diagnosis may be so difficult that it requires to be something more than "physical," and the physician needs all his own intuition, historical information and side aids, as the microscope, to come to a definite conclusion.

We know so very little of the *pre-tubercular stage* for instance, that indefinite, indefinable condition of the body solids or fluids, before the *bacillus of tubercle* "lives, moves and has its being."

And as to life insurance, it can not boast of any greater completeness than the medical profession, unless on the understanding that insurance is nothing more than taking chances on those who will die in favor of those who survive. Life insurance had practically no existence previous to 200 years ago, when Pascal, a Jesuit priest, being appealed to to divide the stakes in a game of chance, in doing so figured out the "doctrine of probabilities," which has ever since been the basis of the life insurance business. But, *as an institution interested in life*, insurance is far from the attainment of its highest success. To appreciate the truth of this statement one has only to carefully peruse the diverse views as to "Modern Insurance and its Possibilities," in the March number of the *North American Review*, by prominent and distinguished presidents of American life companies. What a splendid conception of the "possibilities" of life insurance these excellent gentlemen would have had if they could have seen, in their mind's eyes, the harmonious picture of the coming life insurance president aiding and abetting the physician of the future in the *prevention of disease and the prolongation of life!* Strange as it may seem, in view of such well rewarded business sagacity, as these correspondents of the *North American Review*,

enjoy, it does not appear to have occurred to them to inquire how much it would have cost to stamp out a disease in preference to paying a bonus for those this given disease had slaughtered. Judging by the "possibilities" mentioned, the important question has not yet been entertained, namely, how 10 per cent. of health precaution and skillful, systematic and professional supervision of their risks might result in 30 to 50 per cent. pecuniary gain to the companies.

However, admitting that the life insurance company has thus far been an institution founded on money considerations only, we will at first strive to keep in the background the splendid humanitarian idea which underlies this present conception of its future possibilities. Then, when a broader and nobler course for the companies has been shown, not only to be comparatively inexpensive but very profitable considering the outlay, the beneficent purpose of prolonging life, the idea of benefits while living for the insured, as well as for his survivors after death, may be a substantial support to the more enlightened plan for life insurance's usefulness. Let it be distinctly understood that this is not a plea for the insurance of *inevitable* risks. However, the time may come when the better understanding of the classification and varying longevities of invalids may lead to a knowledge of their insurability. No, it is the care and improvement of the risks the companies have already taken which are prominent objects of this paper.

There is undoubtedly a considerable mortality rate, which, because of deaths by accident or acute diseases, is diverted from the ratio that would otherwise belong to the consumptive class. Besides, medical officers are making particular efforts to shut out this one disease by skillful selection, and by the exclusion of heredity. Notwithstanding these influences there are deaths enough among the insured from tuberculosis alone, to warrant the reform hereafter suggested in this paper. If the other companies were as painstaking in the compilation of their mortality statistics as the Mutual Life of New York has been, they too would learn something directly to the point and greatly to their benefit.

Namely, 1st: That, as to consumption, as early as the third year of insurance the companies have practically lost most of the advantage of their selection of risks. 2nd: That from the second to the tenth year of insurance the mortality they have to pay for averages 23 per cent. due to some form of tubercular disease. This is a fair inference from the following table, kindly furnished me by the medical department of the Mutual Life, taken from the mortality records of the company for its first thirty years of experience:

TABLE XV.—*Progression of Consumption Mortality to Total Mortality, and Years of Life Expected.*

Duration of Insurance.	Deaths from Consumption.	Percentage on Total Mortality.	No. of Deaths to 1000 Years of Life Expected.
1st Year.	37	19.67	11
2d "	137	20.07	11
3d "	133	24.26	11
4th "	143	24.49	10
5th "	116	23.77	10
6th to 10th years.	208	22.70	10
Above 10 years.	168	14.83	12

The above are not strained estimates, but probably underestimates for all companies: for that the Mu-

tual Life is a carefully managed company in its medical department is either plainly shown by the following table, obtained from the same source, or else the more numerous consumptives among the beer drinking Germans hang on to life much longer, than the consumptives in our healthier yet faster-living America:

TABLE VIII.—Shows the Annual Number of Deaths from Consumption Among Those Insured at Each Equinoctial Period, Life Insurance Companies of the United States, 1890-1892.

Age.	Mutual Life Insurance Co.	12 German Life Insurance Co's.
21 to 25 years	23	19
26 to 30 "	25	20
31 to 35 "	22	42
36 to 40 "	17	37
41 to 45 "	17	30
46 to 50 "	16	28
51 to 55 "	15	25
56 to 60 "	16	32
61 and upwards	18	32
All ages	186	357

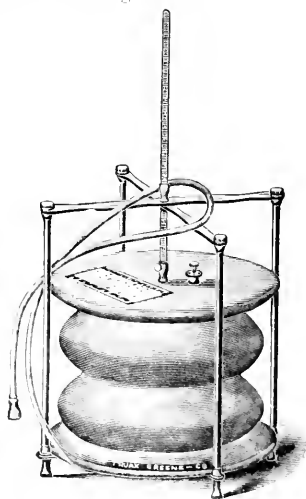
NOTE.—It should be borne in mind that the above table is influenced by the younger life which obtains in a company's experience during the first 20 years of its existence.

What is needed is a similar computation up to date of the mortality experience of all the companies, not only like the above two tables, but also another giving the ratio of deaths in this class to all deaths for each year's age of policy.

Then in comparison with general mortality statistics, obtained without reference to insurance, the companies would know two important facts; first, the quality of work their agents and physicians are doing for them; second, the great importance and tremendous expense of the consumptive class on their lists. They would incidentally learn the great value to the companies of climatic change and close supervision or individualization in these cases. This needed list should comprise deaths from consumption, fibroid phthisis, chronic pneumonia, chronic pleurisy and bronchitis, tuberculosis, asthma, scrofula, "wasting" etc. My experience, in an effort to get these data from the companies, is that they haven't them, or if they have they are not of such a nature as to be given to the public. Of course we must admit a certain untrustworthiness of mortality statistics, the insidious and usually complicated existence of tuberculosis furnishing one excuse for a flexible estimate, but broadly it can be stated that the cost in death losses paid by life companies, in the past fifty years, has been between \$350,000,000 and \$600,000,000. In view of the importance of this consumptive class to the company's welfare, and the, to me, undoubted fact that latent tuberculosis is at the bottom of more failures in health than that subtle condition ever was credited with, I recommend to medical directors of life insurance more exact and systematic safeguards against the entrance of such impaired lives on an equal footing with selected healthy risks. There is not time and so it is not here my purpose to fully discuss the intimate relations which should always exist between the medical director and the medical examiner of a life insurance company. The confidence which is reposed in these two by the unprofessional officials of the company is as yet insufficient to offset the excessive interest the agent has to insure anybody regardless of risk, or the desire of many applicants to be rated higher than their physical condition fairly warrants. In a carefully constructed entrance examination paper, among the physical conditions required to be stated, I think the *spirometrical and manometer record*

of the applicant should be included. Then, if either or both are below a given fair standard, (say 25 or 30 per cent. below) for the applicant's height, sex, age, etc., the exposure of the applicant's chest and the taking of the semi-circumferential measurements of the two sides, should in all cases be required. By these measurements the following will be shown: First. If an unnatural difference in the respiration movements of the two sides of the thorax has to explain, by inference, a deficient spirometrical record, with manometer record normal for that person, then surely that inference is toward *fibrosis or pleuritic adhesions* and perhaps *latent tuberculosis*. Second. If, with similar variation in movement, a marked deficiency in manometer record has to be explained, the spirometrical record being all right, then the inference is to a *positive weakness*, which must influence the applicant's vitality. Third. If, however, deficiency below a standard of health both in the spirometrical and manometer record of an individual, can or can not be accounted for in deficient movement of one or both sides, there is then a *suspicion of weakness*, to possibly elucidate which a more careful investigation is needed before accepting the risk.

Gentlemen, these are new points for life insurance examinations which I believe I have the honor to present for the first time. Whether their observance will shut out 10 or 20 per cent. of the consumptive mortality, which is now borne by the companies, I do not know, but I am sure they will account for many doubtful cases not usually made plain by an ordinary physical examination. These rules are the outgrowth of my personal investigations with the spirometer and manometer, samples of which are here presented as made for me by Messrs. Truax, Greene & Co. of Chicago.



DENISON'S SPIROMETER.

In the winter and spring of 1873, when, after pulmonary hemorrhages, night sweats, etc., I was myself health seeking in San Antonio, Texas, I met Dr. M. Slocum, a physician whose experience so well illustrates a plan I had already conceived that I will here relate his case: Some sixteen years before this time of my meeting Dr. Slocum he found himself a health

seeker in San Antonio, Texas, two years after his wife had died of consumption in New Orleans. For her health he had moved from the North to the South. Whether his was a case of infection or not I am not certain; but he was really in a serious condition, emaciated and having several hemorrhages in the streets of San Antonio, excited even by the effort of walking a block. He was also broken in finances, and naturally thought of utilizing the then present value, to the company carrying it, of his life insurance. He had a \$5,000 policy on his own life in his wife's favor. I believe this was either in

much good thus came to this man, why not to all insured under similar circumstances? Might I not have been insured myself, and the medical fraternity of my then home, Hartford, Conn., justly conclude that a hundred, such as I then was, would average to live not over three years, *i. e.*, to remain in the Connecticut valley. Now, twenty years afterward, when a policy on my life would have more than tripled itself in value, I survive and am permitted to disturb the contented insurance man with these vexing conundrums!

The country of southwestern Texas, New Mexico, Arizona, Southern California and Colorado is full of illustrations of this kind, so that it would be possible to assert with approximate accuracy, that classes of tubercular invalids who would have averaged to live two to four years, in their Eastern homes, have already lived from five to fifteen years in their newly chosen residences. The significance of this is plain enough when one considers that a prolongation of life nine years for a man of forty, doubles the value of his policy to the company holding it, through the incoming premiums and the use of the money which would otherwise have been paid out because of his death.

Twenty years ago I hoped to be able to present the exact data that would serve as a basis of this life-prolongation, *i. e.*, a *classified table of climates and classes of invalids*, together with the different longevity of these invalids, residing thereafter in the several climates. But over 3,000 physicians, carefully selected by prominent medical friends to represent the whole United States and Canada, to whom my circular of inquiries was then sent, had not the requisite uniformity of mental training, nor habits of studying or recording disease, to make their combined replies of real value. There was not then, and there is not yet among medical men, enough system of disease investigation nor uniform expertness in diagnosis to formulate a *table of disease longevity*. There is knowledge enough of both climate and consumption within the great body of medical men, but it is so often nullified by individual peculiarities, experiences and environment, that collectively it is practically valueless. Success must come largely from individual effort and proficiency. This conclusion brings us to the most important and final part of my paper. The remedy for professional incompetency lies in some appropriate system, and a better familiarity with every diagnostic means. The system which I here present may not be the one in all its features which will be eventually endorsed by the medical profession as the best, but it is very much better than none at all.

"*The Chest Diagnosis Chart* and aid to climate-selection," which is the main feature of this plan is the outgrowth of much study. By a two years' use it has enlisted my confidence. It tends to avoid the omission of any important part of a critical clinical or physical examination. It stimulates accuracy in defining and graphically illustrating thoracic disease. It favors an earlier detection of enfeebled or diseased states, through this accurate association of changed physical conditions. It refreshes and strengthens the memory as to previous investigations of a given case. The chart has been submitted for criticism and correction to some of the leading physicians in the United States, and very generally received their approval. The severest criticism is thought, by two distinguished physicians, to be the great difficulty in



a New York or New England company. Three of the best physicians in San Antonio critically examined him and made a written report of the facts, recommending to the company to pay Slocum at least 50 per cent. of his policy for its surrender. The company sought to parley with their man, and offered him \$1,500. That was worth a thousand times as much to him living as to him dead, and he accepted the offer quickly, the more so as the indications were even then apparent of a disruption between the North and the South. He took this money and resolved that he would not go inside a house for six months, and kept his resolve. My oldest brother, then a resident of San Antonio, used to go out to Slocum's tent on the prairie to play chess with him under the mosquito bushes. Well, sixteen years afterward, when I met the doctor, he was clerk and recorder of Bexar county, a hale and hearty man of 160 lbs. weight, though his voice was yet husky and he relied considerably on stimulants.

It can almost truthfully be said it is not consumption that kills, but *worry*. The money the life insurance company sent saved that man's life. The officers of the company made a good bargain, and they need not reproach themselves because they did not hold on to that policy in order to save the over \$20,000 which, in value to them, it would have amounted to if it had been kept in full force up to the time Dr. Slocum eventually died, about twenty-three years from the time the company made the settlement with him.

Was it not perfectly natural for me to ask, if this

getting the ordinary physician to go into the amount of detail required to properly fill out the document, and also his natural hesitancy to make any kind of an exact statement as to internal chest conditions. If this criticism is just, it is one of the greatest commendations the chart could receive. Accuracy and truth can nowhere be of more value than in regard to diseased conditions within the human body, and that means, be it a diagnosis chart or a professor of physical diagnosis in a medical school, which will teach the ordinary physician *to know what he says and say what he knows*, is a great blessing to humanity.

Let it be understood, if you like, that the practice of such innovations will hardly be established among the older men in the profession, who are almost unchangeably fixed in their ways of investigating and combating disease. It is the younger men in the profession whom I hope to gain as friends and collaborators in this new field. I would that every teacher of physical diagnosis in the land would do with his students as I have and shall hereafter do with mine; namely, drill them in this system of clinical research and physical diagnosis, and present them with copies enough of some such a chart as this that they will get into correct habits of recording their chronic cases at the start of their professional career. As to the too little interest among physicians to attend to the required detail, a knowledge on the part of the public of the benefits to result will bring a healthful demand for such services. However trivial, prolix or exacting an ordinary life insurance examination may be, the details are all attended to before the application is considered complete. This influence in favor of accuracy as to detail gives me the strongest hope for the chart's utility. What a wonderful educator of the medical profession such an agency would be, if adopted and generally utilized by all the great life insurance companies! All this increase of labor on the part of medical men would be in the direction of greater proficiency in the diagnosis and description of disease. Besides it would be productive of more uniform and correct information of the healing effects of different climates than obtains at present.

The chart is here presented for your inspection, with the directions for its ordinary and special uses printed on the first page. Besides its use for preserving a record in chronic pulmonary cases, directions are given for carrying on a consultation between widely separated physicians, and for an intelligent inquiry as to the suitability of a given climatic change, before a suspected or known invalid undertakes a journey to a distant health resort. The plan I should like to see the life insurance companies adopt, and one I am sure they could afford to carry out with great credit and profit to themselves, is as follows:

Each company uses its own force of selected medical examiners, or if preferred designates a smaller force of physicians, skilled in physical diagnosis, to represent the principal centers where their policyholders reside. Besides these they designate their own *agent à la carte physician or physicians*; perhaps one specially skilled in the climatic treatment of respiratory diseases—at the headquarters of the company or elsewhere—or several such representing most prominent health sections of the country. The company then notifies all its policyholders that under specified premonitory or actual symptoms of disease, such as pulmonary hemorrhage, night sweats, pro-

gressive wasting of flesh, etc., they will send the chest diagnosis chart, have a critical inquiry made by their chosen local and referee physicians and return the written report and advice of these physicians for the policyholders' benefit and final decision. The company may do less, or even more than this much. One physician suggests that the company should have a reexamination of all their insured at stated periods; another that all impaired lives only need be so reexamined. The company, however, could well afford to promise to loan the insured a given per cent. (based on his disability), of the amount named in his policy at a small rate of interest, in case this aid was needed to help bear the expense of the advised change of climate or occupation. The applicant, with all these benefits so well and gratuitously furnished him, should not and probably would not refuse to obey the proffered advice. The company would reap the reward in the resulting prolongation of life. This return would be great for the outlay, according to how early in chronic lung affections the needed change would be inaugurated. The longer it is before the breaking down of lung tissue, the better. Hence the great advantage of an *early* inquiry like the one here proposed. If, as statistics prove there are over 100,000 who die annually of consumption in the United States, and 200,000 who are already more or less affected for every 100,000 who die, the proposition is how to reach the new cases so that they will average eight to ten years of life thereafter, instead of only two.

Gentlemen, I see no objection on the part of our profession to this plan for the enhancement of life insurance's utility. But I must tell you that some seventeen years ago the president of one of our largest life companies accepted this scheme practically as here stated, but the plan was vetoed by his medical department because "it would not do," they said, "to take away patients from the men the department depended upon to do their examinations, and send these policyholders away to a distant climate that their lives might be prolonged."

It remains for you, gentlemen, to say if this imputation is not a libel on your good name as honorable physicians, always seeking the best welfare of your patients.

This whole matter is now presented in a form which, I trust, will meet your approbation, and coming to public light through you, representative men of the medical profession, is freely and unreservedly given, with the hope that this method of recording cases, and this beneficent plan for life companies, will receive your hearty endorsement.

In conclusion, I crave your indulgence for this fragmentary treatment of so many questions, each of which is of importance enough for a separate thesis. This method of presentation seemed to be warranted by the mutual interdependence of these various interests.

I shall be gratified if even this much shall prove a help to those who will hereafter take up the work and more completely present and elaborate the different phases of this important subject.

[After the reading of the above, a Committee of the Section of Medicine was proposed to "consider the suggestions embodied in the essay." This committee reported: "That the adoption by the medical profession of a definite and comprehensive plan of recording, with explicit and accurate statement, the results of examinations of persons affected with chronic pulmonary disease, as proposed by Dr. Denison, is a consummation earnestly to be desired, since it would be conducive to the early recognition and to the prompt and effective treatment of such disease, and to a correct appreciation of its course and tendencies, besides affording the best possible basis of consultation between widely separated physicians."

The financial features, as to life insurance companies undertaking to aid their consumptive insured to seasonably profit by climatic change, etc., were advised "to be referred for their advancement to the physicians connected with each insurance company."

THE CHEST DIAGNOSIS CHART.

AND AID TO CLIMATE SELECTION.

By CHARLES DENISON, A. M., M. D., DENVER, COLORADO, Professor of Diseases of the Chest, and of Climatology, University of Denver, Author of "The Rocky Mountain Health Resorts," "The Annual and Seasonal Climate," "Maps of the United States," etc.

The objects of this examination record are, first and chiefly—To afford the physician a suitable means of preserving the exact data of his examinations in chronic pulmonary cases, and incidentally to foster among physicians the habit of accurateness and thoroughness in physical diagnosis.

Second—To furnish a basis of intelligent correspondence between widely separated physicians when a consultation is desired.

Third—To insure success and prevent useless expenditure on the part of invalids journeying for health, by intelligently canvassing the whole subject beforehand by means of this chart, which is meant to be a physical photograph of a patient's real condition, presented or the judgment of a physician expert in such matters.

Fourth—To present to Life Insurance and Beneficiary Associations a means for the early detection of respiratory and other associated diseases largely controlled by climate and a basis for the prolongation of these lives at a time when a more or less complete restoration to health is quite possible.

That is, to furnish a critical inquiry—(a) By a competent Examining Physician at or near the patient's home. (b) By a Microscopist, if the sputum is to be stained and examined. (c) By a Referee or Consulting Physician in a distant city or health resort.

While no restrictions are placed on the use of this chart or system by any invalid, yet the family physician is most likely to first conceive the idea of a necessary change; therefore, if the attending or family physician makes the first examination, it is preferable that the choice of Referee Physician, and the final acceptance of the plan proposed, be largely left to him. The Referee Physician, returns to the same physician (or to the patient, if so desired) his own written opinion, answers to questions, advice about living expenses, and such additional information, or published documents, (about climate, diet, exercise, etc.) as he thinks needed, and also if requested, this chart. Then the enquirer has all the available facts before him for his study, and for his own or his doctor's conclusions.

Additional Inquiries and Explanations.

(To be filled out by the patient or first examiner.)

The financial question—An important consideration is the ability of the enquirer to follow the advice which may be given. Under which head (1, 2, 3 or 4) is the patient to be classed?

1. Financially fully able and willing to live as required and devote himself to getting well.....
2. Do what ever is best at moderate expense for one year or.....
3. After four months or sooner, if physically able, will be compelled to take up..... occupation. What outdoor work would he be willing to substitute?.....
4. Has no money and would be compelled immediately to depend upon his trade, herein stated, or upon..... for a livelihood.

If the patient prefers, he, or his physician for him, can state his preference as to the climatic change to be made, giving his reason therefore, whether financial, social, business or pleasure.

The life insurance problem, if it is to be considered, requires—1. Does the patient desire the insurance company interested in his longevity to investigate the needs of his case, and does he intend, as nearly as possible, to abide by the decision reached?

2. In what company or companies is the patient insured, giving age of policies and amounts?.....
3. Would the financial aid of a loan secured by this insurance be needed in order to carry out any recommended trial or adoption of a new climate or change of life from that existing at present?.....

The examination fees—In the original examination the fee for such a critical diagnosis should be \$5 to \$10 or more, according to the custom of the examiner in such cases; depending also upon whether or not a microscopic examination of the sputum is made. The final consultation fee, if the Referee Physician gives a full written report of his own opinion, etc., should also be \$10, which should accompany the request for consultation. When, because of the limited circumstances of the applicant, the first examiner so requests, the fee of the Referee Physician may be considered as \$5, as also when only the decision of a single question is desired not involving a consultant's usual responsibilities.

(Copyrighted by the Author.)

◁ THE CHART. ▷

NOTE—In answering, those portions printed in light type can be written over; and all conditions are to be considered as **NORMAL** which are not otherwise specified, or elsewhere in the chart shown to be diseased.

Examination made by Dr. _____ P. O. Address, _____ 189. _____

FAMILY HISTORY.

Patient's name? _____ Present address _____ Former residence? _____
 Age? _____ Occupation? _____ Married or single? _____ Height, ft? _____ In? _____
 Inheritance to Consumption or what chronic ailment? _____
 Does patient resemble father or mother more? _____ Exposure to infection, explain if any probable? _____
 Condition of health or life previous to present illness? _____

COURSE OF DISEASE.

Commencement, date and cause? _____
 Times of severe sickness since then? _____

 First appearance of night sweats when? _____ Blood spitting? _____ Profuse yellow expectoration? _____
(1 to 4 ounces in 24 hours.)
 After occurrence of night sweats, when? _____ Blood spitting? _____ Profuse yellow expectoration? _____
 When, if at all, did dyspnoea commence? _____
 Weight (pounds) in health, at best, when was it? _____ At least since sickness, when? _____ Now? _____

PAST CLIMATIC EFFECT.

Changes in Residence since sickness and what periods? _____
 Effect of such change or treatment? _____
 Has health been better winters or summers? _____
 Any experience in high altitudes? _____
 Accustomed to what systematic exercise? _____

PRESENT SYMPTOMS.

Sputum—Color? _____ Approximate quantity per diem in ounces? _____ Bacilli present? _____
 When examined and by whom? _____ Skin moist, dry or sallow? _____
 Afternoon Hectic? _____ Cough? _____ Pain, where? _____ Hands or feet cold? _____
 Bowels formerly? _____ Now? _____ Hemorrhoids or any rectal trouble? _____
 Patient's habits. Smokes? _____ Chews? _____ Use of stimulants? _____ Can walk how far without resting? _____
 Appetite? _____ Digestion? _____ Any previous avoidance of fatty food? _____ Sleep? _____
 Pulse, sitting? _____ Respiration _____ Temperature, F? _____ Time of day? _____ What daily range if known? _____
 Spirometrical record, cu. in? _____ Manometer M. M.? _____
 Complications? _____ Nervous state? _____ Kidneys and bladder? _____ Liver? _____
 Women—Menses? _____ Childbearing? _____ Female disease, etc.? _____
 (Any history of rheumatism, constitutional taint, glands enlarged or ulcerated, skin disease, or unusual drain on patient's vitality, as previous sexual excesses, explained here or by separate letter as desired.)

Nose and Throat.—Describe, if they exist, any obstruction to nasal breathing and the cause? _____

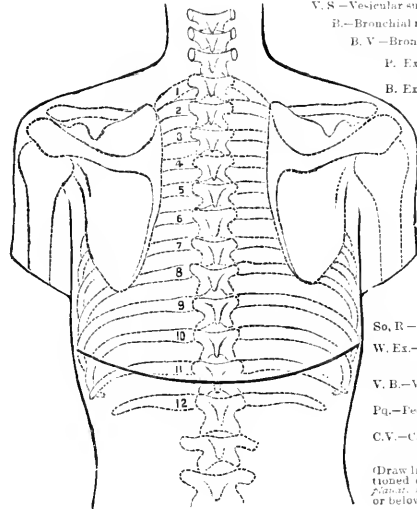
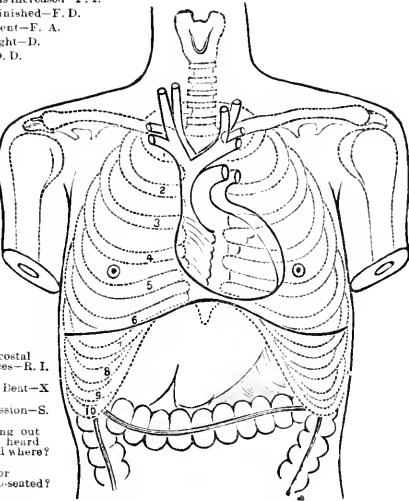
 Any Rhinitis? _____ Otitis? _____ Pharyngitis? _____
 Laryngitis? _____ Aphonia? _____ Hoarseness? _____
 Locality and extent of any clear, tubercular or adenoid growth? _____

PHYSICAL EXAMINATION.

(Made on bare chest.)

Inspection—Emaciation?..... Irregularities?..... Depression?..... Clubbed fingers?.....
Mensuration—Circumference inspiration in inches?..... Expiration?.....
Movement—Measure of two sides— Right, inspiration?..... Expiration?..... Left, insp?..... Exp?.....
Heart—Normal?..... Murmurs?..... Size?.....
Lungs and Pleura.—Percussion, stethoscopic percussion and auscultation?.....
 Draw lines from signs named to diseased areas, or indicate by marking these abbreviation letters over the diseased spots or at the ends of lines drawn outward from them. Also encircle excavations—approximate size.)

Vocal Fremitus increased—F. I.
 Vocal Fremitus diminished—F. D.
 Vocal Fremitus absent—F. A.
 Bullous, slight—B.
 Bullous, decided—D. D.
 Flatness—F.
 Tympanic Resonance—T. R.
 Cracked metal* on stethoscopic percussion—C. M.
 Hollow sound on same—H. S.
 Cavity—C.
 Honey-combed—H. C.
 Bronchiectasis—Br.
 Pleuritic Friction—P. F.
 Pleuritic Adhesion—Ad.
 Pleuritic Effusion—E. F.
 Stricture of Intercostal spaces—R. I.
 Apex Beant—X
 Succussion—S.
 Does coughing bring out rales not otherwise heard and where?
 Are they superficial or deep-seated?



V. S.—Vesicular suppressed.
 R.—Bronchial respiration.
 B. V.—Broncho-Vesicular.
 P. Ex.—Prolonged Expiration.
 B. Ex.—Blowing Expiration.
 C. B.—Cavernous Breathing.
 O. W. R.—Clogged-wheel Respiration.
 M. R.—Mucous Rales.
 G. Gurgles.
 C. R.—Crepitant Rales.
 S. C. R.—Sub-Crepitant Rales.
 Sib. R.—Sibilant Rales.
 So. R.—Sonorous Rales.
 W. Ex.—Whisper Exaggerated.
 V. B.—Voice Bronchophonic.
 Fq.—Fetoriloquy.
 C. V.—Cavernous Voice.
 (Draw lines to any unmentioned condition from adjacent to be added above or below these diagrams.)

Diagnosis:.....
Treatment, climatic change recommended, etc.

ADDRESS ON STATE MEDICINE.

Delivered before the American Medical Association at the Forty-fourth Annual Meeting held at Milwaukee, June, 1903.

BY WALTER WYMAN, A.M., M.D.

SUPERVISING SURGEON GENERAL OF UNITED STATES MARINE HOSPITAL SERVICE.

(Read at the meeting.)

A uniform quarantine code for the maritime ports of the United States has long been the desire of quarantine and sanitary officers, and heretofore all attempts have been futile.

A board of officers of the marine hospital service was summoned to prepare a code. After the rules and regulations had been prepared and before adjournment of the board, a conference was called of the quarantine officers of the Atlantic and Gulf coasts representing the cities and ports of Portland, Boston, Providence, New Haven, New York, New Jersey, Philadelphia, Wilmington, Del., Baltimore, Norfolk, Wilmington, N. C., Charleston, Savannah, Florida, Mobile, New Orleans and Texas.

This conference was called to order the 16th of March and remained in session two days, the first day being devoted to a consideration of the rules which had been prepared, and discussion thereof, with the understanding that there would be no vote. The second day the rules were again read seriatim, discussed and voted upon. After adjournment of the conference, the board continued its labors paying special attention to the views expressed in the conference. The rules thus perfected were then promulgated by the secretary of the treasury, April 4, and a letter enclosing them was sent to each maritime quarantine officer, calling attention to the law and to the fact that these were minimum requirements and requesting an expression of willingness and ability to execute them. Satisfactory responses have been received from all ports. These regulations relate first, to inspection of vessels, stating what vessels shall be inspected, the time of inspection, and the method of making it. They define the quarantinable diseases; and declare under what circumstances vessels shall be placed in quarantine. They relate also to the treatment in quarantine, particularly of vessels infected with cholera and yellow fever, and the time of detention and care of the passengers arriving on such vessels. Special regulations exist with regard to rags; also with regard to vessels suspected only of being infected with yellow fever.

As a further protective measure with reference to cholera it may be stated that on the appearance of this disease in any maritime port, a system of immigrant train inspection will be at once set in operation, medical inspectors to accompany each train from that port into the interior and provision made for the removal and care of the sick en route.

FOREIGN.

But while we have thus erected our sanitary fortification upon the coasts and have provided the means for *internal* warfare against epidemic disease, our duty is not yet accomplished. The danger of the attack should be eliminated. The sense of the American people should be aroused to an indignant protest against the approach of these diseases from other lands. Not one of them is indigenous. Cholera comes from India and Arabia, yellow fever from Havana and other ports of Cuba, and from Central

and South America; typhus fever comes from Russia and occasionally from Germany. It is time that a vigorous protest should be made to the governments of the countries where these diseases flourish. Every nation should be held responsible for any conditions within its border or within its dependencies which tend to propagate epidemic disease that may be carried to other nations with which it expects to maintain a friendly commerce.

Is it too much to expect that the *fons et origo* of cholera in India shall be eliminated? But before discussing cholera in its home, consider a moment one of the chief means by which it finds egress therefrom. I refer to the religious pilgrimages.

In Mesopotamia are four Shiah shrines, the most sacred, Karbala, being the place of pilgrimage for large numbers of Shiahs from both India and Persia. Thousands of bodies from India and Persia and other countries where the Shiah faith exists, are brought here by the pilgrims for interment. The place is one vast burial ground and cholera raging is carried back to their respective countries by the pilgrims.

In Mesopotamia also is the holy city of Islam where the Mohammedan sect known as the Chitty send their dead for burial. In 1889 cholera was imported there from Bombay in the clothing surrounding the dead sent from Bombay for interment. Besides Karbala and Islam in Mesopotamia, Hurdwar in India, and Mecca and Medina in Arabia, are great foci for the development of epidemics which divorce therefrom in every direction.

In 1890 there arrived by the sea at Jedda and Yembo, the seaports of Mecca and Medina in the Red Sea 43,000 pilgrims, of whom 28,000 only returned; the balance representing the victims of cholera.

Why should the whole civilized world be allowed to suffer through the constant dread of invasion, or invasion itself of cholera, on account of the religious fanaticism of the Mohammedans of the East? Why should the civilized nations of the world continue to look complacently upon these pilgrimages to Mecca with their horrible accompaniments of constant disease and death? Death while en route to the shrine at Mecca is welcomed by all true followers of the prophet as a certain passport to eternal bliss! So long as this religious theory affects themselves alone, it might be viewed with complaisance, but when it involves the health and the lives of thousands of others to whom such a thought is a very absurdity, it is the right as well as the duty of those others to protest. This subject has no longer a faraway aspect. Steam has brought us into closer connection with Mohammedism. All nations are incomparably nearer to one another than twenty-five years ago, and the welfare of the most distant places on the face of the earth has now a direct bearing upon our own health and lives. The Mohammedan pilgrimages are a subject for international arbitration.

What pressure can be brought to bear upon the Turkish or other government, to strip these pilgrimages of their disease-bearing features, is a subject for immediate consideration, but one that will require careful study on the part of those versed in diplomatic relations. But when it is remembered that the vessels which carry these pilgrims, and upon which this disease breaks out, are owned by other nations it would seem entirely practicable to establish restrictive measures. I know that some of Eng-

land's vessels carry these pilgrims, as well as vessels of other nations. Are not these vessels, therefore, and the governments under whose flags they sail responsible in great part for the spread of this horrible plague?

Again, with regard to the harbors of the West Indies and South America, yearly menacing our coast—should not some pressure be brought on their governments to place them in sanitary condition? Ask of the men who, year by year, stand upon the quarantine piers of our southern cities and greet the vessels as they come from these infected ports, who remove to hospital the crew or passengers stricken with yellow fever, who clean and disinfect the ships, and whose minds in addition to the bodily activity required are strained from May until November lost through some chance oversight of their own, the terrible contagion of yellow fever may pass their outport and strike the coast of the United States. Despite the exemption of the last few years yellow fever is the prevailing thought throughout the south during this period. The quarantine officers, the physicians, the commercial men and the daily press are on the *qui vive*, watchful, anxious. Why? Because, forsooth, our neighbors are content to live with an indifference to sanitation, life and health unknown within our borders.

In connection with the extermination of the source of epidemic disease should be mentioned the recent brochure of Dr. J. Telyafus, of Tiflis, Russia, who has expressed his views upon the means of strangling cholera in its Indian home and thus freeing Europe and America from the constant menace of its periodical excursions. I quote from a recent review:

"Dr. Telyafus takes this exception to the opinion that any attempt to exterminate the germs of cholera in India is utopian. He states that it has been stamped out in the Nile delta, and that similar, or more energetic measures, would be equally effectual on the banks of the Ganges. Formerly the fellahs of Egypt interred their dead on the banks of the river Nile, and the bodies were then washed out into the stream during the annual overflow of the river, and were carried down to spread disease throughout the delta. Since an end has been put to this custom, the plague no longer harasses the country. While it would be difficult, if not impossible, to restrain the natives of India from casting their dead into the waters of the sacred Ganges, it might be possible to compel them to cremate their dead and throw the ashes, if they will, on the border of the river. Drainage and the planting of the eucalyptus tree, while an enormous undertaking, is one, in the opinion of Dr. Telyafus, not impossible; similar work having been already accomplished with profitable results in Algiers."

THE EFFECT OF IMMIGRATION ON THE PUBLIC HEALTH.

A most important subject for consideration at the present time is the effect of immigration on the public health. So far as *epidemic disease* is concerned it is superfluous to call attention to the menace thereof accompanying immigration; and the measures taken to meet this danger, and the one held in reserve, prohibition, have already been described.

Concerning the other contagious diseases, not ordinarily epidemic, there is no doubt also of the increased liability thereto in the United States from this same cause.

Recently a cablegram was received from the medical officer detailed at Naples that nine ships would leave within ten days, carrying 11,000 immigrants. They are arriving at New York now at the rate of 15,000 a week—each week a new city's population grafted on the nation!

This wonderful movement of the earth's inhabitants during this latter part of the nineteenth century presents many phenomena of striking interest to the sociologist, and many problems to the sanitarian.

Where do they come from, why do they come, and what is their ultimate condition? From the standpoint of the sanitary officer it is difficult at this time to see aught but danger in this movement, or to have any other wish than that it might be stopped.

But if we may rise above our present fears and consider the subject from a very broad standpoint which commands an international as well as a national or local view, we may see in this movement a blessing to humanity not only political and intellectual, but physical as well.

Pressed out from their narrow confines, these people in swift moving columns and in swift moving ships are landed on our coast; they separate, and are almost lost to view in our vast expanse of territory.

Forced out of overpopulated districts either by a Russian decree or by their own appreciation of their unfortunate surroundings, they seek the United States as a land of promise, and in their broader surroundings and breathing the political life of a government of the people by the people, a broader and more intelligent manhood *must* be theirs.

First impressions are lasting, and the opportunity therefore is great to impress upon this large and constant addition to our citizenship a profound regard for the laws of public health in their new homes.

At the foreign port of departure the immigrant to-day receives his first sanitary impression of the new world as he presents himself for scrutiny by the medical officer of the United States government before being permitted to board his ship.

Again must he pass a quarantine officer at the port of arrival, and once more at the immigration station be closely and individually scanned or catechised by the medical inspector.

How can he fail to be impressed, to some degree at least, with the importance attached to health in the United States?

On arriving at his destination in the State chosen for his permanent home, he is the better prepared to accept such restraint or obligations of a sanitary nature as may be imposed by a local or State board of health.

There is opportunity, therefore, for each board of health to build up within the borders of the State a tolerance and respect for sanitary laws.

Nor is the effect upon the overpopulated districts in Europe to be lost sight of. Surely the relief in some communities must be obvious.

Moreover, statistics prove that thousands of immigrants revisit their homes. The sanitary teachings of the new world go with them and can not be without effect.

We can not forget, however, that while the physical condition of the immigrant is improved, and the sanitary condition of the locality he has left, the same can not be said of our own domain and people

and greater stringency both in the laws and their execution is demanded.

THE NON-EPIDEMIC CONTAGIOUS DISEASES.

Of the contagious diseases not ordinarily epidemic in character, but which are actually the more destructive to human life (as diphtheria, scarlet fever, typhoid fever, measles and tuberculosis), it may be said that with the exception of one (tuberculosis), the means of preventing their spread is so plain that it is within the power of every community to accomplish it.

While therapeutics is an indispensable antagonist to these diseases, their subjugation will be accomplished only by a triple alliance of *law, organization and disinfection*. Gradually the laws are spreading throughout the United States and municipalities, requiring notification, placards, disinfection and construction of special hospitals. Within a year even the White House has been placarded for scarlet fever, furnishing notable illustration of cheerful compliance with the law which may well be considered by those who would oppose it.

Sanitary plumbing and architecture, purity of water supply, proper disposal of sewerage and garbage, all are prominent subjects of town and municipal concern, and any community found indifferent thereto should be held up to public condemnation.

All sanitary organizations should be modeled after our national and State governments, embracing the three heads—legislative, executive and judicial. The framing of laws requires a skill and training apart from that required for their execution, and they accomplish their object more effectively when executed by others than those who make them, and back of them a wise judiciary preserves a just balance between the individual and the public.

Valuable adjuvants from time to time in municipal sanitation are the voluntary organizations called into existence by some particular threatening danger or by official laxity.

The most recent organization of this nature, formed because of the possible advent of cholera, and one which may be taken as an excellent model, is the Sanitary League of Washington, a full description of which will be found in the abstract of sanitary reports of this date.

DISINFECTION.

But with regard to the destruction of these domestic contagious diseases the keynote of success appears to be disinfection, and while the germicidal properties of the several disinfectants are known, still much depends upon their mechanical application—upon the mechanical devices for their distribution.

As stated by Dr. Cyen Edson, health commissioner of New York, whose experience in municipal and house sanitation is probably unsurpassed, the great difficulty in practical disinfection is in eliminating the personal equation; that is, on account of the carelessness or ignorance of individuals to whom are intrusted the actual work, their failure to comprehend its principles and to care for details, it is often inefficient.

Now this personal equation may be eliminated provided a mechanical device is found by means of which there shall be obtained a diffusion and penetration of the disinfecting gas equal to that of the germs of the disease.

Recently attention has been called to two new forms of disinfectants, which with especial mechanical devices promise to be among the most potent instruments in our sanitary armamentarium.

The first of these is a recent discovery produced by the action of an electric current, electrolyzing sea water.

Doubtless all the details concerning this agent will be published by its inventor in New York, but at present I can only say that the resultant solution contains germicidal and deodorizing properties of a remarkably high degree, while the cost is immeasurably lower than that of any known disinfectant permitting the application.

The second disinfectant is the anhydrous liquid sulphur dioxide. True, this has been known for several years, and experiments demonstrating its utility were made in the laboratory of the marine hospital at New York five years ago. But no device for its practical use has been offered till within a month, and it is but recently that placing it in the market for sanitary purposes has been seriously considered.

This liquid dioxide, confined in copper carboys of from fifteen to 200 pounds weight, may be easily transported, and simply by liberation will throw off the sulphurous acid gas, filling either a small room or the hold of a vessel with any required per cent.

A simple apparatus for carrying the gas cylinder from place to place, which at the same time can be used for weighing the gas liberated, has been recently devised by Passed Assistant Surgeon Kinyoun, and may be seen in the marine hospital exhibit in the government building at the Columbian Exposition.

The present difficulty with regard to this disinfectant is that its manufacture is a secret process, and the first cost of a plant large enough to supply the demand would be great. But it has been suggested that the general government might appropriately meet these two difficulties, and in doing so would confer a great benefit upon the country, for it could then furnish to local health authorities any amount of the agent in question, and at a cost that would permit its free use.

The object of the present paper will have been accomplished if it but serves to awaken interest in the possibilities suggested by its title.

Says Dr. D. B. St. John Roosa in the May number of the magazine: "Many of the illnesses that are thought to be special dispensations from Providence occur only because of the neglect of personal care."

"The time will probably come, however, when the human race will everywhere, with only exceptional instances, live out its life. It is perfectly possible to conceive of the domination of human intellect and human force being so universal as to abolish accidental deaths."

The day of this deliverance seems yet far off. We may not even claim to see the morning's rosy hue, but surely we may discern its first gray dawn and rouse to effort. The struggle is worthy of man's greatest powers, and even while striving we shall add great motive power to the upward progress of man toward his final destiny—whatever that destiny may be.

Boxes for securing membership in the Association may be obtained by writing the Treasurer, Dr. R. J. Dunglison, Philadelphia, lock box 1274; or this office.

NECESSITY OF VOCAL PHYSIOLOGY AND SYSTEMATIC VOICE TRAINING IN OUR PUBLIC SCHOOLS AND COLLEGES FOR THE PREVENTION OF DIS- EASES OF THE LARYNX.

Address on Laryngology. Read at the Forty-third Annual Session of the State Medical Society of Pennsylvania, held at Williamsport, Pa., May 30 to 31, 1893.

BY J. WALTER PARK, M.D.

HARRISBURG, PA.

LATE CLINICAL ASSISTANT ROYAL LONDON OPHTHALMIC HOSPITAL, LONDON, ENG.; SURGEON TO THE EYE, EAR, NOSE AND THROAT DEPARTMENT, HARRISBURG HOSPITAL AND CHILDREN'S INDUSTRIAL HOME.

The State Medical Society of Pennsylvania in 1883 passed a resolution that there should be annual alternating addresses on the subjects of ophthalmology, otology and laryngology, but for various reasons laryngology was omitted in 1889, hence the first and last address on this subject was delivered by my esteemed friend, Dr. Charles E. Sajous of Philadelphia, in this city seven years ago. In looking over his very able address, I notice he pointed out to you the importance and relationship of laryngology to the general practitioner, as well as some of the advancements in laryngology up to that time. I will endeavor to-day to give you a continuation of the advancements on this subject, but in a somewhat different line of thought, viz: the necessity of systematic physical voice training in our public schools and colleges for the prevention of some of our most prevalent diseases of the larynx. This subject has lately been considerably agitated by some of our most eminent specialists in England, France, Germany, Scotland, Ireland and America, and no doubt will sooner or later result in the systematic teaching of the proper methods of breathing and speaking in our primary schools and the systematic training of the voice in all academies, colleges, and higher institutions of learning. The object of this paper will be at least in a measure attained, if I can arouse sufficient interest in the medical profession in general, so that they will give this subject serious consideration, and advocate its principles among parents and heads of families, who have children attending schools and colleges, for by so doing good results are sure to follow. If the governing and controlling power of institutions of learning have their attention called to this subject by physicians and scientific men in general, quacks or charlatans can no longer impose upon the credulity of the public by traveling around through the country teaching false methods, etc., when most of them do not even know the first principles of systematic voice training.

Let us take the child in its infancy as an example to begin with; when it first begins to utter audible sounds it tries to imitate its mother, nurse, or teacher, and tries very hard to formulate sounds into intelligible speech. Years are required to teach a child to phonate properly. Parents should therefore devote a great deal of their spare time in teaching their children how to formulate sounds into words, and articulate them properly, for by so doing, they assist them in acquiring more easily and quickly which otherwise they would not acquire except by a great deal of extra hard labor. At the age of four to six years a vast amount of good can be accomplished by the parents previous to sending them to school, in the various breathing exercises

and the proper method of pronouncing words, and to correct them for every slang phrase they may utter. When a child is sent to school it is generally taught the art of writing by the proper coordination of its muscles in using the hand, as well as the proper position of the body while at its studies. If we thus teach them the proper method of using the muscles of the hand and body, why should we not have a teacher of vocal physiology to teach them the proper method of breathing, by chest, nasal and respiratory exercises, opening and closing the mouth, the modulation of the voice, etc., pronouncing words properly while in the act of phonation? This training should begin in the primary schools, and be continued with the proper advancements in the art, as the child advances in its studies, and extended to the time it has completed its collegiate education. There are very few colleges to-day that properly train the vocal powers of their students, and as a result a good orator or elocutionist is seldom found among their graduates; and likewise there are seldom heard on the pulpit, the platform, the stage and at the bar, men who as specimens of physical voice training are able to hold their audiences or juries spellbound for an hour two by their fine oratory and not suffer hoarseness or fatigue of their vocal organs; that is the time they should have full control of the respiratory movements of their lungs, know how to attack words at a proper pitch of the voice, and how to control their vocal chords, etc., without producing fatigue and congestion of the larynx and pharynx, which always follows when not judiciously used. Violently exercising the voice in the wrong register, and in an improper tone of voice, must eventually produce physical harm or disease to some parts of the larynx.

The physician must first skillfully perform his duty in seeing that the pupil can perform the proper nasal respiratory movements, by examining his nose and naso-pharynx, and removing all adenoid vegetations, and treating any existing hypertrophic rhinitis, hypertrophy of the tonsils, as well as take notice if there are any existing anatomical malformations which might interfere with the development of proper articulate language. Stammering is most always a result of failure to observe properly and of improper methods of teaching a child. The naso-pharyngeal diseases just referred to are also occasionally causes. The physician and specialist should first call attention to and point out all defects in an anatomical, physiological and pathological point of view, and if possible correct any existing defects and then place the pupil under the care of the scientific voice-trainer. Pharyngitis is often produced by spasmodic, jerky, respiratory movements while in the act of attacking a tone, and by not knowing how to economize the breath that is exhaled, thereby producing false, harsh and congested tones. Raising the pitch of the voice without raising the voice itself is another frequent cause of congestion of the larynx. The part that should be cultivated is the natural tone of the voice in which a person speaks with the least effort. Lenox Browne says, "the lungs are the motors of respiration; the larynx the vibrating organ, and the chest walls, trachea, pharynx and naso-pharynx the resonating apparatus." The French actor, Talma, always made a habit of speaking in his ordinary tone of voice behind the scenes to some of his fellow actors previous to appearing on the stage, so that he could maintain the same pitch

in his voice. This is an excellent habit for all clergymen and public speakers to form. Pharyngeal and laryngeal diseases would be an exception rather than the rule if this were universally put into practice. Madame Seiler says, "that if the physiology of the voice were better known and acted upon there would be but few complaining singers and speakers." There is no doubt that the solid basis of voice is a systematic and proper method of breathing; establish that first, and then begin the systematic training of articulate speech. Dr. Gordon Holmes describes the benefits of vocal culture as follows: "The general well being of the constitution is promoted by voice practice, because the wider chest movements accelerate the circulation of the blood, at the same time that they cause a more ample flow of fresh air in and out of the lungs. The obstacle to expiration offered by the contraction of the glottis during phonation confers a greater penetrating power on the pulmonary air, which perforce permeates the minute bronchi and distends the air vesicles of the lungs more effectively; thus the blood attains a higher oxygenation and greater purity, by which qualities it gains in power of stimulating the vital activities of the various tissues of the body as it courses through them. Effete matters are freely cast off, and new and wholesome material is assimilated in increased amount. The appetite, so to speak, of the various corporeal structures becomes more keen, and they are thus subjected to an exalted nutrition. And moreover, these effects have a certain permanency on account of the gains to the thoracic capacity, derived from the habitual increase of lung expansion necessitated by constant vocal exercise. Chest and laryngeal exercises in a systematic way accomplish some of the same results that are derived from a visit to higher altitudes, such as Texas, Mexico, Southern California, Colorado, etc.

The question is frequently asked at what age should a child begin to sing, or have its voice trained? Opinions differ materially on this question. Patti was taught systematically by her half brother, Barilli, and first appeared in concert singing at the age of seven years. She sang in concert with trained singers. Neilson was sent to "Wartel" when quite young. Jenny Lind was trained for the stage at the age of nine years, and (as is supposed) from forcing her voice, lost it at the age of twelve years, but regained it again at sixteen. Others who lost their voices in a similar manner, suffered from a paralysis of the arytenoid muscles of the larynx, or vocal ligaments. Manuel Garcia was her trainer after her recovery and the "Swedish Nightingale" soon became one of the world's most renowned singers. Listen to the child as it tries to sing one of its nursery songs; notice the tone and pitch of its voice, and you will soon be able to judge the voice compass; carefully watch it and see this compass is not exceeded by willful exertions on the part of the child. If it is, stop it at once; if not, allow it to go on by your assistance as much as possible, always careful that it wears out in well doing.

You will notice from these remarks that there is no set time for a child to begin to sing, or have its voice trained. That question should be left for your teacher in vocal physiology, or voice trainer to decide.

Another mooted question is, whether a child

should sing in concert or not. "Wartel" says if a child is possessed of a voice not worth keeping let it sing in concert. By analyzing carefully the opinions of a great many voice trainers we arrive at this conclusion: If a child has an exceptionally fine voice, which by special training would develop into an artistic one, never let it sing in concert until after it has been systematically trained and well developed in all the registers; it can not well go wrong after that. To preserve the sweet and natural tones of the child, to fit it for the stage, the platform, or the bar, it must be carefully and physically well trained when young, and it will develop into a sweet toned singer, or an eloquent and brilliant orator, and you will thus save many a child from some pharyngeal or laryngeal disease which it otherwise might have acquired by first singing in concert, previous to having any physical training. Many "might have been" famous singers are never heard, principally on this account.

If you thus carefully develop the delicate muscles of the larynx under the guidance of a scientific trainer, as the athlete trains the muscles of his body previous to entering the race, you not only assist in developing a nation who talk well and sing sweetly, but you assist in saving thousands of people from a premature grave to which they are otherwise inevitably doomed. Vocal physiology and systematic voice training are just as necessary as physical training is a part of the athlete's daily work.

I do not pretend to say that all who follow these suggestions will never suffer from a cold, a sore throat or an acute attack of laryngitis or pharyngitis at some time or another, but the probabilities are that 50 per cent. of the people who are obliged to consult the laryngologist now would not be obliged to do so were these suggestions rigidly enforced and observed. The most frequent and common ailments of the voice user from which one may suffer at some time or another are the following: catching cold, sore throat or relaxed throat, acute and chronic pharyngitis, chronic granular pharyngitis, elongated or relaxed uvula, tonsillitis, and acute and chronic laryngitis.

Having considered the physical necessity of vocal physiology and voice training, some remarks upon the daily life of the voice user, in order to assist in the prevention of laryngeal diseases, are quite applicable before closing this paper.

Most of our eminent authors say that a man's life is controlled, 1, by residence; 2, by abstinences; 3, by clothing; 4, by diet; 5, by exercise; 6, by amusements; and lastly, by individual habits.

1. *As to Residence*.—It is very important that a man or woman who wishes to preserve a good voice should live in well ventilated rooms. They should not sleep in the same rooms they occupy during the day. They should be ventilated by day as well as by night. Drainage should be perfect so as to prevent any exhalations from being inhaled, for its injurious effects are soon noticed upon a sensitive and congested larynx. Your residence should be situated rather high and have a southern exposure if possible. As regards climate, some require a dry and high altitude, while others feel best in a moist climate and low altitude. Some can live in smoky and dusty cities, while others must live elsewhere. This should be determined upon by the advice of your family physician and laryngologist.

2. *Ablutions*.—This is a subject much debated upon and yet no strict rules have been laid down. The following are among the best: Daily baths are generally advised. In cold weather take a hot bath, rub the body freely with a flesh brush and plenty of soap (a coal tar preparation is the best for cleansing the pores and promoting action of the skin); then sponge the body or douche it with cold water while standing in the hot, and dry the major part of the body before taking the feet out of the warm water. If there is any fear of perspiration you should lie between sheets for ten or fifteen minutes before dressing. The Turkish bath to the singer has this advantage; the inspiration of hot dry air which is so advantageous in counteracting the effects of cold, damp climates. It should be taken at least two hours after each meal. Put a wet towel on your head on entering the bath, to prevent heat stroke, palpitation, fainting, etc. Have the body shampooed lightly, and if perspiration is not active drink a glass of water. Wash the head as well as the body. Do not take a cold bath immediately afterwards, but douche first with warm water and have it gradually grow colder. Cool before dressing and keep the body and feet wrapped while cooling. Don't take a Turkish bath oftener than twice a week in winter, and once a week in summer. Cleansing the mouth and teeth with cold water before singing and speaking should be practiced regularly. Bathing the throat and back of the neck with cold water is commendable, as it renders the skin less sensitive to cold draughts of air and prevents one from catching cold easily.

3. *Clothing*.—A very great deal might be said upon so very important a subject, but I will merely touch upon some of the most important essential points: As is customary when going out to put on a wrap of some kind, in the same manner when entering a room be careful to remove it. Try to keep the temperature of your body equalized, no matter where you are or where you go. If upon the stage, and rather lightly dressed, be sure to use your wraps while waiting in the dressing rooms between the acts. The majority of singers and speakers should wear silk or flannel underwear the entire year, especially if they are inclined to suffer from rheumatism. Others think that underwear woven in combination suits, extending from the neck to the wrists and ankles, made of silk, gauze, merino and lamb's wool are the best hygienic underwear that can be worn. It is especially advisable to protect the organs of secretion where damp and sudden climatic changes predominate. Regarding the covering of the neck, no singer should wear a collar that buttons above the level of the top of the sternum. The high collar of the dude, the high and tight collars frequently worn by ladies, are a great hindrance to singers and public speakers; their tendency is to constrict the throat and prevent free movement of the laryngeal muscles, and produce congestion of the larynx and vocal cords, tonsillitis, etc., and materially interfere with all the movements of respiration.

4. *Diet*.—The two chief varieties of foods necessary to maintain life, are the nitrogenous and non-nitrogenous. The former are principally found in the meats and fats, and the latter principally in vegetables, starches, sugars, etc. Many vegetables and fruits contain nitrogen, such as apples, peas, white beans, etc., and for this reason vegetarians say we

need eat no meats when all the nitrogen we need can be obtained from vegetables. Singers or speakers who do not take much exercise should eat meat sparingly, so as to prevent obesity. A singer should have an interval of about three to four hours and a speaker two hours between a full meal and the time they wish to sing or speak. Some singers or speakers become quite fatigued and tired out by the time they are half through with their evening's exercises; in such cases some beef tea or meat extracts between acts should be taken if possible; or what is still better, a raw egg seasoned with a few grains of salt and a few drops of vinegar swallowed whole fifteen or twenty minutes before using the voice, is an excellent tonic. This is exceedingly pleasant when the voice becomes dry from nervousness. Stimulants such as champagne, whisky, brandy and the malt liquors should be used very sparingly, for the reaction that follows their use is generally of such a character as to produce a congestion of the vascular supply of the pharynx, and more harm results from their use than the good that is accomplished. "Mariani" wine, made from the cocoa leaf, has many valuable testimonials from eminent actors and singers, but it also should be used with extreme caution, for we all know its active and exhilarating principle is due to cocaine, and who wants to become its slave? Avoid all food that favors flatulence and have a tendency to interfere with the respiratory movements. All nuts and condiments, peppers, pickles, curries, etc., which have a tendency to stimulate the vascular supply of the pharynx and larynx. At meals tea, coffee and cocoa should be drank according to the taste and digestion of the person using them. As a rule they should be discarded. Numerous carbonated effervescing waters when pure are good. Kumyss is a very refreshing and stimulating drink. The light wines, such as claret, burgundy, and light Hungarian wines, after a hard day's work are refreshing and recuperative, but total abstinence from alcoholic stimulants of any kind is the best advice I can give you.

5. *Exercise*.—Speakers and singers should not neglect their walk in the open air for an hour or two every day. This exercise is frequently neglected for fear of catching cold, but by observing their manner of dress, exercising moderately and not violently, is an essential which should never be forgotten. A want of sufficient daily exercise soon tends towards corpulency, and congestion of the various organs of the body is liable to be the result, and interfere materially with the movements of respiration.

6. *Amusements*.—Swimming, shooting, skating, lawn tennis, fencing, etc., if practiced with moderation are all advantageous. Limit the extent of all amusements to the moment that fatigue begins; if extended to the stage of exhaustion, evil results often follow.

As to Habits.—Cigarette smoking is a pernicious habit, especially to singers and speakers. Tobacco in all its forms should be abstained from, principally on account of the inhalation of its fumes into the lungs, and its deleterious effects upon the heart, respiratory movements, and upon the pharyngeal and laryngeal mucous membrane in general.

Each of the main points of my subject might be dwelt upon far more extensively, but having touched upon the more prominent ones, I hope that some lasting and favorable impression has been made upon

your minds, and that you all may in some manner do your parts towards establishing a department of physical voice culture in our public schools and colleges, and by so doing save many thousands of human lives from a premature grave, by the prevention of many of our most common laryngeal diseases.

NECROLOGY.

James McCann, M.D., LL.D.

Was born fifty-seven years ago in Penn township, Allegheny county, Pa. His father served under Anthony Wayne in the war for American independence. In early boyhood he passed his summers working upon his father's farm, and the winter months as a pupil of John G. Beatty, who taught him, in addition to the public school curriculum of that time, Latin and the higher mathematics. At about thirteen years of age his father died, when he began teaching school, and became a leading member of a local debating society. Even at this early date he was a ready, fluent and earnest talker. Tiring of the monotony of country life and, like the majority of young men of his age, not knowing exactly what to do with himself, he decided upon a mercantile career, and at the age of eighteen came to Pittsburgh, where, after graduating at Duff's College, he spent several years as bookkeeper in a business house. This sedentary life became irksome to him, his health was not good, and acting upon the advice of his physician, who regarded him as a young man of promising talents, he finally decided to study medicine. With this object in view, he in 1858 entered the office of Drs. Thomas and John Dickson, Sr.

He graduated from the medical department of the University of Pennsylvania in 1863, and immediately entered the medical service of the army as assistant surgeon of the Fifth Pennsylvania Volunteers. He continued in this service until the close of the war, when he returned to Pittsburgh and began the practice of medicine with Dr. W. C. Reiter. Two years later he received the appointment of surgeon to the marine hospital, and the connection with Dr. Reiter was soon afterward dissolved.

He was next appointed one of the surgeons of the Western Pennsylvania Hospital, which position he held until a few months ago, when he resigned because of ill health, and accepted the appointment of consulting surgeon. For twenty years he has been one of the surgeons of the Pennsylvania, the Allegheny Valley, and other railroads entering this city.

He was an active and influential member of the Pittsburgh Free Dispensary from its inception, of the board of health for many years, of the Allegheny County Medical Society, of the State Medical Society, of the American Medical Association, of the American Surgical Association and of the American Association of Obstetricians and Gynecologists, but owing to ill health he was never able to attend a session of the latter.

In spite of the busy life he led, his ardent love and natural aptitude for teaching led him—in connection with his confidants of the "Mott Medical Club"—to undertake the arduous work of organizing the first medical college in western Pennsylvania. Into this work he threw all his enthusiasm, and devoted to it all his energy and influence. Caring but little for pecuniary reward, it was with him a labor of love. In September, 1886, he was elected professor of the principles and practice of surgery. This position he filled until a few months prior to his death.

Dr. R. P. Gordon, of Hebron, Ky., who was crushed Tuesday evening, June 20, between a cable train and a wall of

the La Salle street tunnel, died at the Alexian Brothers' Hospital. Dr. Gordon was asleep when the train entered the tunnel, and a jar threw him from his seat. He was a graduate of the Medical College of Ohio, class of 1887.

Dr. THOMAS ANTISELL, of Washington, D. C., died June 14, 1893. He was born in Ireland, educated in Dublin, and a licentiate of the Royal College of Surgeons, 1839. He was for many years professor of chemistry in Georgetown Medical College, and during the civil war he had charge of one of the general hospitals at Washington. Professor Antisell had been in bad health for the last two or three years.

ARMY AND NAVY NEWS.

Army.

GENERAL ORDERS, } HEADQUARTERS OF THE ARMY,
No. 51, } ADJUTANT GENERAL'S OFFICE,
Washington, June 24, 1893.

By direction of the Secretary of War, upon the recommendation of the Surgeon General of the Army, an Army Medical School will be established in the city of Washington for the purpose of instructing approved candidates for admission to the Medical Corps of the Army in their duties as medical officers.

The course of instruction will be for four months, and will be given annually at the Army Medical Museum, in Washington City, commencing on the 1st day of November.

Four professors will be selected from among the senior medical officers of the Army stationed in or near the city of Washington, and as many associate professors as may be required to give practical laboratory instruction in the methods of sanitary analyses, microscopical technique, clinical microscopy, bacteriology, urine analysis, etc.

The faculty of the Army Medical School will consist of—
1. A President of the Faculty, who shall be responsible for the discipline of the school and who will deliver a course of lectures upon the duties of medical officers in war and peace (including property responsibility, examination of recruits, certificates of disability, reports, rights and privileges, customs of service, etc.).

2. A Professor of Military Surgery (including the care and transportation of wounded).

3. A Professor of Military Hygiene (including practical instruction in the examination of air, water, food and clothing from a sanitary point of view).

4. A Professor of Clinical and Sanitary Microscopy (including bacteriology and urinalogy).

By COMMAND OF MAJOR GENERAL SCHOFIELD:

R. WILLIAMS,
Adjutant General.

ARMY MEDICAL SCHOOL. SURG. GEN. STERNBERG SELECTS THE OFFICERS FOR ITS FACULTY.—Surg. Gen. Sternberg has completed his selection of the officers who will compose the faculty of the new army medical school to be established in this city. Col. Charles Alden, lately medical director of the Department of Dakota, in addition to his duties as deputy surgeon general, will act as president of the school. Lieut. Col. William H. Forwood, deputy surgeon general, now on duty at the District Soldiers' Home, will be professor of military surgery. Maj. John Billings, who is now in charge of the Army Medical Museum, will be professor of military hygiene, and Capt. Walter Reed, assistant surgeon, now on duty at St. Paul, will have charge of the microscopical work.

Navy.

The Army and Navy Register of June 24, 1893, says "Surgeon General Tryon has taken another step toward the formation of his school for instruction for Naval Surgeons at New York by securing the detail of Passed Assistant Surgeon D. M. Guiteras to duty as assistant to the director in charge of the naval laboratory and also as instructor in the new school. Medical Director Bloodgood, now in charge of the laboratory will retire in August and will be succeeded by Medical Director Wells, at present attached to the Naval Hospital in the city (Washington D. C.). The corps of instructors in addition to Dr. Guiteras will include the Naval Surgeons who are members of the Examining board at New York."

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:
PER ANNUM, IN ADVANCE \$5.00
SINGLE COPIES 10 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 68 WABASH AVE., CHICAGO, ILLINOIS.

All members of the Association should send their Annual Dues to the
Treasurer, RICHARD J. DUNGLISON, M.D., Lock Box 1274, Philadelphia, Pa.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Dunglison, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues and subscription for THE JOURNAL. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

SATURDAY, JULY 8, 1893.

EDITORIAL CHANGE.

As heretofore announced, DR. J. C. CULBERTSON, for the past two years editor of this journal, has returned to Cincinnati and resumed editorial management of the *Lancet and Clinic*. THE JOURNAL editorial staff and the employés of the office extend to him their best wishes for his continued success.

The undersigned has been elected editor, and therefore tendered his resignation as trustee July 1, 1893.

JOHN B. HAMILTON.

THE VISIT OF MR. ERNEST HART.

The visit of the venerable editor of the *British Medical Journal* to America, and his meeting with the members of the American Medical Association at Milwaukee, are events worthy of mention. The cordial and enthusiastic welcome MR. HART has everywhere received is evidence of the friendly and fraternal feeling entertained in the United States for our British brethren, as represented in the person of MR. HART, scarcely less than for his own sake. To the Association and its JOURNAL the coming of MR. HART can not fail to be of advantage, for, by invitation of the board of trustees, he kindly appeared before them and explained in detail the method of conducting the *British Medical Journal*—a method whereby that publication has been raised from a weekly issue of 2,000 copies to 17,000 copies, and has now a position so secure that nothing can possibly overturn it.

When MR. HART assumed editorial charge of the *Journal*, it had been in existence fifteen years, and he was and is its eleventh editor. This was twenty-seven years ago, and in all those years MR. HART never once departed from his fixed policy to make the *Journal* "each week a journal of the week," and that the *Journal* was primarily "published for the

benefit of those who read, rather than for the benefit of those who write."

When asked how best to improve our own excellent JOURNAL, MR. HART said that he thought its future lay in the direction of increasing the membership of the Association, and said in effect that as a stream could rise no higher than its source, so THE JOURNAL could not be much better or higher than the sources of its inspiration. Better papers, more condensation, and a larger waste basket would naturally follow a more extended membership. His own opinion was expressed that with so many more physicians in the United States than in any other country, we should have the strongest Association and the best journal. He could see no valid reason why THE JOURNAL should not speedily become phenomenally successful, if the members of the Association so willed it. The labor was great, but the reward would be commensurate.

The details of MR. HART's suggestions relative to the general management of the *British Journal* would be manifestly out of place here, but it is sufficient to say that they were instructive and interesting; being the mature judgment of one best qualified by experience to speak instructively on the subject.

If the members of the American Medical Association will act on the hint thus frankly given, and the Association become thereby stronger and more powerful each year, much will be due our distinguished friend, MR. ERNEST HART of London.

AIMS AND PURPOSES OF THE ARMY MEDICAL SCHOOL.

SURGEON GENERAL STERNBERG has recently obtained the sanction of the Secretary of War to a proposition that will be of inestimable value to medical graduates who may enter the army, and will, no doubt, have an important reflected influence on general medical education. Up to this year our young medical officers, assigned to duty as soon as appointed, learned by unpalatable experience that their medical curriculum failed to qualify them for the position of sanitary officers. Their knowledge of sanitary chemistry and bacteriology, of ventilation, heating, drainage, sewerage, plumbing, and kindred subjects, was by no means of that practical character that would warrant them in dealing as experts with questions that are of frequent occurrence in the army, where every point having a bearing on the physical well-being of the soldier is now submitted to the medical officer for his opinion and recommendation. The establishment of an army medical school has been authorized for the purpose of instructing approved candidates for admission to the medical corps in their duties as medical officers. The course of four months will comprise lectures on

their duties in war and peace, the care and transportation of the wounded, military hygiene, and clinical and sanitary microscopy, with laboratory instruction in the methods of sanitary analysis, microscopical technique, clinical microscopy, bacteriology, etc.

The young medical officer having shown that he has profited by this course, is assigned to a military post for duty. He can not, however, feel satisfied that he is yet secure in his position, for the examination for appointment which he has undergone serves only to select the individuals that are to be educated for the service. It admits the passed candidate only to a probationary service of five years as a lieutenant or subaltern, the first four months of which is passed at the school and the remainder on duty, usually under a senior officer of his department. At the end of this time an examination is required by law to demonstrate the fitness of the officer for promotion to a captaincy. The special subjects at this examination are those relating to the practical duties of a medical officer; as an officer of the army, and as an officer of the medical department; such as army regulations and orders, hospital corps, administration and drill, the organization and management of hospitals—post, field and general; the sanitation of camps and barracks, and the care of the wounded in battle.

Having shown himself to be an educated and well qualified military officer and sanitarian, his position may be considered secure. It is true, he has again to submit himself to the scrutiny of examiners prior to receiving his majority, but this investigation is usually restricted to determining whether he has kept up with the advance of professional knowledge; and this will hereafter be less of an ordeal for captains of the medical department than it has been, for the surgeon general has decided on placing those members of the corps who are in expectation of this examination on duty as attending surgeons in such cities as New York, Chicago, Philadelphia, Boston etc., where they will have opportunity of seeing city hospital practice and attending society meetings and lectures.

For many years it has been a grievance of medical officers that they are ordered up for examination after years of service at isolated posts where they have been completely removed from the current of medical progress. These gentlemen will appreciate GENERAL STEINBERG'S consideration for their professional betterment, and the educational standard of the corps must of necessity be improved by this arrangement, for the experience of the senior medical officers who have heretofore held these positions, will be utilized to better advantage at large military posts where it will be of benefit to the subaltern officers who are there serving.

After this examination for his majority, the rela-

tions of the army medical officer, if he have any, to examining boards become changed; he takes his place upon them, formulating his knowledge to play the rôle of examiner.

By this system the medical officers of the army will be kept up with the times in all matters of scientific and professional thought, instead of dropping into the ruts which so often confine the holder of a life position to the beaten tracks of a profitless conservatism.

THE ACTION OF ALKALIES ON HUMAN GASTRIC DIGESTION.

The frequency with which bicarbonate of soda is employed in gastric affections renders any contribution that enhances our knowledge of its action of interest to the profession. DR. G. LINOSSIER and DR. G. LEMOINE have published in the June number of the *Archives Générales de Médecine* a valuable paper detailing the results of certain observations regarding the action of bicarbonate of soda and of carbonate of lime in a case of *mercyismus*. Test meals consisting of 80 grams of bread, 80 grams of meat, and 250 grams of water were eaten by the patient, and every hour samples of chyme were obtained from the mouth into which it entered by the process of rumination. Under ordinary conditions in this patient the total acidity of the chyme was slightly pronounced, diminishing from the first to the third hour after a meal; the hydrochloric secretion was also sensibly inferior to normal, and all the usual tests showed that there existed a marked insufficiency of the gastric secretion.

The patient was then placed upon treatment of bicarbonate of soda, administered in doses varying from $7\frac{1}{2}$ grains to 160 grains, and given in one of three ways: in the first, bicarbonate of soda was taken one hour before the test meal; in the second, it was taken at the commencement of or immediately before the meal; in the third, one hour after the meal.

Careful analyses of the gastric contents showed that bicarbonate of soda, in large or small doses, is an excitant of gastric secretion. The excitation of the secretion has for its first effect a saturation of the alkalinity that was always perceptible in the first analysis made after ingesting the drug in doses of 150 grains. When the dose of bicarbonate of soda is small the excitation occurs after the saturation of the alkalinity, and provokes a slight and transient increase of hydrochloric acid in the chyme. If the dose is medium the excitation is more prolonged, the maximum of the proportion of hydrochloric acid in the chyme being increased although attained more slowly. If the dose is strong the secretory energy of the mucosa is exhausted in antagonizing the alka-

linity and the normal proportion of hydrochloric acid may not be attained when the gastric contents pass into the intestine. The maximum proportion of hydrochloric acid in the chyme is attained in two hours after a dose of $7\frac{1}{2}$ grains, in three hours after a dose of 15 grains, and in four hours after a dose of 75 grains.

The production of the organic acids of fermentation is favored by the administration of bicarbonate of soda; these acids with the hydrochloric acid contributing to saturate the alkalinity. Their production is also prolonged when the normal acidity is exhausted.

The excitant action of bicarbonate of soda on the gastric secretion is manifested in the greatest intensity when it is administered one hour before the meal; 15 grains acting as a feeble, 75 grains as a medium, and 150 grains as a strong dose. The first mentioned dose was the only one in the experiments that diminished the formation of the acids of fermentation.

At the commencement of a meal $7\frac{1}{2}$ grains acts as a feeble, 15 grains as a medium, and 75 grains as a strong dose; though the soda given at this time suspends the secretion of pepsin.

Administered one hour after a meal the soda exercised a transient saturating action that was not followed by gastric excitation if given in doses of 30 grains; a more prolonged and exciting action being attained by a dose of 75 grains.

Carbonate of lime seems to act pretty much like bicarbonate of soda, as far as saturation of the gastric juice is concerned. A dose of 75 grains has seemed to be followed by a period of excitation, but the quantity of hydrochloric acid is not secreted in a free state as it is when the soda is administered. Furthermore, when the bicarbonate of soda has been administered for some time, its action is prolonged beyond the day when it was last taken; this action being explained by an excitation and prolongation of the secretory activity.

The administration of this drug is therefore indicated in those cases in which there is insufficiency of the gastric secretion (gastric hyposthenia), and it should be taken a certain time before the meal so that there may be a saturation of the alkalinity; and when the food enters the stomach it finds itself in immediate contact with a gastric mucosa in a state of secretory excitation. Prescribed just before meals it temporarily suspends digestion, provokes acid fermentation, and hinders the secretion of pepsin. In hyperchlorhydria, bicarbonate of soda may prove a double edged sword if employed during the time of digestion; because while very serviceable in diminishing the pain when it momentarily saturates the gastric hyperacidity, yet unskillfully employed there is the risk of increasing the secretory excita-

tion of a mucosa already over excited. In such a condition it should be given in a small dose repeated as often as necessary to semi-saturate the acidity and to quiet the pain.

DOMESTIC CORRESPONDENCE.

Epidemic of Typhoid Fever.

To the Editor of THE JOURNAL of the AMERICAN MEDICAL ASSOCIATION.

Dear Doctor:—In compliance with your request of June 18, I return the newspaper clipping relative to the epidemic of typhoid fever in Ironwood, Mich., a town of about 12,000 inhabitants, and send the following statement on that subject:

I think the newspaper clipping is wrong in stating that "the city engineer had been obliged to leave the town in order to save himself from being killed." Probably it was the secretary of the water company, who has vigorously combated the idea that the disease was caused by the water supplied by the company. It is correct in stating that the armory has been taken for a city hospital, and that the schools are closed.

TYPHOID FEVER EPIDEMIC SPREADING.—*Eight During Death at Escanaba, Mich., and the Physicians Inquire About.*—(Ironwood, Mich., June 17.—[Special].)—The epidemic of typhoid fever is gaining ground. There are nearly 80 cases now, and during the last ten days the deaths have averaged eight a day. The armory and other available buildings have been turned into hospitals. All the schools are closed. Physicians are falling sick from overwork and loss of sleep, and patients can not get proper treatment. The city engineer has been obliged to leave the town to save himself from being killed by infuriated people who believe that his remissness is partly responsible for the present condition of affairs. —*Chicago Tribune*, June 18.

The health officer of Ironwood reported, for the week ending May 20, fifteen cases of typhoid fever taken sick, there having been no case reported at the beginning of the week; for the week ending May 27, thirty new cases; for the week ending June 3, thirty new cases; for the week ending June 10, 125 (estimated) new cases. Up to that time only six deaths were reported. June 11 and 12 I was in Ironwood, investigating the cause of the outbreak. The disease was so widespread and the onset so sudden that I had to look for some unusual cause of typhoid which commenced to act a few days previous to the occurrence of the first cases. Several alleged causes were urged by the physicians and citizens of Ironwood whom I interrogated: 1, the general water supply, which was obtained from a small stream, the Montreal river; 2, the water from wells, to which in years past the autumnal outbreaks of typhoid have been traced; 3, the digging of filth saturated soil for the laying of water mains and sewers; 4, the stirring up and removal this spring of great quantities of filth which accumulated during the winter; 5, the present filthy condition of some gutters and alleys; 6, atmospheric influences, alleged to have caused the fever in neighboring localities; 7, some influence connected with the Ironwood high school. No such sudden change in any of these conditions as would account for the epidemic was pointed out to me or could, at first, be found.

Having in mind the fact that typhoid fever is most frequently spread by means of the drinking water, I visited the pumping station of the general water supply, and at once noticed that recently there had been a very unusual overflow of the locality. Logs had been floated all around the building, and one rested near the reservoir for receiving the filtered water, and from which the water is supplied to the two cities, Ironwood, Mich., and Hurley, Wis. I noticed that the privy for the use of the engineer and family had been floated about, and not carried far down the stream, and the excreta under it had been nearly all washed away.

The water line showed that the water had been higher than the first floor of the pumping house, and within a few inches of the fire in the furnaces. I learned that the reservoir had been overflowed, that the intake pipe had been so clogged as to be useless for several days; it then being impossible to filter the water, a break had been made in the reservoir on the side toward the privy, which was on the down stream side but only about thirty-five feet distant, and the foul water of the overflow, probably contaminated with human excreta, allowed to fill the reservoir; and this was pumped into the mains to supply Ironwood and Hurley. As nearly as I could learn, this was between the 10th and 15th of May. The first person taken sick in this outbreak, was May 13. The greatest number yet officially reported were taken sick during the week ending June 10. It does not follow that all the cases were caused during the few days between May 10 and 15, because filth from the same source was contaminating the water in the reservoir as late as the last day of my visit, June 11. A sample of the contaminating water, sent by me to the State Laboratory of Hygiene, Ann Arbor, was reported by the director, Prof. Vaughan, to contain pathogenic microorganisms which caused the death of white rats into which they had been injected, the rats then having inflamed intestines and enlarged spleens, as did persons whom I saw sick at Ironwood.

My recommendation was that for the present all the water used for drinking and culinary purposes should be boiled, that the pumping station should be provided with filters having the capacity of at least three times that of the present plant, that no water should be pumped into the mains except it be filtered, that the reservoir for filtered water be cleaned out, cemented inside and out, so as to be water tight, that the stand-pipe and pipes throughout the city be emptied, and clean water pumped through to wash them out.

The stand-pipe was nearly emptied when I was there. Since my return I have learned that several tons of filth was found in the stand-pipe, including dead fish and crabs.

Although this outbreak seems to have been caused by the general water supply, and the importance of disinfecting the typhoid excreta has been urged upon the inhabitants, it seems almost certain that the wells throughout the city will be contaminated and soon become a source of danger, especially in the autumn when the water becomes low, unless extraordinary efforts are made to prevent it. Hundreds of pamphlets such as I send herewith, have been sent to Ironwood from this office and are being distributed, in order to teach the people the modes of causation and restriction of typhoid fever; notices to *boil the water* have been posted up by the health officer, and it is earnestly hoped that the disease can be restricted.

Very respectfully,

HENRY B. BAKER, *Sec'y State Board of Health.*

MEDICAL PRACTICE ACT.

The New Medical Law of Pennsylvania.

AN ACT

To establish a Medical Council and three State Boards of Medical Examiners, to define the powers and duties of said Medical Council and said State Boards of Medical Examiners, to provide for the examination and licensing of practitioners of medicine and surgery, to further regulate the practice of medicine and surgery, and to make an appropriation for the Medical Council.

WHEREAS, The safety of the public is endangered by incompetent physicians and surgeons, and due regard for public health and the preservation of human life demands that none but competent and properly qualified physicians

and surgeons shall be allowed to practice their profession;

SECTION 1. *Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania in General Assembly met, and it is hereby enacted by the authority of the same:* That there shall be established a Medical Council of Pennsylvania, consisting of the lieutenant governor, the attorney general, the secretary of internal affairs, the superintendent of public instruction and the president of the State board of health and vital statistics, and the presidents of the three State boards of medical examiners provided for in this act.

SEC. 2. The said council shall be known by the name and style of the Medical Council of Pennsylvania, and may make and adopt all necessary rules and regulations and by-laws not inconsistent with the constitution and laws of this commonwealth or of the United States, and shall have power to locate and maintain an office within this State for the transaction of business. Five members of the said council shall constitute a quorum for the transaction of business.

SEC. 3. The said council shall organize at Harrisburg within ten days from the date of the organization of three boards of medical examiners, and shall elect from its own number a president and a secretary, who shall also act as treasurer, both of whom shall hold their offices for one year or until their successors are chosen.

SEC. 4. The members of the said council shall receive no salary, except the secretary and treasurer, who shall receive a salary of not over five hundred dollars, and who shall file with the president of the council a bond in the sum of one thousand dollars conditioned for the faithful performance of his duties. The necessary expenses of the said council shall be paid out of the appropriation made in section sixteen of this act, and any balance remaining from the appropriation after the disbursements herein specified shall be paid into the treasury of the commonwealth.

SEC. 5. The said medical council shall hold two stated meetings in each year at Harrisburg, and may hold special meetings at such times and places as it may deem proper. It shall supervise the examinations conducted by the three State boards of medical examiners of all applicants for license to practice medicine and surgery in this Commonwealth, and shall issue licenses to practice medicine and surgery to such applicants as have presented satisfactory and properly certified copies of licenses from State boards of medical examiners or State boards of health of other States as provided for in section thirteen of this act, or as have successfully passed the examination of one of the three State boards of medical examiners, but all such examinations shall be made by the State boards of medical examiners established in section six of this act. And the said medical council shall have no power, duty or function except such powers, duties and functions as pertain to the supervision of the examinations of applicants for licenses to practice medicine and surgery, and to the issuing of licenses to such applicants as have successfully passed the examination of one of the State boards of medical examiners, or have presented satisfactory and properly certified copies of licenses from State boards of medical examiners or State boards of health of other States as provided for in section thirteen of this act.

SEC. 6. It is further enacted that from and after the first day of March, Anno Domini one thousand eight hundred and ninety-four, there shall be and continue to be three separate boards of medical examiners for the State of Pennsylvania, one representing the Medical Society of the State of Pennsylvania, one representing the Homoeopathic Medical Society of the State of Pennsylvania, one representing the Eclectic Society of the State of Pennsylvania.

Each board shall consist of seven members, and each of said members shall serve for a term of three years from the first day of March next after his appointment, with the exception of those first appointed, who shall serve as follows, namely: Two of each board for one year, two of each board for two years, and three of each board for three years from the first day of March, Anno Domini one thousand eight hundred and ninety-four.

The Governor shall appoint the members of said boards of examiners respectively from the full lists of the members of said medical societies which lists shall on or before the first day of January, one thousand eight hundred and ninety-four, and annually thereafter, be transmitted to the Governor, under the seal and signed by the secretary of the society so nominating. From these lists of nominees respectively, the Governor shall, during the month of January, Anno Domini one thousand eight hundred and

ninety-four, appoint three separate boards of medical examiners, each board to be composed exclusively of members of the same medical society. In case of failure of any or all of said medical societies to submit lists as aforesaid, the Governor shall appoint members in good standing of the corresponding society or societies entitled to nominate, without other restriction. Each one of the said appointees must be a registered physician in good standing, and shall have practiced medicine or surgery under the laws of this State for a period of not less than ten years prior to such appointment.

The Governor shall fill vacancies by death or otherwise for unexpired terms of said examiners, from the respective lists submitted by the said medical societies, and may remove any member of said boards for continued neglect of the duties required by this act, or on recommendation of the medical society of which said members may be in affiliation, for unprofessional or dishonorable conduct.

The Governor shall, in his first appointments, designate the number of years for which each appointee shall serve. The appointments of successors to those members whose term of office will expire on the first day of March of each year shall be made by the Governor during the month of January of each year, upon the same conditions and requirements as hereinbefore specified, with reference to the appointment of three separate examining boards, each to be composed exclusively of members of the same medical school and society as hereinbefore provided.

Sec. 7. Said boards shall be known by the name and style of Boards of Medical Examiners of the State of Pennsylvania. Every person who shall be appointed to serve on either of said boards shall receive a certificate of appointment from the Secretary of the Commonwealth.

Each of said boards shall be authorized to take testimony concerning all matters within its jurisdiction, and the presiding officer for the time being of either of said boards, or any of the committees thereof, may issue subpoenas and administer oaths to witnesses. Each of said boards of examiners shall make and adopt all necessary rules, regulations and by-laws not inconsistent with the constitution and laws of this State or of the United States, whereby to perform the duties and transact the business required under the provisions of this act, said rules, regulations and by-laws, to be subject to the approval of the Medical Council of Pennsylvania established by this act.

Sec. 8. From the fees provided by this act the respective boards may pay not to exceed said income all proper expenses incurred by its provisions, and if any surplus above said expenses shall remain at the end of any year it shall be apportioned among said examiners pro rata, according to the number of candidates examined by each. Provided, That the Medical Council shall keep separate accounts of all fees received from physicians applying for licenses to practice medicine and surgery, and shall not devote any such fees to the uses of the council, or to the uses or remuneration of any other examining board than that of the society with which the physician who pays the fee wishes to be affiliated.

Sec. 9. The first meeting of each of the examining boards respectively, shall be held on the first Tuesday of April, one thousand eight hundred and ninety-four, suitable notice in the usual form being given with the notice of their appointment by the Secretary of the Commonwealth to each of the members thereof, specifying the time and place of meeting.

At the first meeting of each of the boards respectively, an organization shall be effected by the election from their own membership, of a president and secretary. For the purpose of examining applicants for license each of said boards of medical examiners shall hold two or more stated or special meetings in each year, due notice of which shall be made public at such times and places as they may determine. At said stated or special meetings a majority of the members of the board shall constitute a quorum thereof, but the examination may be conducted by a committee of one or more members of the board of examiners duly authorized by said boards.

Sec. 10. The several boards of medical examiners shall not less than one week prior to each examination submit to the Medical Council of Pennsylvania, questions for thorough examinations in anatomy, physiology, hygiene, chemistry, surgery, obstetrics, pathology, diagnosis, therapeutics, practice of medicine, and materia medica. From the lists of questions so submitted, the council shall select the questions for each examination and such questions for each examina-

tion shall be the same for all candidates except that in the departments of therapeutics, practice of medicine and materia medica the questions shall be in harmony with the teachings of the school selected by the candidate.

Sec. 11. Said examinations shall be conducted in writing in accordance with the rules and regulations prescribed by the Medical Council of Pennsylvania and shall embrace the subjects named in section ten of this act. After each such examination the board having charge thereof shall without unnecessary delay act upon the same. An official report of such action signed by the president, secretary and each acting member of said board of medical examiners stating the examination average of each candidate in each branch, the general average and the result of the examination, whether successful or unsuccessful, shall be transmitted to the medical council. Said report shall embrace all the examination papers, questions, and answers thereto. All such examination papers shall be kept for reference and inspection for a period of not less than five years.

Sec. 12. On receiving from any of said boards of medical examiners such official report of the examination of any applicant for license the medical council shall issue forthwith to each applicant who shall have been returned as having successfully passed said examination, and who shall have been adjudged by the medical council to be duly qualified for the practice of medicine, a license to practice medicine and surgery in the State of Pennsylvania. The medical council shall require the same standard of qualifications from all candidates except in the departments of therapeutics, practice of medicine, and materia medica, in which the standard shall be determined by each of the boards respectively. Every license to practice medicine and surgery issued pursuant to this act shall be subscribed by the officers of the medical council and by each medical examiner who reported the licensee as having successfully passed said examinations. It shall also have affixed to it by the person authorized to affix the same, the seal of the Commonwealth.

Before said license shall be issued it shall be recorded in a book to be kept in the office of the medical council and the number of the book and page therein containing said recorded copy shall be noted upon the face of said license. Said records shall be open to public inspection under proper restrictions as to their safe keeping and in all legal proceedings shall have the same weight as evidence that is given to the conveyance of land.

Sec. 13. From and after the first day of July, Anno Domini, one thousand eight hundred and ninety-four, any person not theretofore authorized to practice medicine and surgery in this State, and desiring to enter upon such practice, may deliver to the secretary of the medical council upon the payment of a fee of twenty-five dollars, a written application for license together with satisfactory proof that the applicant is more than twenty-one years of age, is of good moral character, has obtained a competent common school education, and has received a diploma conferring the degree of medicine from some legally incorporated medical college of the United States, or a diploma or license conferring the full right to practice all the branches of medicine and surgery in some foreign country. Applicants who shall have received their degree in medicine after the first day of July, one thousand eight hundred and ninety-four, must have pursued the study of medicine for at least three years, including three regular courses of lectures in different years in some legally incorporated medical college or colleges prior to the granting of said diploma or foreign license, and after the first day of July, eighteen hundred and ninety-five, such applicants must have pursued the study of medicine for at least four years including three regular courses of lectures in different years in some legally incorporated medical college or colleges prior to the granting of said diploma or foreign license. Such proof shall be made if required upon affidavit. Upon the making of said payment and proof the medical council if satisfied with the same shall issue to said applicant an order for examination before such one of the State boards of medical examiners as the applicant for license may select. In case of failure at any such examination the candidate after the expiration of six months and within two years shall have the privilege of a second examination by the same board to which application was first made without the payment of an additional fee. And it is further provided, That applicants examined and licensed by State boards of medical examiners or State boards of health of other States on payment of a fee of fifteen dollars to the medical council, and on filing in the office of the medical

council a copy of said license certified by the affidavit of the president or secretary of such board, showing also that the standard of acquirements adopted by said State board of medical examiners or State board of health is substantially the same as is provided by sections eleven, twelve and thirteen of this act shall without further examination receive a license conferring on the holder thereof all rights and privileges provided by sections fourteen and fifteen of this act.

SEC. 14. From and after the first day of March, Anno Domini, one thousand eight hundred and ninety-four, no person shall enter upon the practice of medicine or surgery in the State of Pennsylvania unless he or she has complied with the provisions of this act and shall have exhibited to the prothonotary of the court of common pleas of the county in which or she desires to practice medicine or surgery, a license duly granted to him or her as hereinbefore provided, whereupon he or she shall be entitled upon the payment of one dollar to be duly registered in the office of the prothonotary of the court of common pleas in the said county and any person violating any of the provisions of this act shall be guilty of a misdemeanor and upon conviction thereof in the court of quarter sessions of the county wherein the offense shall have been committed, shall pay a fine of not more than five hundred dollars for each offense.

SEC. 15. Nothing in this act shall be construed to interfere with or punish commissioned medical officers serving in the army or navy of the United States, or in the United States Marine Hospital service while so commissioned, or medical examiners of relief departments of railroad companies while so employed or any one while actually serving as a member of the resident medical staff of any legally incorporated hospital, or any legally qualified and registered dentist exclusively engaged in the practice of dentistry nor shall it interfere with or prevent the dispensing and sale of medicine or medical appliances by apothecaries or pharmacists or interfere with the manufacturers of artificial eyes, limbs or orthopedic instruments of any kind from fitting such instruments on persons in need thereof, or any lawfully qualified physicians and surgeons residing in other States or countries meeting registered physicians of this State in consultation or any physician or surgeon residing on the border of a neighboring State, and duly authorized under the laws thereof to practice medicine and surgery therein, whose practice extends into the limits of this State provided, That such practitioner shall not open an office or appoint a place to meet patients or receive calls within the limits of Pennsylvania, or physicians duly registered in one county of this State called to attend cases in another county but not residing or opening an office therein. And nothing in this act shall be construed to prohibit the practice of medicine and surgery within this Commonwealth by any practitioner who shall have been duly registered before the first of March, Anno Domini, one thousand eight hundred and ninety-four, according to the terms of the act entitled, "An act to provide for the registration of all practitioners of medicine and surgery," approved the eighth day of June, Anno Domini, one thousand eight hundred and eighty-one, and one such registry shall be sufficient warrant to practice medicine and surgery in any county in this Commonwealth.

SEC. 16. The sum of two hundred thousand dollars is hereby appropriated out of any moneys in the State treasury not otherwise appropriated for the salary of the secretary and treasurer of said medical council, and the necessary expenses of said council one thousand dollars thereof for the year beginning January first, one thousand eight hundred and ninety-four, and one thousand dollars thereof for the year beginning January first, one thousand eight hundred and ninety-five.

SEC. 17. All acts or parts of acts of Assembly inconsistent herewith shall be and are hereby repealed.

SELECTIONS.

ON A NEW FORM OF OSTEO-MYELITIS.—At the Society of Surgery, June 14, M. Berger reported the case of a young woman of sixteen years in whom chronic osteo-mylitis rapidly progressed to total necrosis of the bone, at the beginning of the menstrual epoch but with suppression. He was obliged to disarticulate the limb. The beginning showed itself by dull pain in the left humerus, very much increased

during the day. The swelling came on slowly. There was not during the course of the disease acute febrile symptoms at any stage.

When the patient entered the hospital, there was noted a fusiform swelling and a deep fluctuation. On account of the continued absence of pain, osteo-sarcoma was suspected. Nevertheless, the diagnosis of osteo-mylitis was made. An incision carried through the periosteum, which was much thickened, gave exit to some pus. As there is no laboratory at the Lariboisière, no bacteriological examination of the pus was made. It was found that the bone was denuded throughout its circumference and nearly the whole length. Opening the medullary canal showed the lumen occupied by black marrow, and it was judged there was total necrosis. There was no pus. The operation was followed by a short febrile reaction, and ten days after there was spontaneous fracture. Immobilization was practiced, but soon the soft parts became infiltrated and blanched; there was considerable fever. It was then decided to disarticulate the humerus. The bone was comminuted and the fragments bathed in pus.

The foregoing case does not accord with the symptoms assigned to acute osteo-mylitis, which is always accompanied by acute heat. Chronic osteo-mylitis accompanied by hyperostosis, subperiosteal abscess, often developing at the menstrual epoch with suppression, and without local heat. —*Progress Medical*.

TAMPONADE OF THE UTERUS.—Dr. H. C. Coe said: The profession has hitherto shown almost a superstitious fear of invading the uterine cavity—a fear which was fast passing away since we had learned that it was sepsis and not trauma that created most mischief in gynecological treatment.

The use of the intra-uterine tampon was indicated, first, to control hemorrhage: (a) from the non-puerperal womb after removal of growths; (b) from the puerperal uterus either after abortion or at term. Second, to prompt uterine contraction: (a) of the non-puerperal uterus after removal of growths, etc., the organ remaining, as in certain puerperal cases, in a state of subinvolution; (b) in puerperal cases where placing a foreign body in the uterus stimulated it more powerfully than astringent injections. Third, to promote healthy granulation of the raw surface after curetting. Fourth, to secure permanent dilatation of the canal in order to promote drainage.

He related briefly the histories of some cases illustrating the value of the uterine tampon under these various conditions. The first was a case of large sessile fibroid which he removed by the scissors, and controlled severe hemorrhage promptly by introducing iodoform gauze within the cavity. The second case was one of accidental hemorrhage during labor at term, to which he was called in consultation. The doctor had controlled the bleeding by keeping the hand within the uterus an hour and a half, but on removing it the bleeding recommenced. Dr. Coe was unable, on arrival, to feel the pulse. Gauze was introduced into the uterus and saline solutions were injected into the circulation. The hemorrhage was thus controlled, but the patient died after several days of pelvic peritonitis.

The next case related was one of endometritis fungosa, the hemorrhage from which was controlled for some months by curetting with the sharp instrument and applications of astringents. On the patient's return she was again curetted with the sharp curette, the cavity irrigated, a tampon of iodoform gauze was left in three days and replaced two or three times a week for two weeks by fresh gauze, after which the patient became pregnant.

The fifth case related was one of complete atrophy of the

uterus and post-partum hemorrhage. The child was taken out with forceps; the post-partum hemorrhage was controlled by introducing gauze, which induced contraction. The patient was in desperate condition, but made a good recovery.

Some seemed to think the gauze interfered with drainage and healing, but he was unable to understand the arguments on which the view was based. It was the cavity of the uterus, not the cervix, which was tamponed; only a strip of the gauze protruded from the os.

The gauze is kept in two forms; the one in pieces of good size for post-partum cases, the other in narrow strips for non-puerperal cases. In the former the gauze had to be put into the uterus by the handful at a time, while in the latter it was introduced by forceps. It could be safely left in two or three days. The same preparation of the patient and precautions should be observed as in abdominal surgery. Reference was made to the advantages of the gauze over stem pessaries, etc. It was unirritating, antiseptic could easily be changed at one's office, etc.—*American Journal of Obstetrics*.

EUPHEN.—In July, 1891, Eichhoff gave a favorable account of the action of euphen, which is the iodide of isobutylthioresol. It is an amorphous yellow powder, with a slightly aromatic smell, not soluble in water and glycerin, but very soluble in alcohol, ether and chloroform. It is soluble too in collodion and oil. Eichhoff reported a series of cases in which he had used it with great advantage in ulcers for the most part specific, serofoloderma and lupus exedens. In some cases he employed simply powdered euphen, in others he used ointments of various kinds, containing usually 5 per cent. of euphen. No good consequence followed its use in gonorrhoea, psoriasis, parasitic diseases and urticaria.

He also injected a 1.5 per cent. solution of euphen in olive oil, each injection containing one-fourth of a grain. This gave rise to no pain or local troubles. After the injection of larger doses, patients complained of pain in the head and liver, and he advised that at first the smaller doses should be used, though afterwards the amount might be increased. The injections of euphen were chiefly used in syphilitic affections and lesions, and seemed to be of value.

In the *Therap. Monat.* for January, 1893, Eichhoff points out that many observers have confirmed his views as to the utility of euphen. After further experience, however, he is inclined to abandon its subcutaneous use in syphilitic ailments, since the benefit it causes is only temporary, but as an external application in syphilitic soft ulcer he finds it of very great advantage. After washing the ulcer he applies the powder, covering the whole with wadding. Where the surface of the ulcer is raised, he first touches it with nitrate of silver. He points out that it must not be used with or soon after a sublimate solution, for then irritation is set up, owing to the iodide of mercury formed. In serofoloderma and lupus exedens he used either a 3 per cent. ointment or the powder, and found cicatrization follow. It was of no service, however, where the lupus and serofolous surfaces were more or less covered with epidermis. He says also that it is of use in the gonorrhoea of women with ulcerations in the vagina and on the cervix uteri.

He looks upon euphen, then, as a substitute for iodoform, over which it has the advantage of causing no injurious effects after absorption, and having no unpleasant smell.—*Medical Chronicle*.

HYDRASTIN IN EPILEPSY.—Kisseleff has studied the action of hydrastin in epilepsy, and after experiments upon dogs and guinea pigs, has arrived at the following conclusions:

1. The excitability of the cerebral cortex is lowered in

proportion to the increase of the dose administered, but it will not fall to 0 cent., even with fatal doses of hydrastin.

2. Hydrastin possesses a non-dative action, and produces a permanent lessening of the excitability.

3. While the excitability of the white matter was fully diminished, it was not so pronounced as that of the gray matter.

4. The paroxysms of epilepsy of guinea pigs are favorably influenced by hydrastin.

5. It has the same effect upon toxic epilepsy produced by nuxvomica or strychnia.

6. Hydrastin diminishes cerebral excitability of the cerebral cortex, and also in cases of intense cerebral hyperemia artificially provoked.

From a clinical point of view, Kisseleff has obtained good results in some cases of epilepsy treated by hydrastin in doses of 5 centigrams a day, but the small number of cases observed does not permit us to form definite conclusions.—*Journal de Med. de Paris*, June 18, 1893.

OBESITY AND LIFE INSURANCE.—M. Kirsch has examined the condition of obesity from a life insurance point of view, and has reached the following conclusions:

1. Medium obesity does not in general give a reason for refusal to give an ordinary policy of insurance.

2. If obesity is hereditary; if, in the antecedents of the family of the candidate there has existed saccharine diabetes or cerebral hemorrhage the examiner should be very circumspect.

3. If the obesity is very great, more prudence is necessary, and the heart and the urine should be examined with extreme care, as a very obese man is like a colossus upon feet of clay. Irregularity of the pulse or pronounced slow heart are always very bad prognostics.

4. When great obesity coincides with chronic alcoholism the chances of life are very much reduced.—*Revue Méd. Press.*

VALZINE.—A chemist of Berlin has discovered a new substance, *valzine*, which he thinks will replace saccharine. Its sweetening power is a little less than that of saccharine which is 300 times that of cane sugar. Valzine has only 200 times the power of cane sugar, but without any of the inconveniences that impair the success of saccharine. The origin and exact chemical composition of valzine are yet secret.—*Journal de Médecine de Paris*, June 18, 1893.

MISCELLANY.

CHANGE OF ADDRESS.—Medical Director A. L. Gilson, U. S. N., to Naval Hospital, Washington, D. C.; Surgeon Chas. S. D. Fessenden, M. H. S., to Marine Hospital, Mobile Ala.

THE CASTOR BEAN IN INDIA.—*Reports from the Consuls of the United States.* There are two chief types of the *vicinas communis*, but of each there are numerous modifications depending on the color, shape of leaves and presence or absence of spinous appendages on the fruit.

The one form is a tall bush almost a tree, a perennial, grown as a hedge or to afford shade around fields in which more delicate crops are being cultivated; it yields a large seed and an abundance of an inferior oil. The second is an annual plant, sometimes grown as a pure crop; it produces a small seed from which is extracted a superior quality of oil of commerce and pharmacy. The oil obtained from the former variety is largely used in India for illuminating purposes and is called "lamp oil."

The yield per acre of seed varies greatly in different sections. The estimated average is 500 to 700 pounds.

In Madras where the plant is extensively cultivated, sowing takes place in July or August, from 12 to 24 pounds of seeds being required for an acre. The seeds germinate in about a week, in the fourth or fifth month flowering occurs and in the sixth capsules are formed.

The following is the Calcutta process for the extraction of oil for medicinal purposes: The seeds are first cleaned

and then placed on a smooth board and each broken in two or three pieces by a flat wooden mallet, to render separation of husks easy. A basket winnower is then used to remove the husk from the kernel. The latter are dried in the sun and afterwards broken by a crushing machine. They are next put in small canvas or gunny bags and pressed in the hand machine, the oil falling into a pan placed beneath.

The oil is collected in large galvanized iron vats and bleached by exposure to the sun which also causes the sediment to precipitate. It is next boiled: vegetable charcoal added and finally the oil is filtered through flannel or blotting paper.

The oil is manufactured for other purposes than for medicine and illumination. In Assam it is largely cultivated to feed the silk worm. An excellent paper pulp is made with the bark from the stems. It is used by Indian dyers for dressing tanned hides and skins; for lubricating all sorts of machinery, and perfumers make use of it in the manufacture of certain articles. It enters extensively into the making of varnish.

As a method of illumination it is highly valued for the excellent white light, the slowness with which it burns and its freedom from danger. The railways in India burn it and the soot it gives out is almost imperceptible.

BANEFUL BRANDY.—Walter T. Griffin (Reports from the Consuls of the United States) has given an account of the investigation instituted by Parliament into the nature of the alcohols used in the manufacturing of beverages in France, and recommends, in the light of the astonishing revelations, the careful consideration of the analyses by American consumers. It seems that a much larger quantity of spirits has been used recently, especially by the poorer classes, on account of the shortage of the wine crops and consequent dearer prices of pure grape juices, and there has been likewise a great increase in the amount of drunkenness and insanity. Thus it was that the matter was called to the attention of Parliament by the Academy of Medicine and a committee of investigators appointed.

A large number of samples were procured from establishments of all classes of retailers, and after analysis every one had to be declared "dangerous and bad." Experiments made by Dr. Herst showed that of five samples of cognac taken from fine boulevard restaurants, where they were sold at a franc a glass, each one was injurious to health and all had been colored with caramel. Samples of brandy taken from less pretentious saloons, were in all cases found to contain common wood alcohol diluted with river water, colored with caramel and flavored with ether and vegetable substances. The examination showed that the alcoholic beverages sold to workmen, like much too that is sent to the United States, contained impure wood alcohol, amylic acid, formic ethers, etc.; the samples were sharp, caustic, burning and colored with caramel, vegetable matter and methylene.

PAN-AMERICAN MEDICAL CONGRESS.—SECTION ON GYNECOLOGY AND ABDOMINAL SURGERY.—All members of the medical profession are cordially invited to attend the meetings of this Section to be held in Washington, September 5, 6, 7 and 8.

The sessions promise to be exceptionally interesting, many valuable papers having been contributed. Those who may wish to read papers before this Section and who have not yet sent in their titles and skeleton abstracts are requested to do so at once.

Papers have already been contributed by the following distinguished gentlemen from the United States and Canada: Drs. T. Johnson Alloway, Montreal, Can.; A. W. Abbott, Minneapolis, Minn.; J. M. Baldy, Philadelphia, Pa.; H. J. Boldt, New York city; Augustus P. Clarke, Cambridge, Mass.; Ernest W. Cushing, Boston, Mass.; Andrew F. Currier, New York city; L. H. Dunning, Indianapolis, Ind.; Geo. R. Deane, Spartansburg, S. C.; W. E. B. Davis, Birmingham, Ala.; Joseph Eastman, Indianapolis, Ind.; Geo. M. Edmonds, New York city; De Saussure Ford, Augusta, Ga.; William Gardner, Montreal, Can.; T. H. Hawkins, Denver, Col.; John R. Haynes, Los Angeles, Cal.; Edw. W. Jenks, Detroit, Mich.; Jos. Taber Johnson, Washington, D. C.; Howard A. Kelly, Baltimore, Md.; Florian Krug, New York city; C. Betton Massey, Philadelphia, Pa.; Lewis S. McMurtry, Louisville, Ky.; R. B. Maury, Memphis, Tenn.; Wm. F. Myers, Ft. Wayne, Ind.; E. E. Montgomery, Philadelphia, Pa.; Robert T. Morris, New York city; Chas. P. Noble, Philadelphia, Pa.; Jos. Price, Philadelphia, Pa.;

Geo. H. Rohé, Baltimore, Md.; Jas. F. W. Ross, Toronto, Can.; Chas. A. L. Reed, Cincinnati, O.; I. S. Stone, Washington, D. C.; R. Stansbury Sutton, Pittsburgh, Pa.; T. Algeron Temple, Toronto, Can.; A. Vander Veer, Albany, N. Y.; W. B. Ward, Topeka, Kan.

BROOKS H. WELLS,
71 West 45th St., New York city,
English-speaking Secretary.

W. W. POTTER,
Executive President.

THE PAN AMERICAN MEDICAL CONGRESS EXCURSION TO ROME.—It has been definitely determined that the Pan American Medical Congress excursion to the Eleventh International Medical Congress will sail on the steamship "Werra" from New York, September 9, the day following the adjournment of the Congress at Washington, and will arrive at Genoa, September 20, four days before the opening of the Rome meeting.

Round trip steamer tickets may be procured for \$142.50 for inside rooms, and \$150 and upwards for outside rooms. Tickets are good for members of the Congress and their families, and may be used at option of holder to return on any steamer of the line from Genoa, or on Saturday steamers from Bremen, or Sunday steamers from Southampton, during the months of October, November and December. Physicians desiring to avail themselves of this exceptionally low rate should at once become members of the Pan American Medical Congress by sending the registration fee (\$10) to the Treasurer, Dr. A. M. Owen, Evansville, Ind., and informing the Secretary General, Dr. Chas. A. L. Reed, Cincinnati, of their intention to join the excursion. Passage should be secured without delay, as the trip, involving as it will, a stop at the Azores and Gibraltar, and a sixty hours' sail along the picturesque coasts of Spain, France and Italy, promises to be very popular. Many prominent European guests of the Pan American Congress will return on this occasion. The time allowed will afford American physicians an opportunity to not only attend the International Congress and visit Rome, but to extend their journey to the famous sanatoria of South France and the Riviera.

OFFICIAL LIST OF CHANGES in the Stations and Duties of Officers serving in the Medical Department, U. S. Army, from June 24, 1893, to June 30, 1893.

Capt. Marcus E. Taylor, Asst. Surgeon, will report in person to the president of the Army Retiring Board at Ft. Logan, Col., when required by the board, for examination by it. By direction of the President.

First Lieut. Frank T. Meriwether, Asst. Surgeon U. S. A., is relieved from duty at Madison Bks., N. Y., and ordered to Ft. Logan, Col., for duty.

Capt. Louis A. La Garde, Asst. Surgeon, will in addition to his present duties in connection with the World's Columbian Exposition, furnish the necessary medical attendance for the officers and enlisted men of the army on duty at the Exposition grounds.

Capt. William C. Shannon, Asst. Surgeon, in addition to his duties in the office of the Surgeon General, is assigned to duty as assistant to the attending surgeon in this city.

Major Washington Matthews, Surgeon U. S. A., leave of absence granted is extended one month.

Capt. Freeman V. Walker, Asst. Surgeon, now on leave of absence at the Army and Navy Hospital, Hot Springs, Ark., will proceed at once to Ft. Trumbull, Conn., and report in person to the commanding officer of that post for temporary duty, relieving Major Henry M. Cronkhite, Surgeon. Major Cronkhite, upon being relieved by Capt. Walker, will proceed to Ft. Clark, Tex., and report in person to the commanding officer for duty at that post.

First Lieut. Alexander N. Stark, Asst. Surgeon, is relieved from duty at Ft. Monroe, Va., and ordered to Ft. Clark, Tex., for duty, relieving Capt. Edgar A. Mearns, Asst. Surgeon. Capt. Mearns, upon being thus relieved, will proceed to Nogales, Ariz., and report to the senior member of the commission appointed for the locating and marking of the boundary between Mexico and the United States, for duty with the commission.

Major John O. Skinner, Surgeon, having been found by an Army Retiring Board incapacitated for active service, the extension of leave of absence on surgeon's certificate of disability is further extended until further orders.

First Lieut. Benjamin Brooke, Asst. Surgeon U. S. A., is granted leave of absence for two months, to take effect on or about July 15, 1893.

The Journal of the American Medical Association

VOL. XXI.

CHICAGO, JULY 15, 1893.

No. 3.

ORIGINAL ARTICLES.

THE MEDICAL ASPECTS OF EMPYEMA.

Read before the Section on Practice of Medicine at the Annual Meeting
of the American Medical Association.

BY ROBERT H. BARCOCK, A.M., M.D.

OF CHICAGO.

Professor of Clinical Medicine and Diseases of the Chest, College of
Physicians and Surgeons, Chicago; Professor of Clinical Medi-
cine and Physical Diagnosis, Postgraduate Medical
School, Chicago; Attending Physician to Cook
County Hospital.

It has been the writer's fortune within the past three years to encounter, both in hospital service and consultation, a number of cases of purulent pleurisy following or complicating croupous pneumonia. In most instances the onset was so insidious or the symptoms so obscure and misleading that the recognition of the empyema was a surprise. Moreover, the symptomatology did not answer to the text book description. Generally the case was considered one of pneumonia with delayed or incomplete resolution. In all instances there were certain characters, both of the effusion and also of the symptoms, which impressed themselves strongly on the writer's mind, and he was led to believe purulent pleuritis is more frequently overlooked than need be. It seemed to him also, that this want of recognition was due to incorrect notions as to the etiology, symptomatology, diagnosis and prognosis of the disease, rather than to treatment, or in other words, the medical rather than the surgical aspects of the malady. At all events, it is only since the writer learned to appreciate the important truth that clinical distinctions rest upon bacteriological differences in the effusion, that his conception of empyema has lost much of the haziness still enveloping the subject in the literature and minds of the profession.

It is needless to go with special detail into the history and bibliography of suppurative pleurisy prior to the last ten years, since the real literature of this subject is contained in the medical journals that have appeared since 1885.

To illustrate the rather vague and general manner in which most text books deal with the disease, permit a few quotations from the four following, all of them leading and recent works:

In the eighth and last edition of Loomis' Practice, careful search failed to discover in his article on pleurisy either serous or purulent, any explicit statements regarding the dominant role played by microorganisms in the production and subsequent character of empyema. The date of his work is 1889, and hence its appearance antedated the most recent and instructive investigations of continental observers. In Frank Donaldson's article on this form of pleurisy, in Pepper's System of Medicine, third vol., 1885, there is the following reference to

bacteria, in discussing the occurrence of empyema as a sequence of thoracentesis: "If the atmosphere admitted is contaminated by germs, we must acknowledge that such a result is possible." Furthermore, as to the association of empyema with the eruptive fevers he says, "It is doubtful whether their germs pass through the circulation or through the lymph canals, and produce local inflammation of the same nature as their own, or whether they render the pleura more sensitive to shocks of various kinds." Aside from these two sentences, his consideration of the etiology is limited, like that of Loomis, to a discussion of the disease as "primary and secondary," and its occurrence as a complication of infectious and septic diseases, such as scarlatina, typhoid fever, pyæmia, puerperal, septicæmia, etc. Strumpell also fails to speak in more than a general way of the influence of microorganisms in producing purulent inflammations in the course of septic and infectious constitutional affections, employing the vague term, "specific infection." In Wilson Fox's great and really valuable "Treatise on Diseases of the Lungs and Pleura," 1892, the author makes absolutely no allusion to bacteria in relation to the pleuritic exudation to the symptoms. The editor, however, Sydney Coupland, in a note on page 271, in speaking of Friedlander's pneumonia coccus mentions incidentally, "The subject has been still further extended by the detection of the Frankel-Weichselbaum diplococcus in the inflammatory product of pleurisy . . . when these diseases occurred as complications of, or sequellæ to, acute pneumonia and also independently of that affection." Osler emphasizes the etiological connection between empyema and certain infectious diseases, notably scarlatina. He comments moreover upon the "special attention" which of late years had been paid to the connection of pneumonia with empyema, and states that the bacteria are most frequently pneumococci or streptococci.

In describing the symptomatology of empyema most authorities fail wholly to distinguish clinical differences in accordance with differences in the character of the pus as determined by the microorganisms therein. Some deal with the subject in so general a way as to be quite unsatisfactory. Thus, Donaldson says, "In chronic purulent pleurisy the symptoms are somewhat different. It commences in a similar manner to that of acute pleurisy, with fever, but in a few days the fever disappears. In the evenings there may be some febrile reaction with slight chills. It is remarkable that frequently vast collections of purulent fluid do not give rise to chills." Loomis says the symptoms vary according to the character of the empyema, whether acute or chronic. "If the inflammatory products become gangrenous, the prostration is extreme, and the patient presents the appearance of one suffering from peritonitis; typhoid symptoms manifest them-

selves very early; and these cases usually terminate fatally within two or three weeks."

"The symptoms of chronic empyema are often very obscure; the presence of pus in the pleural cavity in these cases can not be determined, either by the rational symptoms or by physical signs."

"There is a gradual loss of flesh and strength; . . . and there is an irregular diurnal chill followed by profuse sweats. If empyema occurs as a complication of septicæmia or pyæmia, its commencement is also, at times, very insidious."

"not infrequently pyæmic patients make no complaints which would direct attention to the pleura, and the pleural cavity may be found two-thirds full of pus, without having given a single symptom of its presence." His only allusion to empyema in connection with lobar pneumonia apparently occurs in describing the morbid anatomy, as follows: "The cells in the pleuritic exudation are mainly pus." Strümpell says, "The fever is higher than in the other forms of pleurisy, but it is irregularly intermittent, and is often associated with chills. There are severe general symptoms besides the fever, such as great dullness, headache, and a dry tongue." Respecting the character of the fever in empyema Wilson Fox says, "In purulent effusions on the other hand, the fever may be low from the beginning, or if high at first may diminish in intensity and gradually cease, or a purulent effusion may be apyrexial during a long period of its course, and even the change of an effusion to a purulent character is not necessarily followed by a rise in temperature. Long continued fever of two or three months' duration, with occasional marked exacerbations is, however, in very many cases a symptom of purulent effusion, though not a positive indication of it." Osler states, "in very many cases" empyema "comes on insidiously" in the course of the primary affection or during convalescence. He dismisses the subject of the symptomatology with a few brief sentences, contenting himself with but a few words concerning the fever, as follows: "Symptoms of septic infection are rarely wanting. If in a child, there is a gradually developing pallor and weakness; sweats occur, and there is irregular fever."

These few quotations, although by no means exhausting the works on general medicine and diseases of the respiratory organs that might be cited, probably represent the views expressed in our most pretentious treatises, and with the exception of Compland and Osler, the authors wrote before bacteriological and clinical observations throughout Europe had become fully proved and accepted.

Under the increased impetus imparted to bacteriologic research by Koch's discovery of the tubercle bacillus in 1882, able and painstaking investigators began to delve in all directions. And it is interesting and instructive to see how their attention became year by year more and more directed to the study of exudations from the serous membranes, together with suppurative processes wherever encountered. Accordingly, studies into the character of empyema grew in frequency, as did also reports on the various and most approved methods of treatment. Indeed, the medical and surgical phases of the subject became so intimately mingled as to render difficult the separating one from the other, as is designed in this paper.

In 1886 Weichselbaum reported the discovery of

streptococcus pyogenes in two cases of sero-fibrinous pleuritis, while in another of sero-purulent effusion this organism was found together with staphylococcus pyogenes. The next year appeared a report by Ehrlich of his bacteriological investigations in forty-five cases of pleuritic effusion, with special reference to the existence therein of bacillus tuberculosis. Of these, nine were empyemata, and in two of these he discovered the bacilli. His paper evoked extensive discussion by Frankel, Israel, Gerhardt and others, inquiry being chiefly directed as to the conditions that favor the existence of bacilli in purulent, rather than serous pleuritic effusions. In 1888 Weichselbaum again made a report on his study of sero-fibrinous effusion following lobar pneumonia, and in this instance announced the discovery of the diplococcus pneumoniae. In this same year Banti announced, in two cases of pericarditis with pleuritis following pneumonia, the discovery of the diplococcus in one, and in the other of this together with staphylococcus aureus and albus. Christmas-Direckink-Holmfeld in investigating the bacteriology of abscesses found streptococcus pyogenes in three empyemata and Rosenbach's micrococcus pyogenes tenuis, in two empyemata associated with mastitis. Kracht also announced pus microbes in ten cases of empyema, as follows: In two, staphylococcus albus only; in two, only staphylococcus aureus; in one, streptococcus pyogenes; and in four staphylococcus albus and aureus together; in one, albus, aureus and citreus; and of these ten cases two would seem to have followed pneumonia. He furthermore carried out experiments on rabbits to determine the conditions governing the development of purulent exudations. From these he seems to have demonstrated that pus or other cocci are absolutely essential to the development of a purulent pleuritic effusion, and that there must be either previous injury of the membrane or the presence of a fluid capable of affording a suitable soil for their growth. Furthermore, supported by *post-mortem* examination of 151 cases he declared his conviction that catching cold exercised no influence whatever in the causation of an empyema.

But the most important contribution of that year to the medical aspects of empyema was made by Fraenkel. In his twelve cases which he divided into four groups, he identified bacteria as follows: first, three cases streptococcus pyogenes, it being uncertain whether or not a pneumonia had preceded; second, three cases that followed pneumonia—Fraenkel's diplococcus pneumoniae; third, four cases in tuberculous subjects, in one bacilli in limited numbers, in one other streptococci. He concluded, therefore, with Rosenbach, Garre, Ouston, and others that, as in cold abscesses, tubercle bacilli are rare in this form of empyema, and that it is the spores which are present. In the two cases of the fourth group the empyema was due to the propagation of streptococci by the lymph channels from centers of infection situated at a distance. Certain of his conclusions are important to us, as follows:

1. The discovery of strepto- and staphylococci does not enable us to determine whether an empyema is primary or secondary, since it may be secondary to genuine croupous pneumonia, tuberculosis and centers of infection outside of the pleura.

2. Contrary wise, the existence of pneumococci exclusively indicates the previous existence of lobar pneumonia.

3. It would seem that those cases of spontaneous recovery by perforation into the bronchi, described by Traube were exclusively or at least for the most part, of the kind due to pneumococci.

In the succeeding two years, 1889 and 1890, additional reports along the same line of investigation were made by a still larger number of observers, chief of whom were Thue of Christiania, Marfan, Netter, Dreyfus-Brisac, Troisier, Woillez, Jaccoud, Türk, Renvers, Leyden, Liebermeister, Kelsch, Bewley, Immermann, Schede and Mosler. To all but a few of these numerous and often valuable contributions in the line of original work, space forbids more than the merest reference. Thue not only made successful cultures of pneumococci from the pus taken from the pleural cavity, but by the microscope detected these organisms in great numbers, blocking the lymphatics leading to the pleural cavity. Netter's paper based on forty-five cases of "metapneumonic" empyema, as Gerhardt had christened it, went into the subject with great detail. According to him, this form may be either primary or secondary and may appear prior to the crisis. At times there is a mild intermittent temperature and occasionally there is no fever; the prognosis is favorable. Cure may take place by resolution. The primary form may be observed, he states in children. Marfan endeavored to differentiate by their clinical picture the pyæmic, pneumonic and tuberculous forms of empyema. These characteristics will be stated in another part of this paper.

In 1891 this subject still continued not only to awaken interest, but to stimulate to additional inquiry, particularly as to the clinical appearances in the light of earlier and well settled bacteriologic data. Bassi described a case of double sided rapidly fatal pleuritic effusion which contained Frankel's diplococcus with staphylococcus p. aureus, and which *intra vitam* closely simulated a double sided pneumonia.

Von Ziemssen discussed twenty-five cases of purulent and two of sero-fibrinous pleurisy in children, and emphasized the benign character of that due to pneumococci as against that of streptococcus empyema. Vignalon confined his paper to a consideration of the characteristics of streptococcus empyemata. Wolbrecht, in reporting eighty-one cases of perityphilitis in Gerhardt's service at the Berlin Charité, dwelt particularly upon the not infrequent occurrence (38 per cent.) of right-sided pleuritis as a complication some of them being purulent. Hanot described a case of fatal streptococcus empyema arising in the course of scarlatina. One of the most exhaustive contributions, however, of that year, was a thesis at Paris by Courtois-Suffit, to whose conclusions particular reference will be made again repeatedly.

In the literature of 1892, it would seem that the contributors have concerned themselves mainly with the surgical treatment. Thus on the continent, the history of empyema for the past decade may be summarized as follows: as might be expected, bacteriologic investigations prevailed for the first three or four years; these led gradually and imperceptibly to the study of the clinical phenomena, based on a clearer comprehension of the etiology and pathology. Until now, enlightened on points previously obscure to them, surgeons are proving the best methods of operative interference.

Meantime, what was being done and what reported

in England and the United States. A list of them, except plodding along in the old beaten paths. To influenza epidemics afforded abundant material for observation and treatment; and hence English and American periodicals teem with reports of cases. In some, lamentable ignorance is displayed of recently established truths; while in others, reports abound incidentally to facts of etiology and pathology in a manner that evidences their familiarity with the subject. There are some notable exceptions, however.

Drummond in 1891 considered in clinical remarks on empyema the relation existing between it and pneumonia, its bacterial nature and its great frequency. He expressed the opinion moreover, that serous exudation within the pleural cavity is almost never transformed into pus, but the purulent effusion is such *ab initio*. In November, 1890, Bewley of Dublin, had contributed an elaborate paper on the subject, and although his investigations like those of many others, added nothing new, they are memorable as having been among the earliest undertaken by English speaking investigators. In this country in that same year appeared a paper by Mary Putnam Jacobi, wherein she considered chiefly points in diagnosis and the effects of pressure on the heart. Bayard Holmes of Chicago, contributed an able presentation of the subject to the Cook County Hospital Reports for 1891, in which he not only set forth correct principles of its surgical treatment, but displayed intimate acquaintance with the bacteriology and pathology of the disease. A paper by Koplik in 1892 dealt with empyema as it occurs in childhood and discussed its relations to pneumonia, etc. Other contributions, notably one by Osler and another by Light are concerned with pulsating empyema and the conditions of its production.

Although not intended to be an exhaustive enumeration of the literature of this subject, and having to do with only the medical phase, these remarks it is hoped, will present at least a correct résumé of what has been done in this field of medicine in the past ten eventful years.

ETIOLOGY.

From such reports as the foregoing it is safe to assert that the determining factors in suppurative pleuritis may be positively stated. The exciting or immediate cause of an empyema is the presence of microorganisms in the pleural cavity. There may be several kinds, either such as are pathogenic of some attendant affection, as the diplococcus of Fraenkel or Freilander's pneumococcus, or the bacillus tuberculosis; at other times the germs are pyogenic, either streptococci or staphylococci, or a mixture of these, or of one of these with pneumococci or tubercle bacilli. In the case of gangrenous empyema the microorganisms are saprogenic.

Furthermore, according to Netter and Courtois-Suffit at least, purulent pleurisy due to the pneumococcus may be primary, particularly in children. Tubercle bacilli may also occasion a primary effusion, which, according to Marfan, is serous if the bacilli are encapsuled, but purulent when they gain access to the pleural cavity.

In most cases, however, whether the empyema is metapneumonic or pyæmic, it is secondary. In the case of pneumococcus purulent pleuritis the observations of Thue indicate that the access to the cavity is by way of the lymphatics. In the form due to

pyogenic bacteria, on the contrary, Marfan considers the exact mode of their propagation not definitely ascertained. They may be carried by the lymphatic circulation into the pleural cavity. But it is also conceivable that they may gain access through the blood, in way of secondary infection. For instance, in scarlet fever or some other disease occasioned by a pathogenic organism, the germicidal action of the blood becomes weakened or destroyed, and all barrier is removed to the ingress of other germs, and of course, pyogenic. In the case of a pyæmic empyema Rosenbach has shown that the *atrium* of infection may be a furuncle or some bone disease; according to Fraenkel, a tonsillitis or pharyngitis; and in such, as in a septic pneumonia, the channel of infection of the pleura is probably lymphatic.

Kraich's experiments seem to show that the healthy pleura can successfully resist the action even of these formidable invaders and that suitable conditions for their development must be afforded either by mechanical or chemical injury, or a fluid affording proper soil for their growth must be present. In septicæmic conditions, therefore, an alteration in the normal properties of the cell doubtless takes place that serves like a chemical injury to favor the development of the microorganisms on the membrane capable in health of successful resistance.

In accordance with these facts we have the following well known list of local and general conditions to which empyema has been recorded as secondary: Infections and eruptive disease, influenza, erysipelas, pyæmia, puerperal septicæmia, croupous pneumonia, septic broncho-pneumonia, pulmonary tuberculosis, phlegmons as furuncles, suppurative disease of bones, tonsillitis, pharyngitis, perityphlitis, purulent otitis, etc. Of these, croupous pneumonia and influenza are the most frequent predisposing causes.

MORBID ANATOMY.

Under this head are considered only the character of the exudation and the changes in the pleura. In the metapneumonic form Marfan, Courtois-Suffit and others describe the pus as thick, creamy, odorless and of a greenish or greenish yellow color. It is remarkably rich in fibrine that may float about as large *flocculi* and often block the aspirating needle. The pleura are thickened by firm layers of false membrane which by adhesion encapsulate the pus. Indeed, the tendency of this variety of empyema to become encysted is emphasized by all observers. Not infrequently the pus is very circumscribed, being limited to a single lobe or even to but a small part of a lobe. Potain has designed such as "interlobaire." In some cases more than one pus pocket is formed. The amount of exudation is said to be greater in the acute and primary than in the latent or insidious form. All observers comment, also, on the great liability of pneumococcus empyema to spontaneous evacuation through the bronchi. Moreover, Türk has shown that this occurrence is not attended by the formation of pneumothorax, since the pressure under which pus is forced by the act of coughing into the bronchi is greater than that of the inspired air.

In the empyema of streptococci the pus is thin, yellowish, without odor, flocculent and displays no tendency to become encysted. The development of the pleurisy is slower than that of empyema due to pneumococci, and the amount of effusion is usually moderate.

The empyema due to bacillus tuberculosis may be likened to a cold abscess: the pus is thin, yellowish, opaque, odorless and contains no flakes of fibrine; but the pleura is thickened by layers of plastic exudate, containing tubercular nodules. In this form we frequently find permanent fistulous openings in the parietes through which pus is chronically discharged.

In purulent pleurisy, caused by mixed infection, the character of the pus is determined by the microorganisms which are the most virulent or possibly most numerous.

Pleurisy occasioned by pyogenic organisms may occasionally complicate pulmonary tuberculosis. Pyæmic empyema displays no tendency to rupture spontaneously into the bronchi. Jaccoud has described a case of empyema (variety not stated) in which the pus burrowed its way into the perineum and scrotum and finally burst into the bladder.

Völker tells of a boy six years old, in whom ingested liquids were discharged through the opening in the chest wall. Autopsy revealed necrosis of the heads of the fifth and sixth ribs, and the vertebral and small perforations of the oesophagus communicating with the empyema cavity.

SYMPTOMATOLOGY.

Since the characters of the pus vary in accordance with the nature of the microbe, particularly whether pathogenic or pyogenic, it would follow that the symptomatology must differ and be determined in its chief features at least, by the nature of the effusion. This is true, no doubt; but as yet clinical observation has not kept pace with bacteriological investigation. Moreover, this part of the subject has its difficulty enhanced by the fact that in most purulent pleuritic effusions more than a single kind of microorganism is present. Nevertheless, we are able to distinguish pretty clearly, in our present state of knowledge, three, yes! four chief types, if we include the gangrenous form of empyema.

Here again the writer will avail himself of the statements of Courtois-Suffit and others, since the cases given later on, like most others observed by him belong to but one category:

1. A metapneumonic empyema may arise suddenly, either independently of croupous pneumonia, or according to Jaccoud, in association with the pulmonary affection, being detected usually about a week after the onset of that disease. At other times the empyema develops insidiously during the course of the pneumonia and is then recognized after the primary disease has resolved, or it arises abruptly and acutely during convalescence from the pneumonia. The temperature is that of a continued fever without distinct and striking irregularities. The pleurisy may terminate by absorption or spontaneous evacuation, as previously stated. In this latter event gradual obliteration may take place by cicatrization of the fistulous tract—or, according to Courtois-Suffit, an encysted cavity may be left behind.

Netter agrees with Jaccoud that the empyema sometimes appears before the crisis of the pneumonia, but states furthermore that the fever occasionally assumes the character of a mild intermittent and is in other cases entirely absent. Chills and sweatings are not severe.

2. Marfan distinguishes all empyemata due to

pyogenic organisms as pyæmic, whereas, Courtois-Suffit endeavors to differentiate between that of streptococci and staphylococci, and that in which the former alone act as the morbid agent, by the still greater gravity of the infection. The difference seems to be one of degree, not of kind. Indeed this may be said of all varieties of purulent pleuritis. Since the distinction between empyema due to streptococci and that from mixed infection, as Courtois-Suffit terms it, is subtle, it is practicable to group them together.

This pyæmic form is secondary to some local supuration or constitutional infection, as puerperal septicæmia, and may be insidious and latent. Should it follow the primary affection, its onset may be acute, frank and painful. Its evolution is slower than in the case of metapneumonic empyema. The temperature is that of streptococcus infection, with marked remissions and exacerbations. Chills and sweating are pronounced, prostration and emaciation progress steadily, and the clinical picture is more or less distinctively that of sepsis, as described in most text books. The duration may be long and death is generally from exhaustion. Rupture into the bronchi forms a rare termination.

3. Tuberculous empyema may also set in acutely and distinctly, or its development may be so insidious and its symptoms so latent that the patient is unconscious of its presence, although the effusion is copious. The fluid accumulates slowly but persistently, the general health not being much affected and fever being absent. Those cases described by authors as chronic and without evidence of fever or other grave constitutional disturbance probably belong either to this or the metapneumonic type.

4. Gangrenous pleurisy rapidly occasions most profound and dangerous symptoms of sapremia, the characters of which are too well known to need repetition here.

The symptomatology displays nothing characteristic as regards respirations and pulse. The former may appear natural, while the pulse corresponds in strength and rate to the degree of prostration and sepsis. Cough, except there be phthisis, pneumonia or some other affection of the lungs, appears to depend on the degree of accompanying bronchitis. Pleuritic pain, if present in the beginning, disappears as the exudation occurs. Edema of the affected half of the chest is not frequent, but according to Vignalou may be observed in streptococcus empyema. Dryness of the tongue is determined by the degree of the septicæmia and may not exist in mild cases of pneumococcus pleurisy. Disturbance of the sensorium also depends on the character of the effusion and the resulting degree and duration of systemic infection. In short, the clinical picture displays a wide variety of shade and coloring determinable by the bacteriological factors.

DIAGNOSIS.

It goes without saying that physical signs by which a simple pleuritic effusion is detected are serviceable in the determination of an empyema. There is one exception, however, that must be borne in mind. Owing to the fact that pneumococcus pleurisy is generally encysted and that this is by far the most common form of empyema excepting perhaps the tuberculous, the upper line of dullness does not shift with change in the patient's position.

Moreover, the sacculated character of the upper line of dullness is inasmuch as the upper line of dullness is not encysted, it is not a true line of dullness. In other varieties of empyema, however, admissions are not so apt to take place, but may be no deviation from the usual, as general dullness on percussion. But in empyema encysted with or following pneumonia the exudation is very likely to be circumscribed to the limits of the affected lobe throughout—or to occupy the greater portion of it, thereby leading to diagnostic errors. In the empyema has developed during the course of a group pneumonia the persistence of dullness over the lobe together with the constitutional disturbance leads the practitioner very naturally to conclude no infection is delayed. Or, if the pus be circumscribed to an area below the angle of the scapula, and dullness remain over this area, after resonance has returned round about, the conclusion is natural that resolution is incomplete, or, perchance, that a pulmonary abscess has supervened. In several instances of this kind observed by the writer, indispensable and oftentimes decisive information was derived from evidences of pressure on the heart. Truèl cases exist in which the encysted pus is of so small amount as to occasion almost inappreciable displacement of the apex beat of the heart. In such instances, as well as in those with displacement of the apex to the left from enlargement of the left ventricle, etc., positive diagnosis may not be possible without the aid of the aspirating needle. Changes in the heart's position are more difficult also of determination when a small empyema is left sided. It is this sort of circumscribed empyema which Potain has described and because it is confined within the limits of a lobe has designated it *pleurésie loboulée*. On account of the liability of its being mistaken for a pneumonia, if reliance is placed on the results of percussion, he advises careful study of the breath sounds and of pectoriloquy, to which may be added signs of pressure on adjacent viscera.

A-side from physical signs, valuable aid in determining the nature of a pleuritic effusion may be derived from careful study of the temperature taken at frequent and regular intervals. In this way the writer believes irregularities will always be detected which, although slight, perhaps of only one or two-fifths of a degree, are yet too frequent and unethical to be mistaken for those of the diurnal physiological variations. Although Courtois-Suffit states the pyrexia of pneumococcus empyema to be that of a continued fever without irregularities, the admixture of pus microbes with those of pneumonia is so frequent in these cases that slight yet significant variations in the temperature are generally observable.

Finally, should all means of making a differential diagnosis fail us, we may yet fall back as a last resort on exploratory puncture. Nevertheless, this is not infallible, as will be seen in one of the following cases, for the pus being often circumscribed, the needle may be passed in a little at one side—or it may enter an adhesion and therefore draw no pus.

It is evident, therefore, that the diagnosis of that very form of empyema which is one of the most common, is not always easy.

PROGNOSIS.

In empyema due to pneumococcus the prognosis

may be considered favorable. The mortality, according to Courtois-Suffit does not exceed 5 or 10 per cent., according to Netter 2 or 3 per cent. and it yields to simple puncture and drainage. Absorption of the pus is possible or it may in rare cases become chronic, but if not operated on is very likely to break through into a bronchus. According to Jaecoud this spontaneous evacuation takes place in 25 per cent. of the cases. In this event of course there is a new element of danger, from the entrance of pyogenic organisms.

In empyema due to streptococci or staphylococci or both, danger to life is far greater depending on the degree of septicemia. Spontaneous cure by absorption or evacuation through the bronchi is most unlikely, and if an operation be not performed death is probable from septicemia. The duration of the disease may be long, provided constitutional infection is slight. Simple puncture and drainage are not sufficient.

In the variety known as tuberculous the duration may be also long, but the effect on the general health or on the pulmonary affection may be apparently slight. Death generally results from the tubercular disease of the lungs rather than from the empyema as such. Its removal by surgical interference is advisable however.

Gangrenous empyema is extremely grave, but not necessarily fatal, since Hanot has reported a case which recovered under appropriate and radical surgical methods:

Case 1.—A. F., female, aged 6 years, seen in consultation about March 1, 1892. History of acute illness a month earlier, thought to be la grippe and characterized by high fever, some stupor and intense pain in the back and posterior portion of the left side; cough present, but not a marked feature. After about a week or ten days symptoms subsided, and child was thought convalescent. Patient then unexpectedly complained one day of chilliness; fever returned, gastric symptoms became urgent, and the case dragged on with daily pyrexia of a distinctly remittent type; emaciation and weakness increased, but the friends and attending physician noticed no sweatings or manifestations of rigors. Cough and dyspnea were never pronounced symptoms. The child seemed simply wasting away gradually from the daily fever. *Status present.*—Patient in bed, moderately emaciated, nervous, restless, with considerable muscular strength, skin dry and somewhat harsh, temperature about 99.3-5 degrees at 10 o'clock A.M., pulse rapid and weak, tongue not peculiar, no complaint of pain. Physical examination—marked dullness at base of left lung, extending from just below scapular ridge forwards and downwards to a point just a little outside of and below the level of the left nipple and posteriorly down to the inferior limits of the thorax. The area of dullness was confined to and corresponded almost exactly to the boundaries of the left lower lobe. It did not shift its position. Elsewhere the percussion note was resonant. On auscultation the breath sounds over the dull area were bronchial and voice was distinct and of diminished intensity. In the remainder of the left and throughout the opposite lung sounds were normal. Over the central portion of the area of dullness, in which the dullness approached to flatness, pectoral fremitus was abolished. The intercostal spaces seemed to be somewhat more prominent, as was also the rotundity of the affected side. The heart's apex could not be felt distinctly, but seemed to be situated further toward the median line than is normal to a child of that age. The cardiac sounds were free from murmurs. There was no

doubt in the writer's mind of the real nature of the difficulty, yet the physical signs were puzzlingly like those of pulmonary consolidation, and therefore he hesitated to advise surgical interference without ocular proof to the parents of the existence of pus, all the more, even, since the suggestion of empyema was incredible to the attending physician. An attempt to insert a needle occasioned such fear and excitement to the child that it had to be abandoned. It was then decided to determine the existence of empyema by the symptoms and temperature. Minute questioning elicited the fact that at times, usually in the forenoon, the child would ask to have the bedclothes tucked about her on account of feeling a little cool. It was learned too that occasionally slight moisture would be observed on the skin. The fever rose each afternoon and reached the neighborhood of 103 degrees. It was decided to wait until Wednesday, P.M., then four days distant, have the temperature taken by the nurse and recorded every four hours, day and night, and then if the temperature chart did not decide the question to resort to aspiration under an anæsthetic and operate immediately, if the result so indicated. It is a matter of sincere regret that the temperature record could not be obtained from the nurse whose address has been lost. But it can be stated very positively that the temperature ran as follows: Between seven and nine A.M., it reached its lowest figure, about one- or two-fifths of a degree F. above 99 degrees and then rose steadily almost without fluctuation to 102 and three or four-fifths degrees at about 5 o'clock P.M.; from this height which was maintained until midnight, the curve would gradually and steadily descend, almost without fluctuation until in the A.M., between six and nine o'clock, it stood midway between 99 and 100 degrees. Upon comparing the records of corresponding hours, however, it was found that they sometimes varied as much as one- or two-fifths of a degree. Suspicions were confirmed Wednesday, and that day an engagement was made with the surgeon, Dr. Bayard Holmes of Chicago, to operate Thursday. Wednesday evening news was brought to the writer of a great and astonishing change in the child's condition. During the afternoon she had begun suddenly to cough and expectorated a small amount of thick yellow sputum mixed with a little frothy mucus, and the fever had not gone much above 101 degrees. It was concluded by the writer at once that the pus had begun to break through into the lung. Whereupon the surgeon was notified and accordingly appeared ready for action early the following morning. The prediction was made that the pus would be thick and creamy and circumscribed.

So soon as the little patient was well anæsthetized a good sized hypodermic needle, previously and carefully aseptized, was introduced and a syringe of thick, creamy yellowish odorless pus was obtained. A portion of a rib in the middle of the area of dullness was resected, and so soon as the intercostal tissues were opened with a pair of blunt pointed forceps, about a pint of pus simply spurted forth. The pressure was evidently great, as it spurted nearly to the ceiling. Huge fragments of fibrine were extracted, a double drainage tube was inserted, one-half of which was perforated, the wound was properly dressed and the diagnosis had been verified. The child made an uninterrupted recovery. Unfortunately the pus was not examined for microorganisms, owing to failure to secure a sample uncontaminated by exposure to the external atmosphere. However, the history of the case and the character of the pus make it reasonably certain that pneumococci were chiefly concerned in its production.

Case 2.—Col. W., war veteran, aged fifty-eight years, became ill Jan. 21, 1892, with lobar pneumonia of right

lower lobe, and a couple of weeks later passed into the charge of Dr. C. B. Reed, who found him still very ill and with considerable fever, there having been no permanent subsidence of temperature following a usual crisis. Until the 20th of February the patient's temperature fluctuated in the morning between ninety-eight and three-fifths and 100 degrees, and in the evening between 100 and 101.35 degrees. Between Feb. 20 and 28, the *v.m.* temperature ranged between ninety-eight and three-fifths and 100 degrees. At evening the thermometer registered variable temperatures, from 100.25 degrees on the 20th up to 103.25 degrees on the 28th. It then subsided and for the month of March remained fairly low as shown by the accompanying

less the opinion was maintained that it was empyema, and for some reason, perhaps because of sacculization of the pus, the needle had failed to reach the pus. During the next few days more pus was expectorated, and on the 17th the writer summoned again in consultation to determine whether or not patient could endure an operation. Examination now revealed an area of impaired resonance of tympanic quality where previously dullness and pronounced resistance had existed. The breath sounds too, were blowing imperfectly amphoric. There was no doubt of a cavity, and the writer believed a circumscribed pneumothorax. The operation was advised without delay. Accordingly it was done, and both Dr. Reed and Dr. Van Hook became

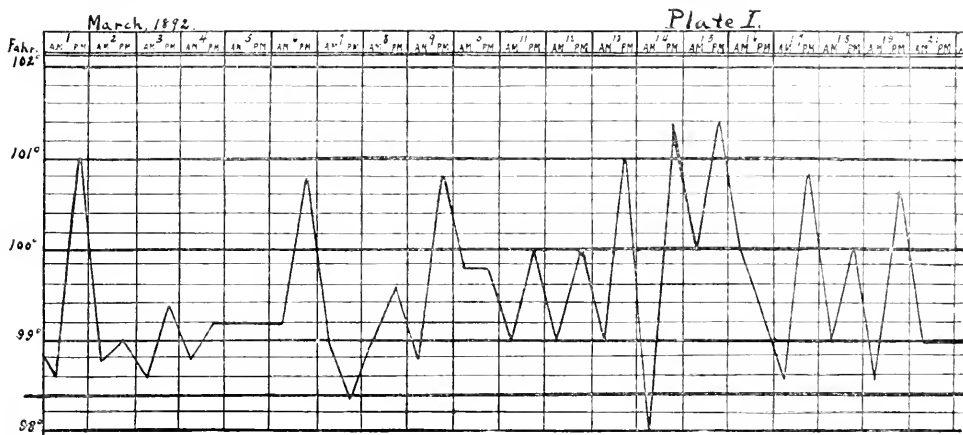
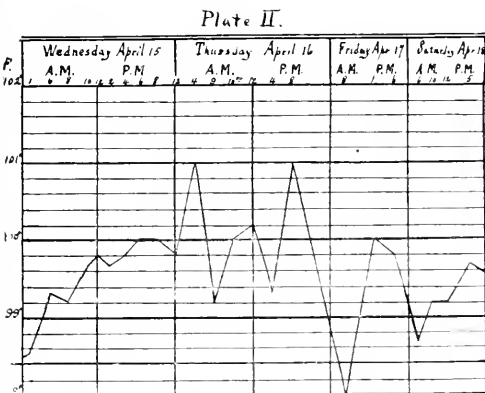


chart. His general condition was feeble, however, and he was supported with tonics, as quinine, stimulants and nourishing foods, in the hope that the lung would eventually clear up. March 24, patient coughed up a little pus. April 13, he again expectorated pus, this time about a pint of thick yellow pus. The following day, April 14, the writer was asked to see him in consultation, as it was supposed he had developed a pulmonary abscess. *Status presentis*—patient was in bed, feeble, emaciated, skin dry, tongue not specially noteworthy, pulse 108 and weak, appetite poor, bowels rather constipated, intellect clear, but patient very nervous. Questioned as to chills, he admitted slight chilly sensations "down the back." Physical examination—inspiration showed respirations easy and heart's apex situated close to the left nipple in fifth interspace. Palpation—diminished pectoral fremitus over the right infrascapular region, exaggerated in front; percussion—impaired resonance on the right side of the chest anteriorly, dullness limited to the right lower lobe, being specially marked and with distinct sense of resistance below the inferior angle of the scapula; auscultation—exaggerated vesicular respiration anteriorly, faint bronchial respiration in upper part of lower lobe, but suppressed in the infrascapular region, over the area of most pronounced dullness, voice sounds nowhere cavernous, but a small area of pectoriloquy at the level of the fifth rib just outside of the anterior axillary line, no râles and nowhere any indication of a cavity. The left lung was normal throughout. Accordingly the diagnosis was made of empyema following pneumonia and having begun to break through into the lung; not a pulmonary abscess. An exploratory puncture was advised to settle the question and it was replied that a surgeon, Dr. Weller Van Hook, had already aspirated without obtaining pus. Neverthe-

convicted that the condition was an empyema which had ruptured into the lung. Patient made a slow recovery. Unfortunately no pus suitable for bacteriological investigation could be obtained in this case.

Chart 2 shows the temperature for three days intervening between the first examination by the writer and the final operation.



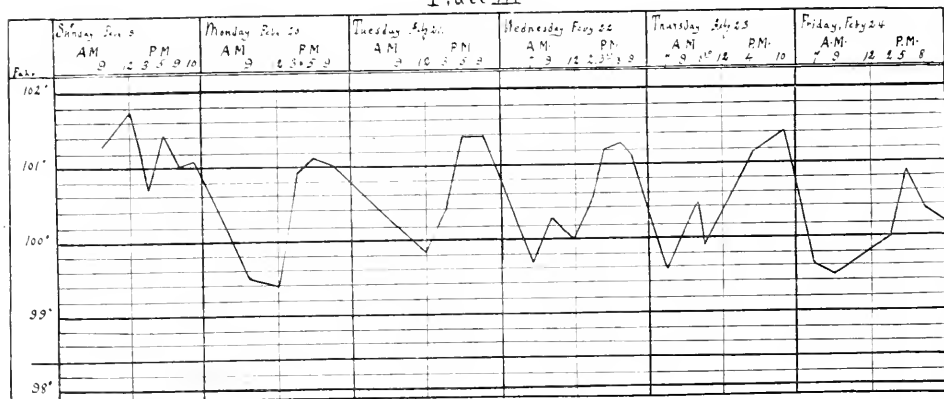
Case 2.—Feb. 24, 1893, was called in consultation by Dr. R. N. Hall to see Mr. H., aged 37 years, bookkeeper, who gave the following history: About a month previously patient had been stricken with croupous pneumonia of right lower lobe; disease pursued a typical course until th

seventh day when the usual critical defervescence occurred; instead, however, of temperature remaining normal, pyrexia again appeared and for the ensuing three weeks maintained an irregularly remittent character, falling in the early morning to 99 degrees, or sometimes a little below, and rising the *r. m.* to 101.25 degrees. His strength grew very feeble, heart's action alarmingly weak at times and emaciation progressed, in spite of tonics, and as much concentrated nourishment as he could be made to take. The signs of consolidation of the lobe did not clear up, although cough had greatly diminished and expectoration had become chiefly or mainly catarrhal. *Status presentis*—patient in bed, lying partly on the right side, emaciated, feeble, very nervous; pulse rapid and of feeble, irregular force, skin rather dry, tongue coated but moist, appetite moderate, bowels inclined to constipation; temperature 100 degrees, pain in right side of chest when patient assumed left decubitus. Physical examination—apex beat in fifth interspace, just within left mammary line and in force a scarcely perceptible tap; cardiac dullness extended from median line to half an inch outside of left nipple. Over the left lung resonance and respiratory sounds were of normal quality but somewhat exaggerated. In comparison at least the anterior portion of the right half of the thorax was

greenish yellow, odorless pus was withdrawn. The following day was selected for the operation. The annexed chart No. 3 shows the temperature as taken at irregular hours for a week prior to the surgical interference.

The writer was not present at the operation but will narrate the details as nearly as he can recall them from the description given by the operator, because interesting and instructive. After patient had been etherized an aspirating needle was passed into the pleural cavity at a point somewhat forward and inferior to the area of most pronounced dullness. No pus was obtained. Nevertheless the intercostal space at the point was dissected down upon and then opened; hemorrhage occurred, necessitating the use for a few moments of iodoform packing. When the flow of blood had ceased sufficiently at least, the finger was introduced and a few indistinct adhesions were thought to be felt, but no pus. Somewhat higher up and backward, however, could be felt a boggy mass that seemed to bulge from the surface of the lung into the pleural cavity and from its feel was supposed to be a pulmonary abscess. The attempt to open into this abscess with the finger nail failed, owing to the toughness of the overlying mem-

Plate III



impaired in resonance and the breath sounds were slightly broncho-vesicular; posteriorly and laterally the base of the right lung was slightly yet appreciably larger in diameter than the corresponding part of the opposite side, and the intercostal spaces felt somewhat filled out, particularly just below the angle of the scapula. Percussion revealed dullness extending from just below the suprascapular ridge downwards and forwards to the lower border of the fifth rib a little outside of the anterior axillary line, being from this point backward and in the infrascapular region specially intense; respiratory sounds over this dull area were faint and bronchial, accompanied by a superficial, subcrepitant, evidently pleuritic exudation rales, just below the inferior scapular angle. Hepatic dullness extended an inch below the costal arch, and at this level the tender lower edge of the liver could be palpated. Diagnosis—empyema following or rather associated with lobar pneumonia. It occasioned surprise and incredulity, particularly in the mind of a third physician present, because of the trifling symptoms of sepsis. However, the suggestion to introduce an aspirating needle was endorsed; the center of the dull area was determined; the previously aseptized needle was introduced and a syringe of thick, creamy, slightly

brane, and hence seemed to confirm the conclusion that this was a pulmonary abscess and not empyema enclosed by false membranes. Consequently using his finger as a guide the surgeon penetrated the pus sac by means of a pair of Bülroth's forceps; blood and thick, creamy pus escaped, and at the same time it became evident that a communication had been formed between the parenchyma of the lungs and the pleural cavity. Drainage tubes were inserted, the wound suitably dressed and the patient returned to bed. The subsequent history was that of a slow recovery.

The conclusion seemed inevitable that a pulmonary abscess and not an empyema had existed. The writer was not convinced, however, and submitted a sample of the pus first obtained for microscopic examination to Dr. Adolph Gehrmann, a competent microscopist. His report is as follows, and effectually disposes of a pulmonary abscess.

"The specimen of empyema pus given to me showed upon microscopical examination blood and pus cells, numerous chain and grape cocci and a few pneumococci. There were no epithelial cells or elastic fibers.

cult to extricate themselves. My understanding of the signification of the term stimulant is that it is a medicine which increases action and that sedative diminishes action; how alcohol can be a sedative and a stimulant at the same time is a question I should be very glad to have explained. The gentleman who is a firm believer in drugs and who has a somewhat vigorous predilection for the administration of calomel in the treatment of pneumonia, has derived very satisfactory results from the administration of a mixture of nitrate of amyl, nux vomica and digitalis, but if I have not forgotten some of the things I have learned in the study of materia medica, these agents are physiologically opposed. You give a medicine that lessens vascular fullness and one that increase it at the same time. It would seem as advantageous to the patient to give him absolutely nothing, bid him Godspeed and give him a fair show for his life.

Cases of pneumonia as they have come under my observation—I refer to croupous pneumonia—are ordinarily easily divided into two groups, in which the term sthenic and asthenic may be properly employed. In a case of sthenic pneumonia, in a robust vigorous muscular individual whose pulse rate is 120, temperature 105, I am not able to see any impropriety in the administration of veratrum. It slows the pulse it is true, and relaxes the arterioles of the body and thus relieves the heart, that is equally true, and it seems to me that in these sthenic cases of pneumonia veratrum administered in the early stage to the extent of controlling the circulation is a medicine that is capable of doing some good; I am very far from advocating it as a *sine qua non*, as a medicine that must be given, and equally far from referring to strychnia or carbonate of ammonia in this way, but I think that veratrum has a place, as carbonate of ammonia and strychnia, and as I firmly believe, alcohol has a place.

Dr. BARBOCK:—I quite agree with the author of the first paper that we cannot rely upon statistics; I do not believe that we know whether we have more deaths from pneumonia now than we did thirty years ago. There are many conditions in pneumonia that require different treatment and there are many locations where it requires different treatment. In the South, where we have malarial poison, we would likely treat a case of pneumonia with quinine; and in different locations the treatment would be different.

The author of the second paper spoke of blood letting reducing the toxins of the blood, but we must remember that at the same time we are reducing the toxins of the blood we are also reducing the oxygen, and in that case I don't believe blood letting would be of any benefit. As to the pneumonia of old age, last winter two cases came under my observation with pneumonia, and it is astonishing the amount of alcoholic stimulant they will bear; the two different cases were between seventy and eighty, and during their sickness must have taken as much as a gallon and a half of whisky, and they bore the whisky well. In regard to alcohol, it not only acts as a stimulant but also as a bacilliicide; it has the same effect on the poison of pneumonia as it has on the diphtheria bacilli. We would not think of bleeding in cases where the vitality of the patient is run down, there we would need stimulants and tonics. However, I believe, we are very much at sea in the treatment of pneumonia. In my part of the country the generality of practitioners recommend large poultices of flax seed meal over the lungs; whether that has any effect or not I do not know. Sometimes I use a cotton pad over the lungs. These so-called expectorants in the treatment of pneumonia have little if any effect. In the first place I usually see that the room in which the patient is lying is well ventilated, and have everything as aseptic as possible, and in the acute part

of the disease use veratrum viride or aconite until the temperature falls, and after that I treat my patient with iodid of potash, and stimulants if necessary.

DR. PORTER, Kansas City, Mo.:—Pneumonia is a self-limited disease and I do not suppose any of us pretend to cut it short any more than we expect to cut short typhoid fever, and I don't see that there is anything particular to treat in pneumonia except its complications. So far as I know we have found no antidote to the poison which at the present day we believe to be responsible for this disease. The congestion of the lung is the product of this poison, consisting first in the inflammation and then in the constitutional symptoms from the same. I have seen a good deal of pneumonia, and I have been through the line of bleeding and through the expectant plan. A few years ago when we treated pneumonia by bleeding I was in a malarial country and we never thought of treating pneumonia without quinine, because they were all suffering from malaria, and our success was wonderfully good. We gave it for its physiological effects, and we resorted to venesection, and I don't know but our patients got along just as well as they do now. But the wave came along and said no more bleeding, and we stopped it and gave other remedies. I advocate the use of alcohol in certain stages of pneumonia. It being a self-limited disease our object is to prevent death if possible, and if we have failure of the heart I don't know of anything that is a better sedative stimulant than alcohol; I look upon it as a cardiac stimulant and sedative if given in certain quantities. Our object in treating pneumonia is to bridge it over until such time as this toxic poison has exhausted itself, and if we can sustain the life of the patient until that is brought about he will get well, and I don't know of any remedy that is equal to alcohol in that respect; it is certainly better than all expectorants. I can see where in strychnia, which has been advocated, is a good thing; it is a good bitter tonic and has its effect upon the nervous system, but certainly it could not compare with alcohol in bridging over the dangerous period in these cases. The great trouble with many cases of pneumonia reported unfavorably is that these people who are reported as having died of pneumonia have really died from some sequelæ of pneumonia.

DR. JENKS, Keokuk, Ia.:—Statistics are misleading for the reason that fifty years ago they knew nothing about physical diagnosis, about percussion and auscultation, and three-fourths of the cases of fatal pneumonia in old people were overlooked or were called deaths from old age. Then in children and a vast number of other cases where the diagnosis was obscure the physician made a faulty diagnosis, so I think the statistics as regards the mortality in the treatment of pneumonia should be thrown aside. Nitroglycerin is a very good remedy in these cases. In regard to the treatment of pneumonia by stimulants, we rely too much on alcohol. I believe in drugs, I do not believe in expectancy; it has done a great deal of harm in all diseases of late years; it has done much harm in pneumonia and typhoid fever. If I had typhoid fever I would much rather trust my life to a physician who had confidence in the right kind of drugs than to one who thought it his duty to take my temperature and pulse, and would say go ahead and ventilate the room. There is a great deal in getting a fair start in pneumonia. If you are called early, you can do a great deal to break up the congestion; you can make a case very much lighter by treatment, and I believe some of the benefits that it was asserted came from blood letting in the old days were due to calomel. Calomel has a place in the treatment of pneumonia that ought to be recognized; I do not believe in salivating a patient, but in giving it pretty

freely and in that way lessening the blood pressure and the temperature, and the heart will not palpitate so in the second stage. In the stage of hepatization you have to be very careful; ammonia salts with careful regulation of the diet does very well for that, but when the pulse creeps up, nothing in the range of *materia medica* is so beneficial as the judicious and continuous use of nitro-glycerin. I have been using it in 1-100 drop doses every two or three hours and sometimes oftener, increasing it each day, watching its effect on the pulse, giving it in connection with digitalis and strychnia. These remedies I rely upon in the last stage of pneumonia when I fear my patient is going into collapse. That treatment with me has been much more successful than the alcoholic treatment I was taught to use. When the profession begins to study the disease they will rely upon these three remedies much more. I use alcohol in some conditions of the system. I am a firm believer in drugs, but not in giving large doses of antipyretics such as antipyrin, phenacetin or any of those remedies, or what is worse, heroic doses of quinine; they are much more dangerous than the heart sedatives and antipyretics we are accustomed to be afraid of.

DR. R. R. ROSS, Buffalo, N. Y.—I believe it is necessary to classify pneumonia before we can treat it scientifically; I think it ought to be divided into classes referable to the heart, to the poison of the disease, and to the lungs. Cases referable to the heart ought to be treated entirely different from those which are suffering from the poison of the disease, the symptoms are different and the remedies employed in one case do not apply at all to the other. The question of bleeding has been discussed and reference has been made to modern therapeutic agents which will take the place of it. I have seen nitroglycerin used in these cases with excellent result; I saw a series of fifty cases in which it was used and they seemed to be better. This drug has a dilating effect upon the arteries and also a stimulating effect upon the heart.

DR. SCOTT, Cleveland, O.—I believe that the etiology of this disease may not always depend upon the same condition. As an illustration: If I take a frog and prop open his mouth so he cannot breathe, he will have congestion of the lungs very soon, and if that condition continues long he will die of congestion of the lungs; where is your pneumococcus? it has reached lung tissue except from the air; there is some other reason for the congestion in that case. I have frequently seen firemen, exposed to hot blasts, breathing in heat and smoke from a burning building, die from congestion of the lungs, from pneumonia really. What is the etiology in that condition? Does that depend upon the absorption or introduction or inhalation of the pneumococcus? There is no doubt in my mind that it comes along after the pneumonia; if you examine you will find what you call a pneumococcus, but that is secondary, it is not the primary cause. In regard to treatment, if we can reduce the congestion in the first place our patient will get well, and if it has gone on to hepatization with a pulse of 120 and a temperature of 105, we have remedies by the application of which we can diminish the frequency of the pulse and reduce the temperature and the congestion in the lung. When I commenced to practice medicine I used to bleed, and I do not believe that bleeding in selected cases is unphilosophical; I have no hesitation in bleeding a man except that it is out of fashion, and to advocate bleeding a man with pneumonia is thought to be barbarous.

DR. REYBURN, Washington.—It seems to me the gentleman has struck the keynote in the treatment of pneumonia. We have a mortality from pneumonia in men in the prime of health, full of blood, full of life and vitality; these men

are stricken down with pneumonia and in two or three days are dead. Now why should this be so, why should men in high vitality and health die suddenly from pneumonia? My belief is that in that type of cases a reversion to the old treatment, including blood letting, is not by any means unphilosophical, for the reason that these men as a rule have a bounding pulse, a free action of the heart filling up all the air cells of the lung and they die mostly of stricture. In these cases I give aconite and veratrum; then in this class of cases we bleed to cure inflammation, we treat a symptom that is killing our patient. Here is a man whose lungs are half filled up, the heart is pumping the blood with greater force than in health and after a while he becomes blue, and in that case I consider the treatment by aconite or veratrum or blood letting as good. But if we take a patient who is broken down from chronic alcoholism, such treatment would be fatal. We should not treat all patients alike. My experience reaches back for thirty-seven years, and I do not think we treat pneumonia as successfully as we did thirty-six years ago. We ought to divide these patients into two classes, and these two classes should be treated very differently. I know that we vastly over-use alcohol; I have seen a man bleed to death from gunshot wound with resulting pneumonia, under treatment by alcohol. At the same time let us not go to the other extreme; Arthur Helps says, when men try to swing the pendulum to one side, they swing it so far that it is apt to carry them to the other side.

DR. MARTIN, New York.—We are called to a case of sickness, a man has had a premonitory chill, we find a pulse of 120 and we diagnose pneumonia. What are the conditions? The pulse is above its normal standing and it is pumping into the lungs 50 to 70 times more than it ought to. Suppose you had a tub of water with a supply pipe and a waste pipe going into it, you increase the size of the supply pipe but not of the waste pipe and you get an overflow. That is all there is of pneumonia, the rest is results. Control the pulse, you may use your own arterial sedative, but use it then and there, bring that pulse down if you can to 80 and all fear of pneumonia will be gone; if you bring the pulse down to 80 and hold it there, you will never lose a case of pneumonia. So long as the pulse is controlled the system is near its normal condition and there is no congestion, and if there is no congestion, there will be no hepatization, and no consolidation, and if there is no consolidation there will be no death. You must not let the pulse drop too low, I use one hundredth of a grain of nitroglycerin and I say to the nurse, if the pulse goes beyond 80 give the arterial sedative, if it goes below 65 give this, and I hold the pulse there for the first few days, and I never lose a case of pneumonia. A short time before I left home a man died with pneumonia and across the street another case was taken. The mother felt that she must lose her son because the man across the way had died. I said to her, "Good woman, do as I tell you and if this man dies I will pay the funeral expenses and give you a house and lot." I showed her how to count the pulse and on the sixth day the boy was lying on the lounge, he could not be kept in bed any longer.

DR. GEORGE W. WEBSTER, Chicago.—In those cases referred to where there was effusion after pneumonia, it was where the lungs had been affected by the pneumococcus, and later there was infection of the pleura by this same organism, and then effusion.

I have treated seven cases in the last sixteen months in patients ranging from three to forty years of age, and have treated all by one method, that of aspiration and then washing out the pleural cavity with an antiseptic solution, which was a saturated solution of boric acid, at each sitting.

Sometimes there would be from one to six or eight fillings of the pleural cavity with this solution, to be immediately withdrawn. All of these seven cases recovered; in two cases one aspiration and washing was sufficient to effect a cure; in three cases two aspirations were necessary, and in three cases three, but in all of these cases there was complete and perfect recovery. In one case, where there seemed to be a considerable amount of cheesy adhesion, I injected a solution of the extract of pancreas, left it in position for nearly three hours, then aspirated. This pus had been digested, was soft and in a fluid condition, and was readily eliminated from the chest by the aspirating needle. I found that apparently the younger the patient, the more likelihood of recovery with one aspiration. It has been pointed out by a German surgeon that a large majority of these cases in children will get well with a single aspiration, without washing out the chest cavity; but it is simple, requires no anæsthetic, and can be done upon a person of any age, and it seems worthy of thorough trial. Seven cases is not enough to base any conclusions upon, but they point a direction in which treatment might be followed out to further advantage.

DR. MARTIN, New York.—I can not help thinking that it is better to avoid or avert a calamity than to provide for one. Take the same line of treatment I gave for pneumonia, controlling the pulse so you do not get the congestion and you will not get the consequent effusion, and if you do not get the effusion you do not get the pus in empyemic troubles. In some thirty-nine years in medicine I have never had a case of empyema, although numberless cases of pleurisy, and I have treated them in this way, and it can not be that I get all the mild cases when I find my brothers in the profession having cases of empyema.

DR. W. A. BATCHELOR, Milwaukee, Wis.—One of the new points brought out is the bacteriological relationship of different cases of pyæmia or purulent pleuritic effusions, and it is a line of investigation which I think should be more followed out and probably will be in the future; and following it out the results will help us a good deal, I fancy, in coming to a proper conclusion in regard to the efficacy of different modes of treating it. We are a little inclined to think, in America, that every case of empyema must be cut into and drained; I am inclined to hold that opinion very firmly myself, but looking at it from the bacteriological standpoint, some of these cases are due to microorganisms in themselves not so virulent, nor in the nature of their products, and if we can save more of them by a single aspiration it is going to lead us into light on that point. We can all recall cases in which empyema has been cured by a single aspiration; we can recall cases in which a cure has followed the formation of a broncho-pleural fistula where there has been only copious expectoration of pus and the individual has gotten well. Those cases lead one to modify a little the strong position he may otherwise take in regard to cutting into all pleuras. It all reflects back on this bacteriological investigation; if we find that some kinds of pleurisy are produced by one sort of microorganism and others by another sort, it may help us ultimately to know in which case we may incise and drain and in which we can look for a good result after a single tapping. We are inclined to look upon incision and drainage as a suitable operation; the results are almost always good, and yet it is more serious than tapping; and yet other forms of empyema are not cured by tapping, by incision and drainage; some multiple resection will not cure. Those are of the more virulent type, the tuberculous, and so on. In this connection I fancy it would be unsafe to draw conclusions from the clinical picture of the case and the history and variations of temperature, etc., as to the exact form of microorganism

present, the only thing to do is to get some of the blood and have it examined in the laboratory. Another point I had in mind is this: No doubt all of us have had cases of effusion in Bright's disease, and I think they are almost always uniformly serious, and that puts them out of this category. Bacteriological investigations of pleurisy may lead us to better modes of treatment, and to form better judgments as to what we are accomplishing in our treatment.

THE ACTION AND USE OF TUBERCULIN.

Read in the Section of Practice of Medicine, at the Forty-fourth Annual Meeting of the American Medical Association.

BY J. T. WHITTAKER, M.D.

CINCINNATI, O.

Opinions regarding the virtue of tuberculin still vary between extremes. Clinicians in general are dissatisfied with the results, while the pure experimentalists in the laboratory continue to observe direct effects. Koch maintains in force all his original propositions concerning its virtue, and his immediate associates and assistants attribute the failures to complications.

Tuberculin is known to be a product of the growth of the tubercle bacillus in a culture soil of veal broth containing 1 per cent. peptone and 5 per cent. glycerin. It is extracted with 40 to 50 per cent. glycerin so that it keeps almost indefinitely. I have some of the first, furnished nearly two years ago. It still shows the same effect as that obtained last month; that is, in dose of one milligram (1 per cent. solution), it excites its peculiar reaction in tuberculous patients.

We get some new light on the action of tuberculin from experiments with ordinary cultures and with the dead bacillus.

Straus and Gamaleia recently report a series of experiments concerning the pathogenic effect of various cultures of tubercle bacilli. Intravenous or subcutaneous injections of filtered bouillon cultures of Koch's bacillus produce in healthy animals only a slight reduction of weight, from which the animals speedily recover, but produce in tuberculous animals the typical reaction of tuberculin. The intravenous injection of tubercle bacilli, killed by heat, produces in rabbits marked emaciation and final death, and at autopsy there were found numerous miliary nodules in the lungs, which consisted of a granulation tissue rich in cells, but without giant cells, and inside of this tissue there could be demonstrated numerous but well colored tubercle bacilli. The injection of diluted, heated, dead bacilli leads likewise to death, but shows on section no abnormal condition. The use, however, of more diluted solutions produces a gradual immunity to the more concentrated solutions. After subcutaneous injection a large abscess forms at the point of injection. The authors remark that this property possessed by dead tubercle bacilli, of maintaining their appearance and capacity of color in the living organism, does not belong to other microorganisms. Neither does the property of producing the same changes as the living bacilli. Besides this local effect, dead bacilli may produce cachexia and even death.

The foregoing observations lead to the conclusion that the chief toxic product of tubercle bacilli does not develop itself in the culture soil, but in the bodies

of the bacilli, so that cure will require the elimination of the dead bacilli from the body.

The observations of Koch, Prudden and Hedenperry, also show that dead tubercle bacilli may produce important changes in the body. Vissmann, from his experiments, concludes that the dead tubercle bacillus acts as a highly irritant foreign body upon the animal organism. Injected into the subcutaneous tissue, it produces an abscess. Introduced through the auricular vein into the blood, it exercises a sharp irritation on the connective tissue elements, not only on the alveolar walls, but also on those of the blood vessels and pulmonary artery. In further course, it shows the same influence on the connective tissue of the liver, but not in such high degree. Still bolder is the effect on the kidneys, and in the spleen there is no effect.

The changes produced in the lungs and liver by the irritation of dead tubercle bacilli show, in the first weeks after intravenous injection, such a strong resemblance to young tubercles that it is impossible to distinguish them. They do not, however, in their later stages develop a tendency to undergo caseous degeneration.

Botkin concludes from his examinations of the blood: 1. After tuberculin injections there is an acute leucocytosis in which all forms of the white corpuscles participate. On the day after the reaction the number of leucocytes rapidly diminished, whereby probably the majority of them are destroyed. This is assumed from the increase in the number of blood plates. The appearance corresponds with the period of maximum reduction of temperature, and forms an analogy with the blood crisis of many acute infectious diseases accompanied with fever. 2. The tuberculin reaction occurs in the blood even in cases in which the temperature does not ascend.

Ribbert starts with the proposition that the tubercle bacilli under ordinary circumstances excite inflammation where they are. This inflammation is chronic and granulating. The tuberculous virus has an effect too slow and too little intense to be able to produce acute inflammation and suppuration. Exudative inflammation may occur in tuberculous centers, either when the toxic effect of bacilli is more intense, or the resistance of the tissue is less. Tuberculin reduces the resistance of the tissues.

Rodet and Courmalt reached the same results. Their explanation is that the tissue of the whole body is damaged to such degree by tuberculin as to become less resistant.

The tissues of the body are brought into a slow, granular inflammation by tubercle bacilli. When they are more markedly injured by tuberculin, and thus rendered less resistant to the tubercle bacilli, acute inflammation occurs with hyperemia, transudation and emigration, and after this process in which tuberculin is eliminated from the body, regenerative processes set in. Hence the severe irritation of the body by tuberculin may produce increase of necrotic processes and may even lead to increase of bacilli, as has been observed in individual places, for instance by Baumgarten. A too lively increase of this process may thus induce suppuration, and such a loosening of the tuberculous tissue as to favor a reabsorption of bacilli, and thus the dissemination of the disease. This danger is recognized on all sides.

Thus von Heussinger sustains the injurious effects of tuberculin in Virchow's sense: that is, the excite-

ment of fresh inflammation, of fresh, caseating, infiltrating and miliary tuberculosis.

In accord with this explanation are the following experiments: In order to determine if the direct treatment of tubercle bacilli with tuberculin was adapted to influence their virulence and viability, tubercle bacilli were exposed for a long time in undiluted tuberculin at 47° C., then carefully washed in a solution of common salt, and introduced in rabbits intra-ocular, and in guinea pigs subcutaneous. The local inflammation was in the case of the tuberculinized bacilli in the beginning more marked than in the case of the bacilli not treated with tuberculin, but it disappeared more or less rapidly, and was followed by the appearance of the usual inoculation tuberculosis. The tuberculous ulcer produced in guinea pigs healed itself after a certain time, while that in the control animals showed no tendency to heal. Nevertheless the scars of the first broke open, and there developed a progressive local and general tuberculosis.

Hoppe-Seyler found that after injections of tuberculin, polycolia occurred, which expressed itself in icterus and increased excretion of urobilin in the urine. Hence tuberculin exercises a destructive effect on the blood coloring matter when given in relatively large dose.

On the other hand, as stated, the immediate workers with Koch attribute failures to complications.

Maragliano shows that tuberculin is effective only against tuberculosis, and not against mixed infection with pyogenic bacteria, streptococci and staphylococci. In this regard there is now, or at least more definite knowledge. It is known now that the whole character of consumption, *i. e.*, tuberculosis pulmonum, was not determined with the discovery of the bacillus tuberculosis. This is the keystone, it is true, but there are other stones, if not quite so important, which go to make up the structure. It is now known that tuberculosis of the lungs at least is not a pure process. In test tubes a culture to be kept pure must be secluded from the outside air. This seclusion does not obtain in the lungs. On the contrary, the tubes containing the cultures, *i. e.*, the bronchial tubes, are all open to the air, and are subject to constant contamination. So that human differs essentially from laboratory tuberculosis.

The contaminating bacteria of sputum have been recently investigated by Evans and Bales. Maragliano called attention to the possibility of their clinical significance, as did also Czaplewski, Ziegler and Thorne. Long ago Koch in his work, and after him Gaffky, encountered the tetragenus as an occasional associate of the tubercle bacillus, and spoke of its pathogenic properties.

Cornet on mixed infection, from whom these points are taken, says it is well known to every one who has experimented with tuberculous sputum in animals, that many of the inoculated animals, especially rabbits, often perish in a few days from septic processes. For years in his experiments he avoided the sputum of phthisis florida, and selected rather that of chronic cases, because experience taught him that such sputum rarely causes death by accidental disease. Of the twenty cases investigated post-mortem, and so far as possible *intra vitam*, there occurred twelve times such a dominating presence of streptococci that its work in the production of symptoms could not be questioned.

Petrushky confirms this fact. He found the streptococcus dominant in the great majority of cases studied. In eight of fourteen cases, streptococci were found in the blood and juices of all the organs, whereby the significance of streptococcus infection is sufficiently demonstrated. Pasquale also demonstrated streptococci in various tuberculous processes from the dead body. Therefore the expression "mixed infection" is not exactly correct, because it is not a case of simultaneous invasion. It is rather a secondary invasion of streptococci; that is, it is properly a wound infection, and should be characterized as "a secondary infection." The inundation of the whole body with streptococci induces septicæmia. Hætic fever is distinguished by its morning remissions, by its more or less sudden evening elevation. It is the fever of erysipelas, acute suppurative processes, puerperal fever, produced by pyogenic cocci, in the great majority of cases by the streptococcus. Koch calls this seesaw record the "streptococcus curve."

"In septic phthisis tuberculin should not be used, because in the reaction, increased serous hyperæmia of the diseased lung favors the further invasion of streptococci. Streptococcus invasion is to be feared in every case where cavities exist."

"As Koch said at first: Early diagnosis; early treatment of the first infection. Here is where tuberculin unfolds its beneficence. Every neglected tuberculos is a menace of the dangers of sepsis."

The discovery of tuberculin established the real epoch in the treatment of tuberculosis, as it constituted the first actual address to its cause. In beginning cases, it dislodges hidden depots of the disease, and makes manifest secreted centers. Thus it frequently makes a diagnosis which could not be established without it. As a therapeutic agent tuberculin has stood the fire of trial, so that its value may now be definitely stated. The use of it is contraindicated in hectic and hemorrhage, and in serious affections of the intestinal canal, conditions due to sepsis and best controlled, if controllable at all, by creosote and cognac. Tuberculin addresses only pure tuberculosis. It is therefore of especial value in incipient cases of lung disease, before æsipsis has set in, and in deep seated or secreted latent cases of gland and bone affection. In these cases it soon puts a new phase upon the disease. Cases of anemia, amenorrhea, dyspepsia, crypto-genetic fevers, "colds," bronchial catarrh, so-called rheumatism, in reality beginning bone caries, recurrent or obstinate laryngitis, or other of the multiform manifestations of tuberculosis, whose real nature was only disclosed perhaps by tuberculin, gradually yield under its continued and judicious use. The beginning dose should be small, $\frac{1}{10}$ to $\frac{1}{20}$ milligram, and the remedy should be gradually increased, avoiding fever, slowly at first, more rapidly later, up to ten centigrams. It should be introduced subcutaneously always—with the Koch syringe, which should be disinfected with absolute alcohol before and after each use—about the back of the trunk, not oftener than every other day, and always in the morning, that the effect upon the temperature may be studied during the day. Perfectly quiescent cases should be let alone on the principle, *quies non nocet*. On this principle, the surgeon sometimes compromises with an abscess about the hip, and always splints the spine in vertebral caries by a plaster jacket or other fixed support. But here,

as everywhere, cases must be individualized. Gland and bone tuberculosis is more apt to be a pure process than lung tuberculosis, which is, as stated, complicated as a rule with subsequent streptococcus infection. The apyretic is the best period for radical address by tuberculin, and cases which show paroxysms or continued recurrent attacks of fever should be subjected to this treatment. The tone and vigor of the body usually rapidly improve under the use of tuberculin, and the uncontrollable evils of septic invasion and the long, slow tortures of marasmus from later dissemination, may be averted in this way.

DISCUSSION.

DR. CHARLES DENNISON, Denver, Col.—I heartily agree with the author, and my experience has been considerable. A year ago I reported on forty-eight cases, before the Gynecological Section, and the successes I reported were attributed by some of the gentlemen to the advantage they thought the climate had in these cases. I have not a doubt as to the correctness of that judgment, and the fact of that aid and the influence that exercise has in these cases, leads me to believe that ventilation of the lung which is produced by exercise, is an important point in the use of tuberculin. I agree with the author that tuberculin is suited to selected cases, especially of the incipient kind, with this additional proviso, that the case which has advanced to the third stage is equal to one which is incipient, for half of the cases I have treated have been in the third stage. I have had some experience with Klebb's tuberculosin; I have used it in all cases of high fever where I was doubtful about using tuberculin. Commencing with a fifth of a milligram you can work rapidly up to thirty and sixty milligrams. A gentleman living in Milwaukee had a boy seventeen years of age who three or four months ago was growing rapidly ill, wasting in flesh and becoming emaciated. He had a hacking cough but no expectoration, there were no bacilli to be found in the sputum. When he arrived in Denver he had a temperature of 103½ degrees in the afternoon and in the morning it was nearly subnormal, the average being 101 degrees. I was at a loss to know what to do, as I could not discover any bacilli, but I was positive it was tuberculosis; there was solidification of the lower half of the right lung, and with the night sweats and progressive emaciation it could have been taken for pneumonia. I commenced with tuberculosin and the result was remarkable. The average temperature in the afternoon is 101 degrees, the boy is pitching quoits, riding on the electric cars and going to the mountains. I have worked up to 110 milligrams of tuberculosin. I would not dare in such a case to give tuberculin. The tuberculin treatment has been quite as good if the cases were equally well chosen. I have come to rely upon tuberculin as one of the best remedies in selected cases of tuberculosis. The intrinsic value of tuberculin is especially shown in a case of knee-joint disease which had been treated in the hospital as a case of chronic rheumatism, the limbs had been put in splints and the lady kept in a chair for three years. Last July in Vermont, I made a diagnosis of tuberculosis, although there was no expectoration and no history of lung trouble except that the lady, who was 26, when she was 14, had been sent away from home and got well of some asthmatic or throat trouble. I gave her twelve milligrams of tuberculin in ten days. The next February she had an attack of the gripe, which was rather severe and ended in the enlargement of the glands at the side of the neck. She went to the surgeon who had taken care of her before and had the glands removed. A careful examination of the gland was made and giant cells with tubercle cells in the center were found. I wrote to the young lady that

this was a confirmation of what I had told her and she must come out to Colorado and we would try and cure her. She came out last year and I commenced treatment with tuberculin, she continued to have reactions up to twenty-five milligram doses, since when she has had none. She came then on crutches with her wheel chair. I worked up to 110 milligrams, eased off and worked back, giving one dose a week of seventy milligrams. After the dose of 110 milligrams she walked five blocks in Denver, and she goes home without crutches. The cause of her trouble I believe was tubercular joint disease, both knees were swollen.

The difference between tuberculin and tuberculosin is that the albuminous materials are taken out of Koch's tuberculin to make Klebb's tuberculosin; it has about one-fortieth the strength of tuberculin in its healing power but it does not cause fever, it is safer to give where there is fever. There are two kinds of fever which tubercular cases show, one the septic influence of the ptomaines or bacillus, the other the fever which is due to the effect of the remedy, which is a guide in its uses. There is a septic condition and a tuberculin fever which we ought to distinguish.

DR. J. T. WHITTAKER, Cincinnati, O.:—No one will dispute that climate very markedly assists in tuberculosis or any other case. When my patients do not get better under tuberculin I send them away; I have known a great many cases to go out to Colorado.

As to tuberculin and tuberculosin, I do not think there is much difference. I like the fever of tuberculin; it is an indication of the dose the next time. I can assure all the gentlemen if they try tuberculin they will continue to use it in these cases. If they will only use the Koch's series and not try to improve upon Koch's method, they will come to the conclusion he had at first. The syringe is nothing more than an exaggerated dropper; it has a rubber bulb, but no piston or plunger. Absolute alcohol is first drawn up into the syringe, and then the dose, and only takes the time of a few seconds. If the precaution is taken to draw the alcohol into the syringe again it disinfects it absolutely. I have used it every day for several years and never got the least infection. What impresses me most is these cases in which we can make an accurate diagnosis; where the individual seems to be in a decline with chill and fever every week or two, which we used to call malaria, and sometimes would yield to quinine and sometimes not. I use tuberculin in all of these cases, and they are put on their feet in two or three months; it does not take two or three years, as is commonly believed. If there seems to be any danger about it, a small dose of one-twelfth of a milligram can be given. We usually make the diagnosis with half a grain of this 1 per cent. solution in two or three days. You give the mother the thermometer and teach her how to use it; to take the temperature about one o'clock and again in the evening, and give you the record. When the diagnosis is established the first thing the physician notices is the difference in the tone of the patient; they feel better and begin to look upon the physician's visits with pleasure. We soon find that we can almost double the dose every other day, and in the course of a month the patient begins to gain courage and feels better in every way; sometimes there is reduction in weight and bad feeling, then we must go slower and reduce the dose. These patients do not show the same tendency to relapse as those who get well under creosote and other kinds of treatment. I have read of cases where relapse occurred, but it impressed me as not so often under tuberculin as other kind of treatment. I believe tuberculin is a specific of tuberculosis; I feel confident that the remedy is gaining ground and establishing itself. We see a flood of light thrown upon the failures in the fact that the cause was a streptococcus and not a tubercle bacillus at all. The tuber-

cular bacillus multiplies very slowly, it is very different with the streptococcus, that floods the whole body. Anybody who has seen those beautiful cross sections of muscles filled with streptococci knows what it is, and why the patient has a fever they call in Germany the streptococcus fever. We have tried to fight the streptococcus with creosote, but we have no remedy that will destroy it.

DR. MONTGOMERY, Pennsylvania:—We country doctors do not know much about tuberculin, and we do not like to give a medicine unless we know something about it. What are its constituents and chemie properties?

DR. J. T. WHITTAKER, Cincinnati, O.:—Tuberculin is the product of the growth of the tubercular bacillus in a certain salt borrowed from the body of the bacillus and cultured in glycerin. The action is to produce a real inflammation and make the tissues less resistant. Ordinarily we treat the condition by making the tissues more resistant, but the tuberculin goes at it the other way, and excites a real inflammation, and after it subsides the degenerative process again sets in; then of course the physician is dealing with theories not as worked out by himself, but by those who have studied them for years. That is the way in which tuberculin is presumed to act; there is no definite knowledge on the subject, especially in those obscure cases in which it is difficult to determine the cause. I know the lack of confidence in the remedy arises from lack of use of it, and I am convinced that if a physician would have a syringe and use it in this way he would at least know whether he had a case of tuberculosis or not. Tuberculin clears up the diagnosis. I have seen cases where the injection of tuberculin did not create the reaction, and I find the diagnosis was wrong. Tuberculin will give the reaction and nothing else will. The product which is derived from any other bacillus does not have the same effect; it is so peculiar and so positive that anybody can read the signs.

DR. WHITING, Janesville, Wis.:—I would like to ask Dr. Whittaker whether his experimentation has been done in private family practice or in public institutions?

DR. WHITTAKER:—In both. I always have from fifteen to twenty cases under my treatment at the hospital, and I suppose as many in private practice.

BRIEF CLINICAL MEMORANDA.

Read in the Section of Practice of Medicine, at the Forty-fourth Annual Meeting of the American Medical Association.

BY HENRY D. DIPAMA, M.D.

SYRACUSE, N. Y.

1. *An Available Catheter Lubricant*.—Olive oil, glycerine, cosmoline, are the ordinary materials used to lubricate the catheter. As a rule they are satisfactory, although the oil parts with its sweetness if kept too long, and the glycerine irritates certain urethras outrageously. Cosmoline is pleasant enough, but the bottle is apt to be misplaced or empty when needed. Moreover, there are nice elderly people who have chronic retention from enlarged prostate or other difficulty and who are forced to draw their urine because they can not void it.

They are well enough to go to the store, shop or church, and they always carry a catheter or two curled up in their pockets. But a bottle, in addition, is sometimes messy and always a bother; and so, rather than carry the needed emollient or call on a neighbor for it, many a poor wretch remains reluctantly at home.

But he need not stay at home, nor take his bottle,

nor call for assistance. Saliva is an excellent substitute for any of the articles mentioned.

The objector, who, quite likely, has never used nor prescribed, nor even heard of this material, at once calls attention to the epithelia and animacules which abound in the oral cavity. Saliva, he claims, impregnated with these objects must necessarily introduce dangerous septic material into the urethra and bladder and cause a troublesome if not fatal cystitis. But saliva is not necessarily poisonous. Ever since the time when Lazarus sat at the gate of Dives, dogs have cleansed and insalivated the sores of beggars and their own punctured wounds, without harmful effect. Indeed, it never was the hair of the dog, but his saliva, that cured the bite.

Remembering now the diet of the ordinary dog, we can easily imagine that human saliva is at least as cleanly as the canine variety, and that the oral microorganisms are scavenger bacteria.

However, this may be, experience is the best teacher. And numerous persons, who have had practical personal knowledge, stand ready to testify that the lubricant which they can easily have on hand from the reservoir at their tongue's end is not only available and harmless but preferable to any other which they have employed. (Of course the saliva harbored by foul mouthed people is not commended.)

2. *Preparing Hemorrhoids for Injection.*—Every one is familiar with the radical treatments which have been and are in vogue for piles:

The ligature, following transfixion and followed by excision; the clamp, the cautery, the caustic; Whitehead's operation, which removes once for all the hemorrhoidal area; and the injection of carbolic acid which permits the patient to keep on foot and attend to his business. All these have their advocates, excellences and drawbacks. Whitehead's, with Marcy's modifications, is probably the best.

Carbolic acid injections have, without doubt, (even after making allowance for the false claims of peripatetic quacks) cured many cases. But these injections occasionally do much mischief. The material used sometimes extends up the hemorrhoidal veins, causing intense and prolonged pain and widespread and dangerous sloughing.

As so many pilebearers are business persons, who can not afford, or are impatient at, a week's restraint in bed, it is unfortunate that so much peril threatens the quick and easily performed and comparatively painless injection method.

It is pleasant to know that in many cases this peril can be averted. In this wise:

1. Anesthesia by ether or A. C. E.
2. Abundant digital dilation of sphincter, which of itself is often a prolonged relief.
3. Brining down the tumors.
4. Ligating those which have a suitably small pedicle and tying the ligature with a bowknot.
5. Injecting into each tumor, according to its size, six drops or so of this or a similar mixture: Carbolic acid one part; 8 per cent. solution of cocaine two parts; glycerine two parts.

6. Entying and removing the ligatures after a thorough admixture of the injection with, and coagulation of the blood in, the tumor, which may require from five to ten minutes. This retention of the blood in the hemorrhoid, till after thorough admixture and coagulation have taken place, prevents dreaded

extension up the veins and to neighboring parts; the cocaine moderates the pain; the pile hardens and in due time drops off. But as many hemorrhoids have not a suitable pedicle for temporary or permanent ligation, and as dilated venous radicals may be left which will develop into future tumors, the device described is limited in its application and can not always give quite the satisfaction and relief from apprehension which the Whitehead operation affords.

3. *Facile Reduction of Prolapsed Hemorrhoids.*—Much suffering is occasionally the result of protruding piles. The victim usually manages, by taking compound licorice powder at night or some saline in the morning, to obviate constipation. Or he uses an enema after breakfast to secure a movement. The hemorrhoids descend but they are replaced with little difficulty. Sometimes, however, they are very much enlarged or sensitive, and long-continued efforts to put them back prove a failure. The sufferer regrets that he has not heeded the advice of his neighbors and submitted to an operation. Regrets, however, are unavailing to give present relief. He sends for the family physician. The doctor works faithfully, inflicting much pain, and happily accomplishes his object. But not invariably. Now and then his best efforts are fruitless, and anodyne ointments and hot cataplasms are called to his aid. Meantime the suffering continues with little amelioration. The soothing influence of the applications becomes manifest after a long time and the wretched tumors are put back where they do the least harm.

A repetition of this misery and delayed relief is not an infrequent occurrence. Still the long-suffering victim dreads a surgical operation of any kind, and tries to hope that each attack will be the last.

Now it may be some satisfaction to the doctor, as well as great comfort to the patient, to know a comparatively easy method of effecting reduction. This is it: Posture may be important, but the best one is not always required. In moderately severe cases the patient may be on his back with knees drawn up. If the hemorrhoids are very tender from strangulation and manipulation, cocaine should be applied till analgesia is fairly well established. Then the parts should be thoroughly lubricated with vaseline, and the tips of three or four fingers of each hand applied to the purple projections. Steady pressure is to be applied while the patient is ordered to press down as he does in the defecation of hardened feces. Instinctively, and almost invariably, he shrinks and draws away from the pressure on the painful swellings, at the same time puckering the already too contracted anal orifice. But when he is made to comprehend that puckering renders reduction impossible, while resolute and persistent straining down relaxes and opens the orifice and allows the swellings to be forced back into the rectum, often semi-instantaneously, he will govern himself accordingly. Sometimes the performance can be terminated more speedily by having the patient assume a squatting posture, after the preliminaries have been attended to. Then the straining down seems to be more thorough and efficient, and the piles, liberated from constriction, slide homeward with little compulsion.

This is the facile reduction of prolapsed hemorrhoids; and the patient can be taught to accomplish it early and easily without the aid of the physician.

4. *Ready Relief for Lumbago.*—Pathologists have

not agreed as to whether lumbago is myalgia, rheumatism or myositis. The arguments in favor of each theory are so nearly balanced that the busy practitioner can afford to let the discussion continue while he attempts to cure his patient.

The symptoms of the complaint will not be described. They are well known to you all—emphatically to those who have experienced them. You do not mistake calculus or nephritis or abscess or spinal disease for this disorder. You are doubtless familiar with the treatment commended by Mother-well a hundred years ago: blisters and issues on the thighs, suitable evacuations, opiates and mercurial alteratives.

You may not know that the Rev. John Wesley, in his *Primitive Physic*, spoke favorably of a plaster to the back and "balsam of Capivi." But you all have read the formidable list of remedies in the very latest text books, and you may have employed many of them in dismal rotation. I call to mind a few samples: Prolonged rest; sulphur, externally and internally; guaiac; dry heat; moist heat; liniments; poultices; salicylates; hypodermics; faradism; galvanism; belladonna plasters; mustard; iodide of potassium.

These, and more than these, have been and still are highly commended. Under their vigorous, consecutive and long-enough continued use, favorable sequences have actually occurred.

The writer of this paper has no condemnation to pronounce on any portion of this treatment. But he does not employ it. For ten years or more, personally he has experienced, and very many times he has afforded ready relief by the application of large dry cups along the entire lumbar region. The patient, hardly able to walk or even move, is seated on a chair with his bared back turned towards the operator. If obtainable, four conical glasses (such as are used to collect the sediment of urine for microscopical examination) may be employed to hasten the operation.

With a little swab dipped in alcohol the conical cup is mopped out, the alcohol is ignited and the cup applied. The procedure is continued with the other cups till the four are adherent at the same time. In five minutes or so their position may be changed, and the entire operation need not occupy more than fifteen minutes. The result is almost magical. In nearly every instance, the patient rises from the chair, walks about with ease, bends his body without pain in all directions, and blesses you with a cheerful recompense. If he needs any tonic or any alkaline diuretic or laxative, you prescribe or dispense and he departs rejoicing. You order him to return in a day or two if the difficulty reappears; but the relief is usually not only prompt but lasting.

The blood is drawn from the depths of the congested and painful muscles to the surface; and if occasionally a repetition of the operation is required, the patient, who has been made in a few minutes more comfortable than, under the old plan of treatment, he was in weeks, never begrudges the time or expense.

To be entirely satisfactory, the conical glass cups should have a diameter at the mouth of three and one-half or four inches and a depth of six inches. If these cannot be obtained, deep goblets or beer glasses may be used. My friend, Dr. A. S. Edwards, once employed some enormous cups (called "schoon-

ers" I think) and gave me joyous relief after a long period of useless pottering with the conical glass cups.

If the little globular cups with collapsible rubber attachments are substituted for the large glasses, the result will be unfavorable and exasperating.

DISCUSSION.

DR. FRANK BILLINGS, Chicago:—If anything has made modern surgery successful it has been cleanliness in the fullest sense of the word, without the use of so-called antiseptics. Clean water is now used where formerly antiseptics were used to kill so-called bacteria. In the use of salivina as a lubricant, to my mind the patient is in constant danger of infecting himself, and I speak of this from experience, in spite of my being a younger man than the reader of this essay. A very prominent gentleman, who had been operated from abscess of the prostate gland. He was of the age when he had this enlarged hypertrophic gland that he suffered severely from the abscess, with consequent inflammation of both testicles, and this was repeated many times. He then came to me and investigation showed that for years, ever since his trouble began, he had been using a catheter that was empty the bladder and had used salivina as a lubricant because it was at hand. He had infected himself, and I reformed him of his methods, not only in not using salivina but teaching him how to clean his catheter and even to get out the trouble of getting some lubricant that was known to be clean, I stopped it entirely. That has been my experience in a few years with three old men, and I cannot help protesting against that part of the doctor's paper. The salivina is full of bacteria and while it contains non-pathogenic bacteria, it also contains pathogenic bacteria and sometimes contains pus-making bacteria. If an individual has to use the catheter he ought always be taught to clean the instrument and to use some aseptic lubricant.

DR. JENKS, Keokuk, Ia.:—I like the doctor's terse, rather short and numerous way of putting these facts. There are a great many things to be learned from just such papers as that. We do not pay enough attention, as general practitioners to this subject. I believe more men are suffering from the general effect of hemorrhoids than any other disease that afflicts humanity, and physicians are apt to pass it over and say take a little powder, and let it go. We ought to educate the people to the idea that there is a cure for hemorrhoids. They cause much mortality by complicating a case when the patient gets sick, and the sooner a man gets cured of his hemorrhoids the better his chance for life as well as happiness. For that reason I think the part of the paper speaking about simple matters and making men comfortable without operation is a very important thing to come before the Medical Section of this Society. I do not believe in carbolic acid injections in the ordinary way; they do more harm than good and are more painful than the electrode; the way the doctor uses it has probably less danger. There is no getting around the fact that if you take a case and give an anæsthetic, ligate the hemorrhoid and cut them off and put the patient to bed, it is better than giving carbolic injections.

DR. CHAS. DENNISON, Denver, Col.:—I was going to say something on the same line, because I have lately had an experience which forces the subject on my mind. We have a quack institution in Denver from which a patient came to me about four months ago who had an ulcer in the posterior pharyngeal space, and upon examination I found ten tubercular bacilli in the field. The history was he had been under that institution's care for five weeks, and they had used the same instrument that had been used on other patients in applying something to the throat, and the throat was con-

stantly getting worse. We have made a great many examinations, and I kept a careful record of my cases by examination of sputum, and the frequency with which I have found from one to 1,000 bacilli in the field is so uniform that the chances of getting tubercular infection would not be unimportant in using saliva as a lubricant. We do not know the condition of the changes of the body which precede the tubercular bacilli, and until we do know that we can not be perfectly sure what condition may exist in the saliva that may be favorable to infection by tubercular bacilli. It seems to me the necessity for the innovation is so slight, and there are substances that would be nearly as handy, that it would be better perhaps not to run the risk of such device.

Dr. ALD, Philadelphia.—I came in as the speaker began to read on the subject of lumbago. The methods of treatment recommended are those which usually obtain. I was disappointed that nothing was said in regard to the probable pathological conditions which maintain in that class of cases. We all know they are very closely associated with rheumatism and the rheumatic tendency, and that might be sufficient for the giving of salicylic acid or potassium iodid. I know that the faradic current rapidly or slowly interrupted is very efficient, sometimes a single sitting gives all its irritating effect upon the nerve and its stimulating action upon its protoplasmic cells which compose the muscular structure and the other associated structures. Good results are frequently observed from the use of acupuncture, that is the introduction of the single needle; it is certainly a very excellent method of treatment but is not always successful on account of its decidedly local influence. There is another method of acupuncture with which probably you are familiar; I refer to the instrument invented by Bohnsheim fifty or sixty years ago. It consists of a small disc containing thirty needles, penetrates the flesh three-eighths of an inch. By having that disc connected with a spring, we make a spot about five-eighths of an inch in diameter. A half dozen of these can be made in a few moments. That answers the same purpose as acupuncture, is more successful and without danger.

Concerning the probable pathological conditions we have to deal with in the muscle substance which is composed of protoplasmic cells, we have encircling those cells the lymph, and if we give salicylic acid or iodid of potassium or other medicine, we depend upon its action, not through the blood but through the lymph. The medicine is given up by the blood and distributed through the system. The protoplasmic cells which are involved have become deranged, and from their inability to throw off carbonic acid and other products the metabolic processes are hindered, and we have more or less swelling and pain. We have in addition the fascia covering the cells and the tendons which are nearly in co-extension with the fascia. The fascia cells and tendons are not so active in their nutrition as the protoplasmic cells of the muscles. Suppose we give a medicine which will immediately stimulate those protoplasmic cells. We know that mercury affects especially the liver, and we know it does that through its continuous absorption until it has permeated through the system. We have a remedy in the poison, sumach rhus.

Dr. H. D. DIDAMA, Syracuse, N. Y., in closing the discussion, said: In regard to the use of saliva, I never once recommended it. I would not recommend it; I spoke of it as an available lubricant mentioned to me by patients who had used it for years. I was taught when a student that in using the catheter in a woman no exposure was to take place, the catheter is clean, the meatus is clean and the catheter is never permitted to touch anything, is not laid

down on the bed anywhere, but passes directly into the urethra and every precaution taken for cleanliness, so that cystitis never occurs from the use of the catheter. I am glad this question has come up. I said in regard to it that a person with a foul mouth should not use the catheter in that way.

In regard to lumbago, the title of that portion of my paper was "A Ready Relief for Lumbago." We all know about these things that have been mentioned and know about different views of the pathologist. I don't care about the pathology; for ten years I have been helping patients who came to my office, and have had lumbago myself. What we want to do is to relieve the patient if we can and let him go about his business. A friend in New York telegraphed me to come, because he knew about the treatment with these large cups. He tried to have his physician apply them, but this young physician said he did not think the treatment in the Bellevue Hospital could be improved upon by any physician who lived in Syracuse, so he would not apply them. I went and in ten minutes the patient was relieved.

THE TREATMENT OF ENTERIC FEVER BY COLD BATHS.

Read in the Section of Practice of Medicine, at the Forty-fourth Annual Meeting of the American Medical Association.

BY W. GILMAN THOMPSON, M.D.

NEW YORK.

The treatment of enteric fever by cold baths according to the Brand system, *i. e.*, by sudden immersion in cold water accompanied by vigorous rubbing, has been slowly but steadily gaining adherents in this country. My own experience with it includes ninety-five cases treated during the past three years at the New York Hospital, where Dr. Peabody first employed the system, and at the Presbyterian Hospital, where I introduced it last year. While the number of cases thus far treated at these two institutions is not yet large enough to furnish absolutely convincing statistics, the figures already obtained are certainly significant. Thus 340 cases treated by other methods at the Presbyterian Hospital, New York, from 1882 to 1892 gave a mortality of 17.8 per cent., and 501 cases treated by other methods at the New York Hospital from 1877 to 1889 gave a mortality of 19.4 per cent. Ten years of "expectant" treatment among 1,305 cases in various New York hospitals showed a death rate of between 20 and 30 per cent. (DeLafield). By the Brand system the mortality of typhoid fever in both the above institutions has been reduced to 7.5 per cent. The cases herewith reported are not selected cases; that is, with the exception of patients brought into the hospital actually suffering from severe hemorrhage or collapse (and they number only half a dozen), the bathing or "tubbing" treatment is applied to all. The type of enteric fever with which we meet in New York city is usually severe. The New York Health Board reported 7,712 cases from 1876 to 1885, with a mortality of 41.28 per cent. The temperature runs high and hemorrhage and other serious symptoms and complications are of frequent occurrence. Moreover, many hospital typhoid patients do not enter the institution early, but wait until some urgent or critical symptom alarms them, and a decided majority are not seen before the tenth day, while many are received later. It is doubtless due to these causes that the mortality among

patients treated by "tubbing" in this country is not so small as it is in the French and German army hospitals, where with many thousand cases it has fallen below 2 per cent.

The method of "tubbing" which I have employed is as follows: A portable tub on rollers is placed at the patient's bedside and partly filled by a hose with water at 70° F. When the patient's temperature rises to 102.5° F. he is given half an ounce of whisky and in a few minutes is lifted naked into the tub, in which there is enough water for the complete immersion of the body. In some cases cold water from a pitcher is poured upon the head. The patient is left in the tub for fifteen minutes, during all of which time he is vigorously rubbed over the entire body by two nurses, being turned from side to side occasionally to facilitate the friction of the back. He is then lifted on to blankets on the bed and rubbed dry. He is then given a glass of hot milk with malt extract and left to sleep, which he usually does, owing to the soothing influence of the bath. Between the baths the patient lies on a blanket and is covered only by a sheet, to favor evaporation from the surface, and in severe cases a compress wet in cold water and large enough to cover the chest and abdomen is constantly worn.

While in the tub many patients begin to shiver in five or ten minutes, but the bathing is persisted in and they soon cease to shiver. In young children, and exceptionally in adults with very poor circulation, a bath of ten minutes may be better than fifteen. Many patients, especially those in whom treatment is begun early, do not require over a dozen or fifteen baths. Often three or four a day are sufficient. In bad cases they must be given once in three hours both day and night. I have several times given eighty or ninety baths to one person. On only five occasions has it been necessary to discontinue the treatment on account of the serious objection of the patient. These were all exceedingly nervous persons (three of them men), and they objected continually to everything done for them, being equally intolerant of the Leiter cold coil and alcohol sponge bath.

One of the house staff always superintends the giving of each bath, and as a rule, with a little tact and encouragement objections on the part of the patient are readily overcome. To highly nervous subjects it is well to give an initial bath at 90°, to accustom them to the process. It often happens that the temperature, especially if moderate, is but little reduced after the bath, but as a rule a reduction of between 2° and 2½° F. follows and the temperature remains low for two or three hours, when it again may rise slowly. The temperature often continues falling after the bath. Even in those cases in which no reduction of temperature results, the patient's general condition remains phenomenally good. In fact, one scarcely ever sees the typical "typhoid condition" among patients who have been systematically "tubbed."

Delirium is the decided exception, not the rule, and all the nervous symptoms are lessened; the tongue is moist and clean, the digestion and appetite are remarkably good, tympanites is not prominent, the skin is healthy and active, bedsores do not occur, the urine is abundant, sleep is natural, nutrition is excellent, the facial expression is clear, the eyes are bright, the voice is strong, and the pulse is full and regular: in a word, the whole clinical aspect of

the case is completely altered. The occurrence of menstruation need not interrupt the treatment, and in one successful case forty baths were given although the patient was five months pregnant.

Seven deaths occurred from the following causes: Four from intestinal perforation and peritonitis, two from hemorrhage and one from pneumonia. It can hardly be claimed that the baths precipitated either the fatal hemorrhage or perforation, for the majority of cases with hemorrhage recovered, and of the cases of perforation one had had thirty-six baths and another forty-three before that casualty ensued.

It is true that the "tubbing" has neither shortened the ordinary duration of the disease in the cases which I have treated, nor has it altogether prevented mild relapses, which followed in nine cases, but complications have been very few and the general result has been remarkably satisfactory.

Among the complications observed were intestinal hemorrhage in six cases which recovered, bronchitis, otitis twice, bursitis, ischio-rectal abscess, and the unusual phenomenon of a large abscess of the thyroid gland. Several patients who recovered had temperatures ranging above 106° F. before the treatment was commenced.

The other patients all did extremely well; several seemed to enjoy the effects of the "tubbing," and in those who were dull and lethargic on admission the baths had a truly wonderful effect in improving the apathetic mental condition and the pulse. The chief characteristic of nearly all the cases treated by bathing was the absence of the nervous symptoms so commonly observed, such as stupor or delirium, subsultus, etc. None of the cases received any antipyretic medicine while the bath treatment was in progress. Several patients complained of tenderness and pain in the calves of the legs and soles of the feet which gave considerable annoyance. The symptoms resembled a mild peripheral neuritis. Attempts were made to relieve the pain by the local use of a liniment of menthol, chloral and camphor, but without decided benefit. The symptoms subsided after a week or ten days. It is well known that such cases occur without the baths, and there was a similar complication at the same time in a patient who was not put into the tub at all. The symptoms merely seemed somewhat more frequent among those who were bathed. Those men who had hairy chests showed a slight papillary eruption around the hair follicles which caused slight burning. It might be avoided by cutting the hairs. Patients should pass their water before entering the tub, otherwise the cold is apt to make them micturate. With a large service it is not practicable, nor is it necessary, to change the water after each bath, unless the patient happens to void feces or urine in the tub. This accident would be a serious objection to the "tubbing," but fortunately it seldom happens.

The objection is often raised against the Brand method that the expense and trouble are too great. I have had the curiosity to form an estimate in regard to this matter.

Twenty-two cases taken without selection from the records of the Presbyterian hospital received collectively 372 tub baths, or an average of seventeen each. Seventy-two cases from the New York Hospital records received 2452 baths, or an average of over twenty-eight each. At least half an hour is consumed giving the bath and caring for the patient

immediately before and after it, and the services of two attendants and one of the house staff are required during most of this time. To give 2,052 baths would therefore occupy three persons for 1,026 hours or over forty-two days.

It is useless to undertake the Brand system unless one is prepared to carry it out with careful detail and much labor. It is true that this entails considerable expense and trouble, but the arguments so often used against it can not long prevail in face of accumulating statistics of greatly lowered mortality, now covering a period of nearly thirty years. On commencing the use of the Brand system I was quite skeptical in regard to its value, for experience some years before with the older method of putting patients into a tub of water at 90° F. and gradually cooling it without employing friction, had proved very unsuccessful, but I was soon converted by its advantages, and in the autumn of 1892 I had a personal experience with cold bathing which proved so valuable to me that I may be allowed to refer to it here. At that time I had a mild but unmistakable attack of enteric fever, and "tubbing" was commenced upon the fifth day. The baths were given for the most part at 75° F., but several were at 65° F. The former temperature I found very endurable, but the latter was uncomfortably cold. The baths had but little effect in reducing the body temperature but I always experienced immediate relief from the general aching and muscular pains which were particularly severe. It is not agreeable at any time to be taken out of a warm bed and suddenly immersed in cold water, but the after effect was so soothing and the favorable influence upon all the symptoms was so pronounced that the temporary discomfort was easily endured.

Delirium did not occur, and the digestion was excellent. I found that close attention to minute details added greatly to comfort. There was less shivering when the back was vigorously rubbed as soon as the water was entered, and the friction should be constantly and vigorously maintained over the entire body which is easily turned if completely immersed in the water. The alcoholic stimulation should be given at least fifteen or twenty minutes before the bath instead of immediately before, in order to secure its absorption in time to meet the shock of cold. On being lifted into bed again the body should be rubbed thoroughly dry and a refreshing sleep almost invariably follows. My experience also demonstrates the ease with which this treatment can be conducted in private practice. A large ready-made tin bath tub can be bought for a few dollars, and placed by the bedside, raised on two blocks of wood to a height convenient for the rubbers. It is filled by a hose from any neighboring faucet, and the same hose will siphon the water out again when desired.

In conclusion, I may say emphatically that under the Brand system in nearly all cases the patients are both subjectively more comfortable and objectively much stronger and better nourished than under any other treatment which I have followed. We should bear in mind that the object of the bathing is not alone the reduction of temperature, but is in great part directed to stimulation of the central nervous system through the agency of the cutaneous nerves, both by the sudden shock of cold and by the mechanical stimulus of friction applied over a very large

surface. The method thus becomes a definite systematic treatment which has yielded far better results than any symptomatic or merely "expectant" plan.

SOME EFFECTS OF THE TAKING OFF OF THE CEREBRO-SPINAL PRESSURE. ANEMIA OF THE BRAIN AND WOUNDS OF THE SINUSES.

Read before the Missouri State Medical Association at Sedalia, Mo., May, 1893.

BY GEORGE HALLEY, M.D.

PROFESSOR OF CLINICAL AND OPERATIVE SURGERY, UNIVERSITY MEDICAL COLLEGE, KANSAS CITY, MO.

It does not fall to the lot of every practitioner to observe the effects of reduced intra-cerebro-spinal pressure, and as cases of this character are liable to occur with greater frequency, now that cerebral and spinal surgery has become more popular, and is being more frequently done—it may not be amiss for me to detail the effects I have observed in a few cases.

The first was a case of spina-bifida, which I saw and examined in consultation in 1869. It was in a child less than a year old, and was in the lower part of the lumbar region. This consultation was with a view of determining what—if anything—could be done for its cure. It was decided to attempt draining off, slowly and gradually, some of the fluid that had accumulated in the sac, at the same time making pressure over the tumor in order to equalize the pressure on the brain. A slight puncture caused a complete collapse, and in less than twelve hours the unfortunate infant was a corpse—having died in convulsions. From that time on to the present I have had a very wholesome fear of interfering needlessly with the cerebro-spinal fluid, or of the cavities in which it is contained.

Ordinary acute cases of injury to the brain fortunately very rarely give us trouble. The arachnoid and dura mater speedily becoming agglutinated, and the subdural space is very speedily sealed up. The relief to the intra-cranial pressure, at the point where the bone has been removed, shuts the space up so that we rarely in acute cases have more discharge than is ordinarily found in wound secretions. Not so, however, with chronic cases, or cases where the cerebral mass can not so press against its bony covering. The following cases will forcibly illustrate the points I wish to make:

A little over three years ago Bertha Thalín was brought to me for a tumor on her head, that came there after a severe injury received when she was but nine or ten months old by falling down the stairway in the arms of her nurse. (At the time she came to me she was a little over seven years old.) The injury was on the left side of the head, a little above and in front of the parietal eminence. The right arm and leg were both partially paralyzed, and both were a good deal undeveloped. She was able to walk, but walked imperfectly with her right leg. She used her hand, but with even less celerity than the leg. Otherwise she was perfect in every respect. Bright, intellectual, cheerful and had enjoyed ordinary good health.

The tumor on the left side of the head was quite large, and occupied a space an inch and a half wide

by two and a half long, and extended obliquely from above downward and forward. It showed no evidence on its surface of ever having been wounded. It pulsed violently. The pulsations being synchronous with the action of the heart. It was not tender to pressure, and when compressed produced a slight dizziness. Beneath the pulsating portion I could find no bone. However, bone appeared to form the wall of the tumor, except the space at its summit where the pulsations were most pronouncedly manifest. My diagnosis was meningeal hydrocele, due to some irritation within the dura mater, and that the displacement was the result of the hydrocele itself. I determined on opening the tumor, cleaning out its cavity, and trying if possible, to completely obliterate the sac. To this end I made an incision through the scalp, carrying it over the summit of the tumor, and found when I opened into the cavity of the tumor there was found an abundance of clear, limpid cerebro-spinal fluid. On attempting to farther explore the cavity, a piece of bone an inch and three-fourths in length projected down toward the brain at one end, and was loosely attached to the bony wall of the tumor by the other. These I separated and removed the bone, washed the cavity out, dissected out all of the wall of the sac that I possibly could, without taking too much of the brain substance away; closed up the scalp wound, with the exception of a small point for drainage, and dressed antiseptically.

I found, however, after a few hours that my dressings were exceedingly wet, and that a large quantity of fluid from somewhere was saturating the dressings, necessitating their removal and renewal. The general condition of my little patient was good, with this one exception. By a good deal of care I succeeded in maintaining the wound in a thoroughly aseptic condition, but found the discharge of cerebro-spinal fluid exceedingly great. I removed my drainage tubes, injected the cavity again and again with a weak solution of iodine, but to small purpose, the quantity of fluid discharge remaining about the same. I found my patient—despite the best nourishment I could give—becoming weaker from day to day, and in a week after the operation she was unable to stand. She became emaciated, and in two weeks I was fearful for her life.

The quantity of discharge will appear incredible to any one who has not had experience with it. A quarter of a pound of absorbent cotton placed over the head, would be thoroughly saturated in two hours.

I now had recourse to compression and attempted to seal up the wound, but with nearly the same experience, no very marked improvement in the amount of discharge taking place. This condition of things lasted about three weeks, and by the ordinary process of granulation the wound closed, and she rapidly regained her strength. I observed closely during the period of her convalescence the very marked anemia and the pronounced weakening of the mental faculties, produced by this loss of cerebro-spinal fluid. From being bright, cheerful and intellectual, she became petulant, sullen and almost incapable of any intellectual process whatever. She has not improved as much physically since that time as I had hoped. Her limbs, though better developed than they were when the operation was done, have not been completely restored by any

means. The limbs are both small, and less under the control of the will than those of the opposite side. The resulting anemia was only slowly recovered from.

Last December I was called in consultation with a neighboring practitioner to see a boy, who in a fight with one of his companions had received a stab wound in the back of the neck. The physician who was called to attend him dressed it in the ordinary way, and expected it to heal as an ordinary incised wound would, (perhaps by some supuration) but as the wound was small and thought to be not very deep no one looked for bad results. Ten days after the receipt of the wound I was called in. I found him lying in a bed, the upper half of which was saturated with the fluid that was continually flowing from the wound in the back of the neck. On examination I found the wound had been made with the point of an ordinary jack knife, thrust into the neck immediately under the occiput, and had evidently entered the cranial cavity in the suboccipital space. The fluid that was emerging from the wound was as clear and limpid as spring water. It was albuminous in consistency and slightly alkaline in reaction. It flowed rapidly; even when sitting up it would drop at least 80 to 100 times per minute. A probe passed into the wound evidently reached the medulla oblongata and produced great pain, with a tremulousness of the extremities, and as he expressed it "a queer sensation all over him." He stated that when he first received the wound it knocked him down, and for a minute or two he could not get up. He did not know that the boy had struck him with a knife, but thought he was stunned. He did not know he was cut until some one said, "there is blood running down your neck; the boy has cut you."

From being a strong muscular boy, and a general all around tough, he was in ten days unable to walk from the bed to a chair. His intellectual processes were dull and sluggish. He had no fever, his temperature being normal. His pulse rapid but very feeble.

After cleaning the wound and its surroundings thoroughly I proceeded with a long silk suture passed through the neck deeply on each side of the wound, to bring it together, and then dressed it in the ordinary antiseptic manner. The dressing was left in place for a week, and when it was removed the sutures were also removed. Healing was found to be complete, and no further trouble from that source was experienced.

It was three weeks, however, before he was able to be out of the house, although there was nothing wrong with his general health. The pronounced anemia due to the great loss of cerebro-spinal fluid had thoroughly debilitated him, and it was over a month before he was again seen on the streets.

These cases have served to convince me that a great loss of cerebro-spinal fluid has practically the same effect on the general health that great losses of blood have, the symptoms being almost identical and the recovery almost as slow. The statement will, I have no doubt appear extravagant in view of the fact that no red blood corpuscles are lost, and that the fluid is purely albuminous and should be speedily, very speedily reproduced. The symptoms during the time are precisely the same as those of loss of blood. The cranial bones form a close bony cavity that always hold just so much. If this cere-

bro-spinal fluid is drained off, there ought to be an engorgement of the brain with blood. Of this, however, I have never seen the slightest symptoms in any manner whatsoever, but all the symptoms of a profound anemia.

EFFECTS OF ANEMIA OF THE BRAIN.

Of the effects of anemia of the brain, I wish to complete the report I made to this society at its last meeting at Purple Springs. I had ligated the common and internal carotids and internal jugular vein for gunshot wound in the side of neck, producing an aneurismal varix in the side of neck. (See last year's report of Missouri State Medical Association.)

Abraham Grayson, the subject of the report was, at the time of the meeting still a convalescent at the hospital. The progress of his case towards a complete restoration was much slower than I had anticipated at that time. He could carry on a conversation that required no, or very little, effort of memory. But even this very soon wearied him, and after a few minutes his answers were either entirely incorrect or the verbiage was incoherent. If, for instance, he was suddenly asked his name, he was unable to tell it. He, however, knew what his name was not. If other names were called he knew they were not his own, and would promptly answer "no," and when his own name was called he would as promptly answer "yes." This condition continued without much improvement, apparently, till the latter part of July, when I noticed a very decided improvement in his general condition. He regained flesh, walked with a perfectly steady gait, ate and slept well, and when spoken to responded promptly and intelligently to the question. The only thing that appeared to distress him was a continuous effort at memory. His pulsations would become rapid, his respiration increase in frequency, and in general he presented a picture of great mental excitement.

By the first of September he had so thoroughly convalesced as to be able to be discharged, and was discharged from the hospital, in every way so far as I could discover, perfectly restored to health. The mental hebetude, as well as amnesia, lasted much longer than any one would have supposed from the manner in which he progressed for the first three weeks after the operation.

From the sudden and profound anemia of the brain area involved in cutting off the circulation through the middle cerebral artery on the left side, there must have been sustained by the brain substances an amount of injury that no one had contemplated. Hence, I take it, the slowness of recovery.

WOUNDS OF THE SINUSES.

Now that operations on the skull are so frequently being done, it is not at all wonderful that wounds of the sinuses will more and more frequently occur. The older members of the profession among us, will easily recall the instructions that were always given us, to avoid certain areas of the skull in trephining operations, so as not to wound the sinuses. The operation of trephining in those days was done with relative infrequency. The mortality following such operations was always high, and the surgeon hesitated long before making the attempt.

The course usually pursued was to wait until some

profound manifestation of compression, inflammation or suppuration had set in, before active interference was undertaken, and then only to extend his explorations as far in as the membranes of the brain, and laterally as far as the skull was wounded. Such limitations, however, do not at all satisfy the modern expert surgical operator. He looks deeper to see what lies beneath the membranes and investigates the substances of the brain to determine how much injury it has sustained. He reaches out in his investigations quite beyond the margin of the broken bone, to determine if fragments have not been thrust underneath the margin of the unbroken bones; and to know for a certainty that he is entirely beyond the area of wounding. Not only this, but in almost every case of manifestation of cerebral brain irritation he is found obtruding into this sacred domain with his physical investigations. If he finds fluid within the ventricles producing compression of the substance of the brain, he aspirates it as he would fluids contained in the joint, or pleural cavities. Should he believe this due to some infection, he does not hesitate to inject it with some antiseptic fluid. It is not at all wonderful then, that in these extensive manipulations the sinuses of the brain should occasionally be wounded, either incidentally or accidentally.

I wish to report to this society three cases of wounding of the sinuses. One accidentally during an operation, and two the result of injuries sustained through the fragments of bone of the skull, when it was broken, being driven into it.

Case 1.—In doing craniectomy upon S. L. for chronic concentric hypertrophy of the skull, extending over a large area of its vertex, I found the bones exceedingly hard, almost ivory-like in consistency. The pressure I had to make on the trephine was very great and the progress I made in the operation very slow indeed. I noticed toward the end of my cutting that blood was flowing freely from the groove made by the trephine, and was at once made aware that I had either opened a large vein or the superior longitudinal sinus. As soon as the button was removed I found that the groove through the sinus was more than ordinarily deep, and that I had made a large transverse opening in the sinus through which the blood flowed very freely. I had pressure made over it, and proceeded with the operation until I had completed it. I thought now that it was a fresh wound, clean and healthy in every respect, that if I could suture the margins with fine catgut, bringing them closely together, I might be able to get healing by immediate union, especially as I intended to cover it up with the scalp flap. With a small needle and piece of fine catgut I succeeded very well in suturing the margins and bringing them into apposition, and thus entirely arresting the flow of blood. I had no farther trouble from this wound. The healing of the scalp was perfect, and I had no bad results whatever from the wounded sinus.

Case 2.—David Guyhrie, On operating at the city hospital on a case of chronic depressed fracture of the skull, extending across the superior longitudinal sinus, I found on removing a portion of the depressed bone that the wall of the sinus had either been so entangled in the broken fragments of the bone, or adhered by inflammatory process of the bone, that on attempting its removal a ragged wound was made in the sinus. Encouraged by my former

experience, I proceeded at once, after having completed my operation, to close the wound in the sinus by catgut sutures. This I had little difficulty in doing, as the wound was but small and the sinus at this point not large. The scalp covering was adjusted in the ordinary way, and the wound healed without the slightest interruption. No bad symptoms followed, and my patient made a perfectly satisfactory recovery.

Case 3.—Case No. 3 was a young man, Mal Dortan, who had four months previous fallen quite a distance alighting on the back part of the vertex. He had sustained a rather long transverse fracture of the skull, with a very marked depression of bone. He had no epileptic seizure, but suffered continuously from headache, so as to entirely invalid him. A trephining operation being determined upon for the removal of the depressed bone, I proceeded to do it at the clinic, in the presence of the class of the University Medical College.

After the scalp had been carefully raised and the bone exposed, I remarked to the class witnessing the operation, that there was an extraordinary amount of blood flowing from the bottom of the fissure, and that either a large vein or the superior longitudinal sinus had been wounded. Upon the removal of the bone down to the bottom of the valley of the depression, the blood flowed much more freely, showing very plainly that it came from the sinus.

As soon as the last piece of bone was lifted a large opening was discovered in the sinus—an opening as large as a lead pencil. The blood flowed from the wound in a stream, very much as if it had been poured from a teapot. My former experience gave me no assurance that I would be able to close this wound.

The edges of this wound were undoubtedly healed over. It was simply a great irregular wound in the upper and back part of the superior longitudinal sinus, just before it divides to form the lateral sinuses. I determined, however, to make the attempt to close it, and hoped—perhaps without any very good grounds—that my efforts would be successful. I had a good deal of trouble in drawing the edges together; in fact I very much question whether the edges were brought together at all or not. I did succeed, however, in almost completely arresting the flow of blood, a simple oozing being all that was left. The area of bone removed was quite large and I was fearful of oozing under the flaps. I placed at two or three points capillary drainage. I adjusted the flap over the wounded sinus as well as possible, and hoped to get as good results as I had in the two former cases.

Circumstances over which I had no control prevented my dressing him at the next clinic, and he was dressed by the hospital dresser, who inadvertently pulled out the capillary drainage in removing the dressings, and thinking he had to replace it by something else, put in some rubber drainage tubes that were undoubtedly infected. When I next dressed the wound—one week from the day I operated—I found to my horror purulent fluid issuing from the drainage tubes. I dressed it with all the care I knew how, and cleansed it with all the antiseptic precautions. It was with fear and trembling that I visited the hospital each day for the next two weeks, thinking that each time I should find my patient comatose from the entrance of pus

into the sinus. Nature, however, had done more for me than I had given her credit of being able to do, in having so carefully and completely sealed up this vulnerable point.

Suppuration continued from one of the drainage tubes for almost three weeks, but no bad symptoms resulted from it. The wound in the sinus was safe, having been completely sealed up by the flap, the suppuration never extending to it.

I have been thus careful in reporting the results of these cases, with the purpose of encouraging surgeons in this line of treatment. Believing that the wall of the sinus if kept thoroughly aseptic, and closed without the lining of the membrane of the sinus being wounded by the surgeon, would heal just as a wound will in any other part. Particularly so if it is immediately closed over by clean, healthy tissue. In my judgment, it is preferable to the method so generally recommended of packing, and hoping that it may heal by a clot, the danger of which I think is very great.

RHINITIS IN CHILDREN: ITS VARIETIES, CAUSES AND TREATMENT.

Read before the Illinois State Medical Society, May 15, 1893.

BY W. E. CASSELLBERRY, M.D.

CHICAGO.

PROFESSOR OF THERAPEUTICS AND OF LARYNGOLOGY AND RHINOLOGY IN NORTHWESTERN UNIVERSITY MEDICAL SCHOOL (CHICAGO MEDICAL COLLEGE); LARYNGOLOGIST TO WESLEY HOSPITAL.

The forms of rhinitis which affect children are, in the main, subject to the same classification as when affecting adults. Various phases of the disease, however, both in pathology and clinical history, assume in childhood different degrees of importance, by reason of special tissue preclivities which are incidental to early life, and of unusual damage liable to ensue in a child from neglect of the disease during the developmental period. The treatment also requires special adaptation to the comparative helplessness and timidity of young children.

ACUTE RHINITIS.

Acute rhinitis, colloquially termed "cold in the head," is an acute inflammation of the mucous membrane lining the nasal cavities from the anterior nares to the naso-pharynx. It is prone to extend to adjoining mucous surfaces and usually embraces the naso-pharynx, at least to some degree, and thence not infrequently also the middle ear.

Etiology.—Reasoning from analogy, one must regard acute suppurative rhinitis as an infection by pathogenic micro-organisms, but it is a result of "taking cold," which follows certain exposures with such regularity and precision that one must also infer a causal relationship to exist between chilling of the body and rhinitis. The congestion of the nasal vessels occasioned by "taking cold" evidently favors a microbe invasion of the mucous membrane, in some manner, impairing its powers of resistance.

Instances are not wanting of direct infection of one person by the discharges of another, an accident which is apt to happen among children by the use of handkerchiefs in common. Suppurative rhinitis of

infants is also attributable to direct infection from the vaginal discharges during birth, and to want of cleanliness after birth.

Treatment.—It is much too customary to permit this acute inflammatory disease of a delicate part of the body to progress without efforts to mitigate and abbreviate it. Such a course is fraught with immense possibilities of ultimate damage, chronic catarrh of the nose and accessory organs being thereby established. Many remedies are of real service, but a multiplicity of recommendations is confusing and tends to lessen confidence in any one line of treatment. I will therefore describe simply my own methods of dealing with these cases.

If it is sought to abort the attack of rhinitis, a single average-sized dose of Dover's powder, proportionate to the age of the child, is given at bedtime, also a laxative if needed. The patient is especially well covered in bed, outside night air is excluded and the temperature of the apartment maintained during the night at 60° to 64° F., but no effort is usually made to produce profuse perspiration.

Internally, the following formula will meet the indications:

R. Tr. aconiti, m.xii.
Tr. belladonnæ, m.xxiv.
Morphine sulphatis, gr. ¼.
Potassii bromidi, ʒi.
Spts. menthae piperitæ, m.xx.
Aque q. s. ad, ʒiij.

M. et. Sig.: Adult dose one teaspoonful every hour, to be lessened for children according to age.

The same ingredients could readily be prepared in the form of a capsule, pill, or compressed tablet.

Local treatment is of the utmost importance, and the following mixtures render satisfactory service by atomization:

SPRAY No. 1.

R. Cocaine hydrochloratis, gr. ii.
Sodii boratis, gr. xx.
Sodii bicarbonatis, gr. xx.
Ol. eucalypti, m. i.
Ol. gaultheriæ, m. i.
Thymol, gr. i.
Menthol, gr. ½.
Glycerine, ʒss.
Aque q. s. ad, ʒi.

M. et. Sig.: Dilute, adding one or two teaspoonsful to one ounce of warm water for use as a spray.

SPRAY No. 2.

R. Cocaine hydrochloratis, gr. ii.
Ol. pini canadensis, m. v.
Ol. gaultheriæ, m. ii.
Ol. eucalypti, m. ii.
Thymol, gr. ½.
Menthol, gr. i.
"Vaseline oil," ʒi.

M. et. Sig.: Use with double bulb (Davidson) atomizer, either alone or following the use of spray No. 1.

For young children who are often terrified by spraying, may be substituted a small syringe or an ordinary medicine-dropper used as a syringe, with which to project gently either of these solutions through the nostrils. Spraying or gentle syringing in this manner may be performed twice or three times daily or even every three hours in severe cases. The cocaine can be omitted from either spray formula if there is any objection to its use, without seriously impairing the effectiveness of the remedy. All solutions for nasal use should be somewhat warm.

Of the many inhalations, I will mention only camphorated steam as a domestic remedy of power.

It is conveniently used by placing a pint of steaming hot water in a glass fruit jar and adding two fluid drachms of spirit of camphor. A funnel, preferably of glass, is then inverted to cover the mouth of the jar and the rising steam is inhaled through the nostrils as it escapes from the small end of the funnel. So used, especially during the evening for a half-hour, it conduces to a comfortable night's rest and facilitates recovery.

SIMPLE CHRONIC RHINITIS, INCLUDING CHRONIC PURULENT RHINITIS OF CHILDREN.

Recurrent attacks of acute rhinitis establish in children and young people especially, a chronic inflammation of the mucous membrane which is characterized by variable degrees of proliferation of the epithelium, and by muco-purulent secretion which is often profuse. The disease is not accompanied by material enlargement of the turbinated bodies or distension of the erectile tissues, and stenosis is not a prominent symptom which differentiates it from hypertrophic rhinitis.

Etiology.—Bosworth plausibly contends that children are particularly prone to inflammation of the epithelial lining of mucous membranes, and that the epithelial proliferation of muco-lymphoid glands becoming organized without desquamation accounts for enlargement of the tonsils, etc., while an allied inflammation in the nose with rapid desquamation of the epithelium constitutes the most important element in purulent rhinitis. The disease bears no constant relationship to scrofula, tuberculosis or syphilis since it affects children who are otherwise robust quite as frequently as it does the subjects of these dyscrasias. Inattention to hygienic matters, leading to frequent attacks of acute rhinitis, and failure to treat the same effectively, are potential factors in the establishment of this form of catarrh.

Symptomatology.—A profuse muco-purulent discharge from both nostrils, swelling and redness of the external nasal appendage and excoriation with incrustation of the anterior nares are the chief manifestations, a too profuse discharge being the sole complaint in the milder cases.

In the course of years, if the purulent type of rhinitis be not arrested, the mucous glands, atrophy, the secretion grows less, but thicker, and tends to accumulate in crusts. In other words, the disease may pass gradually into the atrophic form of rhinitis which is the successor to purulent rhinitis perhaps more frequently than it succeeds hypertrophic rhinitis, although commonly credited to the latter disease.

Simple chronic rhinitis, however, does not always assume a purulent type, the chief symptom oftentimes being merely a too profuse mucous discharge. This form of the disease is prone to pass gradually into hypertrophic rhinitis; in fact, it is sometimes difficult to draw a distinct diagnostic line between either the purulent or non-purulent form of simple chronic rhinitis on the one hand, and hypertrophic rhinitis on the other. Indeed, in rarer instances these conditions are seemingly associated.

Treatment.—In the purulent type muco-pus must not be permitted to accumulate and decompose in the sinuosities around the turbinated bodies, thus perpetuating the disease. In not too inveterate cases thorough cleansing by means of an antiseptic, alkaline and mildly astringent spray, used three or

four times daily, with a hand-ball atomizer, is all that is necessary to effect a cure. The following modification of Dobell's solution answers this purpose admirably:

R. Sodii boratis, gr. xv.
Sodii bicarbonatis, gr. xv.
Ol. eucalypti, m. i.
Ol. gaultheriae, m. i.
Thymol, gr. i.
Menthol, gr. ½.
Glycerini, f 5ss.
Aque, q. s. ad, f 3i.

M. et. Sig.: To be diluted adding two teaspoonsfuls to one ounce of warm water for use as a spray.

If a more active astringent is necessary to check the hypersecretion, sulpho-carbolate of zinc, two to five grains to the ounce, may be used as a spray, following the cleansing solution.

In young children who are terrified by spraying, these solutions, well warmed, can be used by means of a small syringe. When the purulent type of the disease is complicated by the presence of hypertrophy of the turbinated bodies, deformity of the septum, adenoid vegetations, etc., any of which obstructions will impair the drainage, and cause a mucopurulent discharge, surgical treatment appropriate to this special cause or complication is usually indicated. However, the case would not then be regarded, strictly speaking, as one of simple chronic rhinitis.

HYPERTROPHIC RHINITIS.

This is a chronic inflammation of the mucous and submucous tissues of the nose, characterized by enlargement, especially of the turbinated bodies, which encroach upon the normal lumen of the nostrils, and cause impairment of nasal respiration and drainage. The disease is thought to be rare with children, especially under ten or twelve years of age, but I am convinced that a mild form or early stage of the affection is very common at all ages.

In children and adolescents persistent enlargements of the turbinated bodies can and do present themselves, in consequence of mere dilatation and engorgement of the vessels of the submucosa, without any considerable degree of cell proliferation, but in addition to this "intumescent form," even somewhat advanced grades of hypertrophic rhinitis are certainly met with in children.

Etiology.—The most prolific source of hypertrophic rhinitis in young children is adenoid vegetations, which, by partial occlusion of the posterior choanae, interfere with the proper drainage and evaporation of nasal secretion, the irritation of retained and decomposing secretions serving to excite proliferative changes in the nose.

Clinically these conditions are frequently conjoined and it is certain that they sustain some dependence upon each other, for removal of the "adenoids" is often followed by subsidence of the nasal hypertrophies. Recurrent acute rhinitis is another potent factor in the development of hypertrophic rhinitis.

Symptomatology.—Nasal stenosis or obstruction on one or both sides is the most prominent symptom. The secondary results of nasal stenosis, are a nervous restlessness, which is excited in many by the sense of obstruction and pressure in the nose, inability to sleep soundly at night, or intellectually to apply themselves persistently by day, together with headache and reflex pressure symptoms such as hemi-

crania, asthma and spasm of the glottis. The most frequent of the reflex nasal symptoms in childhood, are asthma in association with bronchitis and spasm of the glottis in association with laryngitis; in fact, so common in children is dependence, at least in part of chronic bronchitis, with asthmatic symptoms upon nasal stenosis and adenoid vegetations that the closest scrutiny and attention should be given to the upper respiratory tract in all such cases.

The term "reflex" is doubtless often misappropriated, yet it has a definite significance, and the pathological reflexes which originate in nasal or nasopharyngeal irritation and terminate in cough, laryngeal spasm, or asthma, follow much the same pathway as the physiological reflex known as sneezing.

A very annoying symptom and one which may first attract attention is dysphonia; in fact, such children are constantly declared to be tongue-tied, and the lingual frenum cut without benefit, when the real defect in speech lies in occlusion of the nares or naso-pharynx.

Treatment.—When dependent upon adenoid vegetations, the surgical removal of these growths usually results in subsidence of the hypertrophic rhinitis. Resolution will be favored in such cases, however, as well as in the milder forms of the disease, not secondary to naso-pharyngeal adenoid hypertrophy, by the use, twice daily, of an antiseptic alkaline and mildly astringent spray, or lotion formulated as prescribed for "simple chronic rhinitis." This is especially important as a cleansing measure in cases in which some degree of hypertrophy is conjoined with the suppurative type of rhinitis. Refined petroleum products variously known as "albolene, lanoline, benzoilol," etc., are just now extensively employed in many combinations in all forms of rhinitis, but antiseptic alkaline aqueous solutions are certainly more effective when the parts are to be cleansed of mucopurulent accumulations. Petroleum sprays are, however, often soothing and protective to the parts, especially at times of acute and subacute exacerbations, and may be used in such cases following the aqueous spray twice daily, or used alone with patients who have no retained mucopurulent secretions. "Vaseline oil," being more viscid than the whiter products, and yet sufficiently fluid to be converted into spray by a good double bulb hand atomizer, is best adapted to this use, and may be prescribed in the following combination:

R. Ol. pini canadenses, m. v.
Ol. gaultheriae, m. ii.
Ol. eucalypti, m. ii.
Menthol, gr. i.
Thymol, gr. ½.
Vaseline oil, q. s. ad., 5i.

M. et. Sig.: Use with a double bulb atomizer.

A more astringent spray is occasionally beneficial, although strong astringents are not well borne by the nasal mucous membrane:

R. Zinci sulpho-carbolatis, gr. v.
Iodi, gr. i.
Potassi iodidi, gr. ii.
Menthol, gr. i.
Ol. gaultheriae, m. iii.
Glycerini, f 5ss.
Aque q. s. ad., f 3i.

M. et. Sig.: Use with atomizer.

NOTE.—Vaseline oil or albolene can be substituted for the glycerine and water of this formula.

Persistent use of these remedies together with the surgical removal of adenoid vegetations and enlarged

faucal tonsils, and hygienic guards to prevent frequent "colds" will effect a recovery in the majority of cases of hypertrophic rhinitis of children. A minority, however, which includes especially the older children, will not yield to this treatment and will require reduction of the hypertrophy by means of the electro-cautery in order to overcome the nasal stenosis. One should not hesitate to adopt this method in suitable subjects for the results are very satisfactory.

ATROPHIC RHINITIS.

Also termed cirrhotic rhinitis, dry catarrh, ozæna and fetid rhinitis, is characterized by atrophy and cirrhotic changes in the nasal mucous and submucous tissues, including the turbinated bones, which lead to increased spaciousness of the nostrils; also by atrophy with impairment of function of the mucous glands, by reason of which the mucopurulent secretion becomes inspissated and accumulates in the form of crusts, which in turn, undergo decomposition and occasion fetor.

Etiology.—The commonly accepted theory that atrophic rhinitis is a sequel to hypertrophic rhinitis, a late stage of that disease, is now receiving much adverse criticism. It is true that an *apparent* transition is occasionally observed, but that the previous hypertrophy was the real and essential cause of the subsequent atrophy is exceedingly doubtful. I have observed the two conditions to exist at the same time in the same individual—atrophy in one nostril and hypertrophy in the other, and even atrophy and hypertrophy in different parts of the same nostril; but the only cases in which I have observed distinct hypertrophy to pass definitely and completely into the atrophic condition were those affected with grave constitutional disease, notably tuberculosis and syphilis.

The average life histories of the two affections are dissimilar. At least one form of atrophic rhinitis is common in childhood and the disease rarely originates after thirty-five or forty years of age.

Hypertrophic rhinitis with permanently organized infiltration of a degree sufficiently advanced to pass as alleged, into the atrophic state, does not commonly occur, at least until maturity; hence, this theory fails to afford an adequate explanation of the many cases of atrophic rhinitis which occur in early life. Bosworth has advanced the most rational explanation of the etiology of atrophic rhinitis of early life in designating "suppurative rhinitis of children" as the real cause, a view which harmonizes with the life history of the disease, and which is of especial value from a prophylactic standpoint, since it teaches us the importance of promptly suppressing chronic suppurative rhinitis, viewed as a cause, the ultimate effect of which, atrophic rhinitis, is itself difficult of suppression.

Hereditary predisposition to atrophic rhinitis is often pronounced. For instance, a patient, æt. twenty-two, has developed the disease during the last two years; her mother, for some years deceased, suffered from the disease in a typical form; the patient's child, aged three years, is likewise affected.

Symptomatology.—Crust formation and fetor are the most prominent symptoms of the disease, although other secondary manifestations are numerous. The crusts may accumulate only in thin scales, or in large masses of horny consistency which may even

occlude the nostrils at times, being firmly adherent and impacted in the sinuosities of the nares, until by decomposition and softening of the layer adjoining the mucosa they are finally cast loose and expelled in large pieces by blowing, often leaving abraded surfaces behind.

The fetor varies in intensity in different cases, but is rarely entirely absent, and in its severe form is so horribly nauseating and penetrating as to contaminate the atmosphere of an entire room in a few minutes, and to necessitate comparative isolation of the patient. The fetid odor is apparently due solely to decomposition of the incrusting secretion *in situ*, but there is reason to believe that this decomposition may extend to the secretion which is still in process of elaboration in the substance of the glands themselves.

In advanced cases, commonly, the sense or hearing is impaired, the patient's own smell obtunded, the external nose broadened, its alæ thickened, and the physiognomy lacking in acuteness of expression. The disease extends after a time to adjoining surfaces, constituting atrophic naso-pharyngitis and atrophic pharyngitis. The naso-pharynx becomes so incrustated that the fetid masses must be literally pried out with probes and forceps. More rarely, even the larynx and trachea become involved, crusts accumulating in these passages to the point of occasioning dyspnea.

Diagnosis.—On rhinoscopic examination, both anteriorly and posteriorly, one is impressed by the spaciousness of the nasal cavities and the presence of scales or crusts. The disease is likely to be confounded, especially in childhood, with hereditary syphilis of the nares, which is also accompanied by fetor and incrustation. Unfortunately, by reason of the fetor the term "ozæna" has been applied to both diseases, consequently it is a bad name for either affection, especially since it refers only to the symptom—fetor.

In atrophic rhinitis, there is uniform atrophy and incrustation without deep, destructive ulceration.

In hereditary nasal syphilis the atrophic process, if present at all, is not uniformly distributed, the nostrils being contorted by deep ulceration with subsequent cicatrization of various parts.

Prognosis.—Atrophic rhinitis requires persistent thorough treatment over a period of from four months to two years, in order to effect recovery even in young subjects and in recent cases. Both patient and physician are prone to become discouraged and to abandon treatment, much to the disadvantage of the former. Inveterate cases must continue cleansing measures for years, as part of the toilet, with the same regularity that is given attention to the teeth. In the worst cases the difference between persistent treatment and total inattention, is the difference between the lot of an acceptable member of society and that of a social outcast.

Treatment.—The first essential to successful treatment is absolute and continuous cleanliness of the parts. The crusts must not be allowed to form, much less to undergo decomposition. One of the most efficient means to this end, especially for children, is the nasal douche. I believe it to be justifiable for the sake of efficient treatment of this particular disease to assume the slight risk of inflammation of the ear, possible by this instrument. This risk, with proper use of the instrument, is remote in

comparison with the danger from atrophic rhinitis, ineffectually cleansed. The original instrument of Thudicum was of glass, but the ordinary soft rubber bag gravity douche fitted with a nasal nozzle, answers the purpose still better. It should be suspended from a nail over a convenient basin at such a moderate height that the bottom of the bag is only about three inches above the level of the nose, as the head is held over the basin. The patient must maintain breathing by the mouth well opened, when on applying the nozzle to one nostril the liquid will gravitate gently and slowly into one nasal passage and out through the other, the oral respiration sufficing to close the naso-pharynx by the velum palati. Not force, but thorough maceration, is requisite to detach the crusts, therefore one to two pints of fluid should be gently and slowly used, twice daily as a part of the morning and evening toilet. The liquid employed should be alkaline, to facilitate solution of the crusts, *antiseptic*, to counteract the fetor, and *stimulating*, to encourage regeneration of the atrophied glands. These qualities are provided in the following formula:

- R. Sodii bicarbonatis, ʒiij.
Sodii boratis, ʒiij.
Extracti pini canadensis fluidi, fʒi.
Glycerini, fʒiv.
Aque q. s. ad. fʒviii.

M. Etig.: To be diluted according to tolerance, adding one ounce to the pint or quart of warm water for use with the nasal douche.

With older children who can be taught the necessary manipulation, Warner's post-nasal douche should be substituted for the anterior douche of Thudicum on account of greater safety relative to the ear. The same solution in the same proportion can be used with it. One must first draw up a part of the liquid through the instrument into the rubber ball, then insert the curved nozzle through the mouth, behind the velum palati into the naso-pharynx, and squeeze the ball, thus expelling its contents forward through the nasal passages. This procedure should be repeated until half a pint of liquid is thus used, morning and evening. Children who will not tolerate any of these means can have the nostrils syringed conveniently by an ordinary soft rubber tipped ear syringe.

Peroxide of hydrogen has the property, by rapid oxidation, of disintegrating muco-purulent matter, and sprayed into the nostrils it will thus assist materially in loosening the dessicated secretion. It should be used a few minutes preceding the employment of either form of douche, sprayed by a powerful double-bulb atomizer, and of a strength just insufficient to cause smarting. The patient should receive treatment preferably from one to three times weekly in the office, at which time any resisting crusts should be detached by a cotton probang, and more actively stimulating and antiseptic medicaments applied. For the excoriation and incrustation around the anterior nares and over the cartilaginous septum, which is often one of the most annoying features with children, the following ointment thoroughly used each night, being inserted into the nostrils as far as the finger will reach, gives the most satisfactory results:

- R. Hydrargyri oxydi flavi, gr. i
"Vaseline," ʒi.

M. Etig.: For local application.

Sprays of "liquid rose" (with eucalypti and eucalypti and stimulating medicaments, such as thymol and menthol may be incorporated) are also very useful at times, tending to retard crust formation. Cod Liver oil and syrup of iodide of iron are seemingly the most useful internal remedies, although neither can be relied upon to the exclusion of local treatment.

NECROLOGY.

Thomas Antisell, M.D.

Appropriate notice was taken by the Medical Society of the District of Columbia, and this sketch was ordered to be sent to THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.
SAMUEL S. ADAMS, M.D., *Resolving Secretary.*

Thomas Antisell, M.D., died in Washington, D. C., June 14, 1903. He was born in Dublin, Ireland, January 16, 1817. He was son of Christopher Antisell of Kings county, Ireland, a distinguished barrister and Queen's council; his ancestry going back to Sir Bertine Entwysel, who accompanied Henry II to Ireland.

He was educated at Trinity College, Dublin, studied medicine at the Dublin School of Medicine, Peter street, and Irish Apothecaries' Hall. He was a pupil and afterwards assistant to Sir Robert Kane from 1839 to 1843. He graduated at Royal College of Surgeons, London, in November, 1839, and spent a semester with J. B. Pelouze in his laboratory. In 1844 he pursued his chemie studies in Paris and Berlin under the most celebrated chemists of the time, Pelouze, Biot, Dumas and Berzelius. He practiced medicine in Dublin from 1845 until 1848, and was lecturer on chemistry in "Original School of Medicine." He was extra professor to Royal Dublin Society, 1845-1848. He was a member of the Royal College of Surgeons, England, member of the Royal Dublin Society and member of the Geological Society of Dublin. As one of the "Young Ireland Party" he was sentenced to exile and imprisonment, but a friend procuring for him a position as surgeon on an outgoing vessel, he sailed for the friendly shores of America. Landing at New York November 22, 1848, he began the practice of medicine in New York City, which he continued until 1854, when he accepted the invitation to become the geologist of the P. R. R. Survey on the thirty-second parallel, by Lieut. Parke, Topographical Engineer U. S. A. Made a geological reconnaissance of Southern California and Arizona Territory, published in the seventh volume of the United States Reports of Explorations and Surveys, 1856. In 1848 he was professor of chemistry in Berkshire Medical Institution, and in 1854 professor of chemistry at the medical college at Woodstock, Vt., and Pittsfield, Mass.

From 1856 to 1861 he was chemie examiner in the United States Patent office.

During the civil war, 1861 to 1865, he was brigade surgeon, Surgeon of U. S. Volunteers, medical director Twelfth Army Corps, surgeon in charge Harewood Hospital, Washington, D. C., surgeon in charge of sick and wounded officers in Washington, D. C., president of Board of Examiners for Surgeons and Assistant Surgeons of Volunteers, was "brevetted Lieut.-Colonel for faithful and meritorious services during the war." He was mustered out of service in October, 1865.

In 1865 he was offered the position of president of the College of Cairo, Egypt, which he declined. From 1866 to 1871 he was chief chemist to the U. S. Department of Agriculture, and in 1869-70 was professor of chemistry to Maryland Agricultural College. In 1871 he was invited by the

Japanese government to be technologist of a government commission to develop the resources of the northern islands of that empire, returning in 1876. In appreciation of his valuable services to Japan, he was decorated by the Emperor of Japan with the "Order of the Rising Sun of Meiji." While on the ocean *en route* for Japan an invitation came to become president of the College, Lancaster, Pa., which Dr. Antisell appreciated and would have liked to accept, but it came too late, he having already contracted with the Japanese government for five years.

In 1877 he was again appointed chemist examiner in the U. S. Patent Office, which position he held until July, 1890, when, his health failing, he was reduced to a first-class clerkship and finally removed, August 31, 1891, by Secretary Noble.

From 1856 to the present time (1893), excepting an interval of five years in Japan, he has lived in Washington, D. C., where he resided till his death. All his life he has been a medical teacher, his specialty being analytical and technical chemistry. He has long been a member of the Medical Association of the District of Columbia, and of the American Philosophical Society of Washington, D. C., a corresponding member of the Academy of Natural Sciences Philadelphia, and of the Geographical Society, New York, a Fellow of the American Association for the Advancement of Science, also an honorary member of the Medical Society of the District of Columbia.

The University of Georgetown, with the medical department of which he has been connected as professor for more than thirty years, in the capacities of professor of chemistry and toxicology, professor of military surgery, physiology and hygiene, and emeritus professor of chemistry and toxicology, conferred upon him the degree of Doctor of Philosophy.

Dr. Antisell has been interested in and intimately connected with sanitary matters in the District, and has written many papers on kindred subjects.

The sanitary investigation of the National Hotel and the ventilation of the Capitol were public interests that were benefited by his scientific knowledge. He was one of the original founders of the Training School for Nurses, and the first president of that school.

His contributions to medical and scientific literature have been numerous, of which the following are a few: Papers on "Soils of Ireland," Royal Dublin Society, 1840; "On Sanitary Improvement of the City of Dublin," a "Manual of Elementary Geology," Dublin, 1846; "Outlines of Irish Geology," Dublin, 1847; a "Manual of Agricultural Chemistry," Dublin, 1847; "Treatises on the Tea and Coffee Plants," Dublin, 1847; addresses on the "Philosophy of Manufactures," delivered at Castle Garden during the Twenty-second Annual Fair of American Institutes, October, 1849; "Relations of Physical Geography to Agriculture," 1850, in Transactions of American Agricultural Association; "Home Encyclopedia of Arts and Manufactures," Putnam, New York, 1852; "Applications of Chemical Science to Agriculture," 1859; "Photogenic and Hydro-carbon Oils," Appleton, New York, 1859; "Geological Reconnaissance of Southern California and Arizona," in U. S. Explorations and Surveys, Vol. vii, Washington, D. C. 1856.

Paper on "Constitution and Source of Bile," in the *American Journal of Medical Sciences*, Philadelphia, January 7, 1861; "Report on the Sanitary Condition of Washington," published in the Transactions of the Medical Society of the District of Columbia for 1864.

A paper on the "Epizootic of Horned Cattle," published in the Transactions of the American Agricultural Association for 1861; a Report made by the Committee on Medical Education to the American Medical Association at its meet-

ing in 1865; "Cultivation of Cinchona," Appleton, 1867; "On the Value of the Sewerage of the City of Washington," included in Report of U. S. Agricultural Department, 1869; Introductory and Valedictory Addresses in Medical Colleges at Washington, six in number, from 1854 to 1871; "The Currents of the Pacific Ocean," 1876.

Dr. Antisell was married twice: to Eliza Anne Nowlan, of Dublin, in 1841, and to Marion Stuart Forsyth, of Detroit, Mich., in 1854.

Dr. JAMES J. LEVICK, widely known in medical circles died June 25, at his residence, 1200 Arch street, of heart trouble.

Dr. Levick was born in Philadelphia, and at the age of 22 years, in 1847, graduated from the Medical Department of the University of Pennsylvania.

After two years' service as resident physician at the Pennsylvania Hospital, at which he was, later, on the visiting staff, Dr. Levick was appointed to the staff of Will's Eye Hospital, which position he held until recently.

Dr. Levick was also connected with the Magdalene Asylum. He received in 1884 the degree of A. M. from Haverford College, and was a prominent member of the Academy of Natural Sciences.

He was also a member of the County Medical Society, the American Medical Association, the Historical Society and the American Climatological Association. He was quite prominent in the Society of Friends.

Dr. Levick was a prolific writer on medical subjects, and has printed various papers. Among the most important are those on heart disease and spotted fever. A paper on the early Swedish settler, read before the Historical Society, caused much favorable comment.

Dr. JOHN C. HALL, Frankford, Pa., died June 8th. Dr. Hall was superintendent of the Friends Asylum for the Insane at Frankford, Pa.

Dr. C. BERNARD GALE, Newport, Ohio, died June, 1893. Joined the Association at Detroit in 1892.

Dr. SILAS T. TROWBRIDGE, late of Decatur, surgeon of the Eighth Illinois Regiment and United States Consul at Vera Cruz, Mexico, for twelve years, died at Napa, Cal., aged 68 years.

Dr. WILLIAM CARSON, one of the most distinguished physicians of Philadelphia, died at 11 o'clock July 9.

Dr. CHARLES S. FRISK, the oldest practicing physician in Elkhart, Ind., died suddenly in his office July 9. During the late war he was a member of Gen. Rosecrans' staff.

Dr. FRED DELAMATER MARTIN, a prominent young specialist of Norwalk, O., died July 7, aged 37. He was a student of Sir Morell Mackenzie in London for a season. He was an unusually talented and successful practitioner and surgeon.

The deaths of the following distinguished members of the medical profession abroad have been announced:—Dr. Peter, Professor of Clinical Medicine in the Paris Faculty of Medicine; Dr. J. Wojtaszek, *privat-docent* in Pharmacognosy and City Sanitary Officer in Cracow, of typhus fever contracted during the discharge of his duties.—Dr. Modrzejewski of Warsaw, who has written on deaf-mutism and a number of other special subjects of various kinds.—Dr. Frederick A. Salzer, Professor of Surgery in the University of Utrecht.—Dr. Delasiauve, formerly physician to the Salpêtrière, Paris.

Newspaper Joke.—The following intensely humorous item is going the rounds of the lay press.

Monochloroacetylethylmethylphenylpyrazolon is the chemical name for hypnot.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE
PER ANNUM, IN ADVANCE \$5.00
SINGLE COPIES 10 CENTS

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 68 WARREN AVE., CHICAGO, ILLINOIS.

All members of the Association should send their Annual Dues to the
Treasurer, RICHARD J. DUNGLISON, M.D., Lock Box 1274, Philadelphia, Pa.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Dunglison, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues and subscription for THE JOURNAL. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

SATURDAY, JULY 15, 1893.

THE NEW ILLINOIS BILL FOR THE COMMITMENT
OF THE INSANE.

All who are well informed in such matters will agree that the recent statutes of Illinois governing the commitment of the insane have been inadequate and in some particulars almost barbarous. It is true that this State once had a statute that was fairly humane in its operation, but this was repealed when the law of 1874 was enacted, at the instance of a female paranoiac who alleged that she had been wrongfully detained at the State hospital in Jacksonville. About the only thing arrived at in that law was that every person should be brought into the county court and in the presence of a judge tried by a jury. All other matters were left in lamentable confusion, everything was sacrificed to that fetish, trial by jury for the insane, to the end that it should be impossible for a sane person to be sent to an asylum. As soon as there, he was forgotten by the law and no record even was kept by the court of the final disposition of the case. If discharged recovered by the hospital there was no way of establishing judicially the fact that the person was restored to reason unless they fortunately had property and a conservator had been appointed by the probate court, in that case the application to have the property restored and the conservator discharged would again establish legally the fact of sanity.

For several years the Illinois State Medical Society has endeavored to have these defects remedied, resolutions have been passed, and the legislature urged to take up the question of lunacy laws, but until the last session, when a committee was appointed and several hundred dollars appropriated to pay their expenses at Springfield, practically nothing had been accomplished. Especial credit is due to Drs. A. B. STRONG and D. W. GRAHAM, for the admirable manner in which they conducted the campaign.

It was felt by every one having the interests of the

insane at heart, that the clause of the old law requiring a trial by jury might safely be left to the discretion of the court, and in cases where persons were so demented that they did not have sufficient mental capacity to ask for a jury trial, or where they appreciated their unfortunate condition and did not want it, they might safely be committed by certificate of two qualified physicians. This latter clause has always been the stumbling block in the way of the average legislator when lunacy laws were under consideration. In this case an effort was made to destroy the usefulness of this bill by striking out from one of the sections the provision relating to trial by commission. Curiously the section stricken out is the one that safe-guards the commission and distinctly reserves the right of jury trial in case it is demanded. The provision for the appointment of the commission is amply provided for in other sections, not touched by the amendment.

In brief the provisions of the new bill are as follows: A definition of the word insane within the meaning of the act; a provision that no one shall be restrained of his liberty unless they shall have been adjudged insane. Directions for filing petition in county court and providing that where no physician has seen the alleged lunatic that the judge may appoint one to do so at a cost not to exceed five dollars. The filing of the above petition is sufficient to bring the lunatic before the court, unless the affidavit of some credible person is shown stating that the presence of the person in court would be manifestly improper. When no jury is demanded and the circumstances of the case are such that there appears to the judge no necessity for the impaneling of a jury, then the judge shall appoint a commission of two qualified physicians who shall have power to administer oaths and take sworn testimony, and to report to the court in writing their conclusions and recommendations, verified by affidavit. In all cases of trial by jury the jury shall consist of six persons, one of whom must be a qualified physician, and such trial must be in open court, in chambers, or at the home of the person alleged to be insane, at the discretion of the court. A provision is made for answers to interrogatories furnished by the State board of charities. Appeals may be taken to the circuit court from any judgment had under this act. The county court may also appoint a conservator, and sole jurisdiction over the persons of insane persons not charged with crime, is vested in the county court. Every patient confined in an asylum shall have reasonable opportunities for communicating with friends, providing his letters contain nothing of an immoral or personally offensive character. All letters to the trustees, State board of charities, and State or county officials, shall be forwarded unopened. No patient

shall be placed in restraint or seclusion except by order of the physician, and a record shall be kept of all such orders for public inspection. Authority to discharge patients is vested in the trustees of the State institutions and may be delegated to the superintendent. No patient shall be discharged without suitable clothing and sufficient money to defray his expenses home. Every person confined as insane shall be entitled to the writ of habeas corpus, and if the judge shall decide that the person is insane such decision shall be no bar to the issuing of the writ the second time. Whenever notice shall be given to any county court, signed by the superintendent, that a patient committed by the court has been discharged cured, the judge shall enter an order restoring the patient in question to all rights as a citizen, and if a conservator has been appointed he shall be removed. Any person who shall conspire to commit any person unlawfully or who shall detain any person contrary to the provisions of this act, or who shall maltreat any insane person, shall be deemed guilty of a misdemeanor, and upon conviction shall be fined not exceeding one thousand dollars or imprisoned for one year or both. The State commissioners of public charities are intrusted with the enforcement of all laws relating to the insane, the licensing of private houses, regulation of the forms relating to commitment, transfer and custody of the insane, and the visitation of places of detention. In case they institute prosecutions under the act, the attorney general and the State's attorneys in the several counties shall render them all needed assistance. They are also empowered to appoint boards of auxiliary visitors in each county, who shall visit almshouses, jails and houses other than licensed institutions in which the insane may be confined. By written application to the superintendent a person may commit himself to the hospital, but such voluntary patients shall have the right to leave the hospital at any time on giving three days' notice to the superintendent.

The above are the main provisions in what seems to be a most excellent measure, for the protection of the rights of insane persons. Indeed, it is about the first legal recognition that the insane have any rights. It removes the stigma that courts by their forms have attached to insanity, which makes it very like crime for which a person is arrested, charged, tried, and found guilty the same as for a felony.

MEDITERRANEAN FEVER.

There is a fever occurring along the coast and in the islands of the Mediterranean sea that is known as Mediterranean fever, Rock or Gibraltar fever, Neapolitan fever, the country fever of Constantinople, the new fever of Crete, Malta fever, adeno-

typhoid fever, intermittent typhoid fever, atypical typhoid fever, sudoral fever, etc., that has been considered by some clinicians as typhoid fever, by others as a typho malarial fever, and by still others as a pernicious malarial fever. SURGEON DAVID BRUCE published a paper in the *Practitioner* for September, 1887, in which he stated that the characteristics of the Malta fever are its long duration, the average stay in the hospital being 55.5 days, the continuous high temperature that may be remittent or intermittent in type, the enlarged spleen, the profuse sweating and sudamina, the constipation, the tendency to the development of some bronchitic affection, and the tendency to relapse often accompanied by rheumatic pains, arthritis or orchitis. As a rule the mortality is small. Postmortem examination of these patients showed enlargement and congestion of the spleen and other internal organs, but no appearance of any glandular enlargement or lesion in the intestines.

MR. BRUCE also stated that he had succeeded in obtaining from the spleens of several patients a micrococcus that grew in agar-agar nutrient jelly. He published in the same journal for April, 1888, a second paper in which he reported other cases of Mediterranean fever in which he found this micrococcus, and he also stated that inoculations of a culture of this organism into a monkey produced a fatal disease resembling the fever, while guinea-pigs, rabbits and mice were not susceptible to such inoculations.

SURGEON A. G. P. GIRRS, R.N., published a paper in the *Transactions of the Epidemiological Society of London* (Vol. IX, 1891), in which he stated that he had found this microorganism in the spleens of two men that had died of this fever. This author considers the fever endemic in Malta, stating that in cruising elsewhere in the Mediterranean he had not seen a similar type.

SURGEON LOUIS HUGHES, A.M.D., published a paper in the *Lancet* for December 3, 1892, in which he stated that he obtained a special microorganism resembling that described by SURGEON BRUCE, from the spleens of five men that died of this fever. In two cases he succeeded in demonstrating its presence in fresh splenic substance, and he successfully inoculated two monkeys with the micrococcus. He made the important statement that he met with no other microorganism in these patients. He concludes from statistics and records of the last seventy years, from the distribution, and more especially from a comparison of the dates of admission of cases of this fever with the amount of rainfall, that its presence in Malta and Gibraltar is connected with human excrement. That the poison of this fever when infecting the human body is aerial in nature and arises from faecal and organic matter, in porous

soils, when these are undergoing a process of drying.

SURGEON BRUCE has published another paper in the *Annales de l'Institut Pasteur* for April, 1893, in which he calls the microorganism the *micrococcus militensis*. It is a round or slightly oval coccus, three μ in diameter, that grows slowly; seven days at a temperature of 25° C., or three days and a half at a temperature of 37° C., being necessary for the colonies to become visible to the eye, on a one and one-half per cent. peptone agar jelly. The colonies first appear as minute, transparent, colorless drops on the surface, subsequently becoming a transparent amber color, increasing slowly in size and eventually becoming opaque: by reflected light the colonies are milk white. Plate cultures could not be made on account of the very slow growth of the coccus at the temperature at which the gelatine plate remains solid. There was no growth on potatoes. As this microorganism when inoculated in monkeys has produced a disease resembling Malta fever, the author considers that he has discovered the specific organism of Mediterranean fever: but on account of the difficulty of cultivating the organism he is not prepared to state in what way it obtains access to the human organism.

While the course of this fever is not influenced by the administration of quinine, and the authors above quoted claim that paludal poisoning does not exist in Malta, it would have been well to state that examinations failed to show the presence of the *haematocoon malarie*. They definitely state that EBERTH'S bacillus was not present.

SURGEON A. PERRY took exception to SURGEON BRUCE'S statement regarding the identity of Malta fever with the rock fever of Gibraltar. He stated in the *British Medical Journal* for June 8, 1889, that while the symptoms of Malta fever corresponded with those of Gibraltar fever, yet in almost one hundred necropsies he never failed to find in each case the typical lesions of the ileum characteristic of typhoid fever.

It would seem impossible that three observers should make the same error in their investigations, and SURGEON BRUCE'S demonstration of a specific microorganism for Malta fever, shows that Mediterranean fever may be a comprehensive term that includes several distinct fevers.

COMPENSATION OF PHYSICIANS SUMMONED BY STATE OFFICERS.

It is an important question for physicians liable to be summoned as experts by State officers to know what rights they have with regard to fees, and especially whether the action of a particular officer or board in fixing their compensation, when so provided for by law, is final and conclusive, or not. Under a former Iowa statute, providing that the

coroner might, when he deemed it advisable, summon one or more physicians at an inquest, and that he should fix the compensation for such services, it was held (in *Cushman vs. Washington Co.*, 45 Iowa, 256) that the coroner, or the justice acting in his absence, was the officer or tribunal exclusively charged with the duty of fixing the compensation in question. For refusal to act on the claim made, he might be compelled to do so by mandamus. For allowing an insufficient compensation, as no appeal was allowed, it was not clear what, if any, remedy was provided. The petition in that case showed that the justice refused to allow a claim for \$50, but did allow \$5 for witness fees and mileage for attending the investigation. This allowance was in excess of ordinary witness fees, and having been made, and the same being in the nature of an adjudication still in force, the physician could not maintain an original action against the county for his compensation. In *Sanford vs. Lee Co.*, 49 Iowa, 148, the coroner had certified the amount charged as reasonable, and recommended the same to be allowed. The board of supervisors allowed only a portion of the amount; but the supreme court held that the recommendation of the coroner amounted to an allowance or approval of the amount charged; that it became a liquidated demand, and the physician was not bound to present it to the board before bringing an action; and that the county was bound, in the absence of fraud, to pay the amount allowed by the coroner. These cases clearly hold that under such a law as the foregoing, the coroner, or justice acting as such, could alone determine what was a reasonable compensation, and that such determination was, in the absence of fraud, conclusive. Under the amended statute of Iowa, which vests that same power in the county board of supervisors, their action must, for the same reasons, be held to be conclusive in the absence of fraud, was the decision of the supreme court in *Moser vs. Boone County*, just rendered. The force of the former decisions was conceded by Moser's counsel, but it was argued that the board might, through ignorance of the reasonable value of the services, or arbitrarily, refuse to allow a reasonable amount, and, no appeal being allowed, he was entitled to his action in court to determine what was a reasonable amount. The court, however, said that it might not be presumed that the board would act arbitrarily, or without due inquiry. In this, as in many other instances, the law does not fix the amount of compensation, because what would be reasonable in one case might not be in others. When it can not be foreknown what will be a reasonable compensation, the law vests some person, board or tribunal with power to determine that matter. The Iowa statute contains many such provisions, of which was mentioned one authorizing the court to fix the compensation of witnesses called

as experts. It would hardly be contended that he could maintain an action to recover more than the court allowed him, though he was not permitted to have a jury to determine the amount, and the court should ignorantly or arbitrarily allow an inefficient compensation. Such a claim is like any other item of costs incident to legal proceedings, and when the amount is fixed by statute, or by the person, board or tribunal authorized to fix it, it is conclusive.

THE CROOK OF THE CYCLE.

The wide diffusion of the bicycle as a means of locomotion, and as well an agent of pleasant pastime, has introduced into orthopedic surgery a new factor in the production of spinal curvature. When the wheel came into use, the handles were long and the rider sat upright. The followers of FATHER JAIN encouraged it, and well informed physicians saw in it a new instrument of physical culture.

The desire for increased speed and record breaking lessened the diameter of the wheel and shortened the handles, so that now you may see on any fine day whole troops of cyclists spinning along with their backs arched over the lever, and as the victim must see where he is going, he raises his chin, and the back of the head approaches the shoulder blades. Thus a double antero-posterior curvature has its foundation laid; constant humping the back could do no less.

It is not intended to convey the idea that cycling should be abolished; on the contrary, it should be encouraged, but cycles should be so constructed that the rider may sit upright like a man, and not double up like a hunchback or professional contortionist. In the latest patterns of bicycles we see wherein true scientific physical culture has been made to give way to the demands of the professionals. The amateur should be encouraged, for he rides for health and pleasure; while the professional rides for the money he can win by it. It was professionalism that ruined the Greek gymnasia, and professionalism has now converted a healthful and innocent amusement into a dangerous diversion.

DOMESTIC CORRESPONDENCE.

Medical Colleges and their Graduates.

To the Editor:—In your issue of July 1, J. J. Mulheron, M. D., in an article favoring the divorce of the medical licensing from the teaching power, gives copious extracts "from papers submitted by students who were graduated from a so-called medical college in good standing in the Association of American Medical Colleges, and whose announcement would lead you to believe that it is devoted to the cause of the higher medical education." It is painfully humiliating to know that any one is legally permitted to practice medicine who is the subject of such an appalling

degree of ignorance as these quotations disclose. It should bring blushes to the lowest member of a class in an institution for the feeble minded. The illustrations are conclusive against the propriety of admitting to practice any physician on a college diploma alone, without the added safeguard to the public of a re-examination by a competent board whose sole duty shall be to examine candidates for practice and confer license for the same, but not to teach. I think, however, that Dr. Mulheron deals unjustly with the Association of American Medical Colleges in not disclosing to the public the name of the college alluded to. This would enable medical students to know what schools to avoid and would enable the College Association to take appropriate action. We have medical schools enough to educate as many physicians as are needed to fill the requirements of society, that are honestly conducted and doing worthy work. These are trying to improve their methods and enlarge their means of imparting instruction. By so doing they are increasing the power for good of the profession and consequently elevating its rank. The good name of these should not be smirched, and their character and influence impaired by the acts of others whose conduct only merits professional condemnation.

EPHRAIM INGALS, M.D.

34 Throop St., Chicago.

A Candidate's Answer to the Minnesota Board of Examiners.

Question.—What conditions must be proved to have existed in order to prove the illegitimacy of a child born in wedlock?

Answer.—She must have been married nine months prior to birth of child. If born at the sixth or seventh month and live, and the likeness as to father or mother of said child. Another proof is that the husband is not capable of reproduction, or the mother is not capable of reproduction.

Waterborne Cholera.

New York, July 3, 1893.

To the Editor:—The interested perusal of Dr. Ernest Hart's admirable paper which covers so much ground, prompts me to add a few words from Japan.

The Hon. S. K. Takahashi, late Consul General of Japan for the United States in 1886 said: "When we have cholera in Tokio, and our people die by the thousands, I notice that none in the Chinese quarter have cholera and that the Chinese all drink boiled water, to which this immunity is attributed." This strong, terse, positive and direct testimony it seems to me goes to sustain the positions of the distinguished gentlemen who has favored us so kindly with his extensive and timely observation.

Respectfully yours,

EPHRAIM CUTTER.

As Others See Us.

The following correspondence which appears in the *British Medical Journal* for July 1, gives Mr. Hart's views on our Association.

MEDICAL NOTES FROM AMERICA.

BY ERNEST HART.

(From the *British Medical Journal*.)

The American Medical Association.—*The Annual Meeting at Milwaukee.*—*The Constitution of the American Medical Association.*—*Suggestions for its Amendment.*—*The City of Milwaukee.*—*Address on Epidemic Cholera.*—*The British Medical Journal.*—*The American Medical Editors' Association.*—*The British and the American Medical Association.*

The Milwaukee meeting of the American Medical Association was a very interesting, well-ordered, and lively

meeting; the attendance was over a thousand, and from every part of the States. New York, which is heretofore the question of consultations with homeopaths, still holds aloof, but the Association is strong enough in the support of the most active-minded professional men in the States to dispense easily with the adhesion of any particular section. In their strong upholding of the *Code of Medical Ethics*, as the test of membership, the Association has taken up a firm and unassailable position. Since it has acted on the advice which I tendered some ten or twelve years ago, when consulted by Drs. Sayre, Post, Pack, and others on the subject of the best means of promoting the growth of the Association, the membership has more than doubled, and it is now five thousand. The weak point which I laid my finger on was the evanescent character of the membership, which then depended upon annual delegation from the respective State Societies, which are the constituent bodies, corresponding in that respect, but differing in others, from our Branches. There are still, however, some other defects of organization, which I think could easily be remedied, but which hinder the growth of the American Medical Association. On some of these I have been in consultation with members of the executive, and have been asked to renew them in writing; they were meantime received with approval. The system of election of the governing body is capricious, and does not provide for stable and complete representation, but leaves room for much canvassing and wire-pulling, and by its elaborate incoherence raises opportunities for side issues and local contests quite irrelevant to the true objects of the Association. Some of the principles which at present govern the selection of matter for the *JOURNAL* and the conduct of its editorial department are incompatible with the high scientific, professional, and literary attractions which it ought and might easily be made to present. All this might be altered without additional expense for the moment, and the *JOURNAL* be made to serve the best interests of the Association and the profession, and to add largely to its resources, which could then be available for making its pages yet more attractive, so that it should—like the *British Medical Journal*—be the chief recruiting agent for the Association. This position, it is acknowledged on all hands, it does not at present occupy, faithfully and ably as it has been edited by Dr. Culbertson and his distinguished predecessors, among whom Dr. N. S. Davis, the founder of the Association, holds an honored place.

My suggestions bear chiefly on the transference of the power of election of the governing body from the "fortuitous concurrence of atoms"—as it has been described in our columns by a correspondent—called a "general meeting" to the county societies, who are the constituent bodies and who should therefore be the elective power. From these representatives, should be constituted the subcommittees for detailed work, who should act under and be governed by its authority. There are at present more than one separate controlling committee of "trustees," of "judicial action," of "nomination," etc., who act independently of each other, and are constituted hurriedly and by caucus influence at the general meeting—a system which might well injure any society, and which has more than once provoked deplorable and painfully mischievous schisms. It speaks highly for the inherent and unquenchable vitality of the principle of the Association—"broad based upon the people's will"—and of the vigorous love of the profession and the Association which actuates the most respected member, that the Association has ridden successfully through all such storms. It survives and develops, but with maimed vitality throughout the year, and without that powerful influence on public affairs and professional progress which it might derive from better constituted committees of government, and of public and parliamentary administration, and from a more attractive and effective voice and tongue in its *Journal*. In saying this I speak of new things, and with none but the most appreciative and respectful spirit. The meeting was large and much of the work was first-rate.

Milwaukee is a city of lawns, gardens, and lake, beautifully situated on a bay of Lake Michigan, and with abundant open spaces, well-preserved for civic ornament and health. Within the memory of the present generation it was the haunt of the Red Indian; it has now a quarter of a

million of inhabitants, with a *Hotel des Etats-Américains*, which was the headquarters of the Association, is one of the best in the world, with its buildings and business palaces, electric lighting throughout the town, and electric tramways. It is the headquarters of larger beer brewers, and the wealthy citizens aided the profession to make the meeting one of generous and unobtrusive hospitality.

In accordance with the invitation of the Association received in Europe, I delivered an address on the Prevention and Proximate Extinction of Epidemic Cholera in Europe—mainly by the purification of the water supply and strict procedure to secure the purity of drinking water. The address, which was based upon an analysis of all European epidemics of the last thirty years, was received, as will be seen from the published reports, with great favor. It was ordered to be printed and sent, with the endorsement of the Association as to the importance of its suggestions, to the Executives of all the States, and to the State Boards of Health. That is a compliment which I value even more highly than the kindly enthusiasm and applause which greeted its delivery. At the close of the meeting I was presented by the reception committee with a gold badge enameled with the initials of the American Medical Association and the year of meeting—a souvenir to which I shall attach a permanent value, and which will recall many pleasant incidents of the meeting, some of them too personally complimentary to relate.

It was particularly gratifying to find the *Journal* held in such high esteem and so extensively read. It was constantly, and indeed without exception, referred to as the chief medical journal of the world, and its usefulness to the practitioner as a helper in his scientific knowledge and daily work was referred to by one medical editor after another at the medical editors' banquet, and by scores of medical colleagues who introduced themselves, or were introduced to me, for the purpose of thanking the British Medical Association for its *Journal*. If our laws admitted of it, we could have some thousands more of members or associates among our English speaking brethren on the American continent, while limiting ourselves to members of State medical societies legally constituted and of good ethical standing.

The banquet of the Medical Editors' Association was a most lively and original affair. In so vast a continent, where capitals are often situated a thousand or two or three thousand miles distant, and with a population of more than sixty millions, it is natural that the astonishing literary activity of the nation should find a corresponding representation in the abundance of journals of all kinds. But I was hardly prepared to be the guest of 100 medical editorial colleagues—all of regular standing—with 300 more in reserve. I addressed them on Medical Journalism, in words of which I send a report—disfigured, however, by a great number of misprints and errors due to my "English brogue" and intonation worrying the reporters. I have only had time and patience to correct some of them, others I must leave to the indulgence of any readers of whatever text or part of the text may be published. It will be gathered from reports in the various medical papers what was the impression produced. It was applauded enthusiastically, and I was assured in all the complimentary speeches that followed, and by innumerable eulogists during the subsequent days, that it will not be without permanent usefulness. Of course I had nothing new to say, but even the scattered and desultory thoughts of however humble an orator gather some force from a lifetime of experience and from the disinterested desire of a stranger to be useful in the utterance of its lessons to himself.

Altogether, then, my visit to the Milwaukee meeting has, I hope, been useful as it has certainly been most pleasant, renewing and strengthening the bonds of mutual good will and esteem between the American and British Medical Associations, and promising to promote good understanding and fellowship with our English speaking brethren in the United States. To me personally it has been a week of hard but happy work, and of much social satisfaction. I am loaded with friendly and pressing invitations to other cities, among them Boston, Philadelphia, Detroit, Cincinnati, Danbury, St. Louis, Louisville, etc., and could easily spend here an active and happy six months in hospitable hands; but as I must be gone early in July to continue editorial and Parliamentary work—meaning in such excellent and able hands—I shall be unable to fulfill on this occasion more than a title of these proposed hospitable engagements, but shall hope to return later on.

ASSOCIATION NEWS.

The meeting of the AMERICAN MEDICAL ASSOCIATION here next year will be the second visit of the Society to this coast. The first meeting was in 1870, and was a sad failure. It found the medical fraternity of California cut up into small cliques—that curse of our profession. Then California was thoroughly provincial; the connection with the east by rail had just been established. The medical men were from all parts of the world. The California medical societies had as yet made very little progress in uniting them socially; every fellow was for himself, or at least every little clique was for itself. We hope and believe that the ASSOCIATION will receive a most hearty welcome at the hands of a united profession, not only of San Francisco, but of the whole coast. We must assume the virtue of unity, if we have it not. The ASSOCIATION is accustomed to be handsomely entertained by the profession and citizens, and if they do not receive a California welcome from our citizens the fault will be with the medical profession, as it was before. Let us, one and all, resolve to make the meeting of the AMERICAN MEDICAL ASSOCIATION here next year worthy of California and the grandest event in the history of that Society. The selection of Dr. R. H. Plummer for chairman of the committee of arrangements is a fortunate one. It requires just such experience, untiring energy and perseverance as our friend Dr. Plummer possesses, to make a grand success of such an occasion.—*Pacific Medical Journal*.

The London *Lancet* of July 1, contains an extended notice of the Milwaukee meeting and thus concludes:

We wish all success to the Association. It has difficulties to meet in the vast area of its territory and in the consequent varied conditions of life and practice. But it should be supported by the profession, and, as the Mayor of Milwaukee suggested, should be welcomed by all communities as representing a calling indispensable to civilization.

SOCIETY NEWS.

American Dental Association.—The thirty-third annual session of the American Dental Association will be held in Chicago, commencing Saturday, August 12, 1893, at 10 o'clock, A.M.

GEO. H. CUSHING, *Rec. Secretary*.

The Association of Military Surgeons of the National Guard of the United States will hold its annual meeting at Chicago, August 8, 9 and 10, 1893, under the presidency of Dr. N. Senn.

American Electro-Therapeutic Association.—The third annual meeting of the American Electro-Therapeutic Association will be held in Chicago, September 12, 13 and 14, at Appollo Hall, Central Music Hall block.

Members of the medical profession interested in electro-therapeutics are cordially invited to attend.

AUGUSTIN H. GOELET, M.D., *President*.

MARGARET A. CLEAVES, M.D., *Secretary*.

National Association of Dental Faculties.—The annual meeting will be held in the house of the Columbian Dental Club, Chicago, No. 300 Michigan Avenue, beginning on Thursday, August 10, at ten o'clock A.M., and continue probably through that and the succeeding day. It is important that all matters of business to come before that meeting be properly prepared beforehand, so that business can go promptly forward. It is to be hoped that all persons interested will give special attention to this request, and that every member be promptly present at the beginning of the

meeting, as only the two days will be available for the work. J. Taft, Frank Abbott, A. O. Hunt, Executive Committee.

The Mitchell District Medical Society held its twenty-third annual meeting at West Baden Springs, Indiana, July 12-14. President, Dr. Dudley S. Reynolds, Louisville; secretary, Dr. G. W. Burton, Mitchell, Ind.

Notice to Intending Contributors to the Proceedings of the Pan-American Medical Congress.—The regulation of the congress providing that abstracts of papers shall be in the hands of the secretary-general on or before July 10, was framed to give the Literary Bureau ample time in which to make the necessary translations, and publish the four editions of the book before the assembling of the congress. The request that abstracts be sent in even before the date indicated has been so generally complied with, and the work is so far advanced, that the Literary Bureau finds itself in position to accept abstracts during the remainder of July. To insure careful translation and publication, however, they should be sent in at the earliest possible date.

It is suggested that abstracts be made as full as possible within the 600-word limit.

CHAS. A. L. REED, *Sec'y General*.

311 Elm St., Cincinnati, July 10, 1893.

Congress of Education.—A world's Congress of Education will be held in Chicago, July 25-28, 1893, under charge of the National Educational Association, United States of America.

COMMITTEE.

In General Charge.—William T. Harris, Commissioner of Education, U. S.

DEPARTMENTS.

Higher Education.—Prof. Nicholas Murray Butler, Columbia College, New York city.

Secondary Education.—Principal Ray Greene Huling, New Bedford, Mass.

Elementary Education.—Inspector James L. Hughes, Toronto, Ontario.

Kindergarten Instruction.—Mrs. W. N. Hailman, LaPorte, Ind.

School Supervision.—Supt. W. H. Maxwell, Brooklyn, N. Y.

Professional Training of Teachers.—Principal E. O. Lyte, Millsburg, Pa.

Instruction in Art.—Pres. James McAllister, Drexel Institute, Philadelphia.

Instruction in Vocal Music.—Director N. Coe Stewart, Cleveland, O.

Technological Instruction.—Prof. Henry Morton, Stevens Institute, Hoboken, N. J.

Industrial and Manual Instruction.—Dr. Andrew J. Rickoff, New York city.

Business Education.—Pres. R. C. Spencer, Milwaukee, Wis.

Physical Education.—Prof. D. A. Sargent, Harvard University, Cambridge, Mass.

Rational Psychology in Education.—Pres. J. G. Schurman, Cornell University, Ithaca, N. Y.

Experimental Psychology in Education.—Prof. George T. Ladd, Yale University, New Haven, Conn.

Educational Publications.—Mr. C. W. Bardeen, Syracuse, N. Y.

All the meetings to be held in the Memorial Art Palace, Michigan Avenue, foot of Adams street, Chicago.

Among the interesting papers on the program we notice the following:

Address by General Francis A. Walker, President of the Department.

Thesis: "How far do the technological schools, as they are at present organized, accomplish the training of men for the scientific professions, and how far and for what reasons do they fail to accomplish their primary purpose?" Discussion.

Thesis: "Should an antecedent liberal education be required of students in Law, Medicine and Theology?"

Thesis: "The early history and organization of the Sheffield Scientific School at New Haven." Discussion.

Thesis: "The educational value of laboratory work in exact measurement." Discussion.

Thesis: "The educational value of the laboratory system of electricity." Discussion.

FOREIGN DELEGATES TO THE CONGRESS.

Delegates from the following named countries, have accepted the invitation and expressed their intention of being present at the congress:

England and Wales, Scotland, Ireland, Ontario, Quebec, Nova Scotia, New Brunswick, British Columbia, Manitoba, Jamaica, New South Wales, Victoria, New Zealand, Sandwich Islands, France, Prussia, Saxony, Wurtemberg, Saxe-Weimer-Eisenach, Duchy of Hesse, Mecklenburg-Schwerin, Austria-Hungary, Switzerland, Belgium, Netherlands, Spain, Portugal, Mexico, Guatemala, Brazil, Argentine Republic, Uruguay, Ecuador, Cuba, Italy, Sweden, Norway, Russia, China, Japan, India, and Algiers.

SELECTIONS.

Medico-Legal Institute.—The *Journ. de Médecine* says that the Municipal Council of Paris have voted to establish a Medico-Legal Institute near the Morgue, with which it will communicate by means of a tunnel, and by a small tramway cadavers will be carried to and from the morgue. The institution comprises a laboratory for toxicological examinations, room for students, a library, a museum and an amphitheatre, (that at the morgue at present will only accommodate a few students; a special room will also be provided for families of deceased persons, and a room for magistrates during "confrontations.")

Diuretin in Diseases of the Heart and Kidney.—*Pawinski* has published a memoir on salicylate of sodium and theobromin (*diuretin*). It is incontestable that this substance is endowed with diuretic properties. The maximum diuresis was attained four or five days after beginning treatment.

Diuretin often provokes more or less excitement of the nervous system and the brain; the author has observed following its use buzzing in the ears, drowsiness, or insomnia. He remarks that these secondary effects are less pronounced shortly after the administration of caffeine.

As a general rule, diuretin is more efficacious in affections of the heart muscle, than in valvular disease, or of the orifices; and in nephritis. In the latter case favorable results are still more probable when the oedema is dependent upon defective cardiac energy. Interstitial nephritis is benefited by diuretin, but it is powerless in cases of ascites following hepatic cirrhosis, or epiploic carcinoma, or in pleuritic exudates.

Pawinski prescribed diuretin in doses of three to five grams a day. When diuretin has been given in any case for six days without increase of diuresis he advises that recourse be had to digitalis or caffeine. He prefers to give diuretin in solution; when given in powder one part of theobromin is precipitated on account of its combination with the carbonic acid of the air and becoming insoluble. In the choice between caffeine or diuretin, one is guided by the rule that caffeine is indicated in cases of adynamia, while diuretin is indicated in cases of erethism (irritability).—*Journ. de Médecine*, Paris, June 24.

Distinct Species of Tricophyton in Human Ringworm.—An interesting communication on this subject has been made by M. Sabouraud. He has found that so far, with scarcely any exceptions, the parasite of ringworm may be one or other of two kinds. In about 65 per cent. the hairs from the head of an affected child, when examined after immersion in liq. potasse of a strength of 40 per cent., will, so far as diseased, be found to be filled with very fine spores hardly 3 μ in diameter. These are quite in juxtaposition,

arranged irregularly and are not so numerous as in the other. They even transgress the outer limit of the hair, and are washed off with a sort of water stream. The other form governs itself precisely, spores of characters as given, and abounds in more than 90 per cent. of the diseased hair; its surface shows a little more that of the spore, and the dermal is thicker and differently treated. The affected hair is thin, as a rule, and is often gnawed; its fracture is irregular. He has named this parasite *Tricophyton microsporum*. In a second variety, which forms about 35 per cent. of the cases, there are large spores lying in a visible mycelium, arranged in distinct lines in the mycelin branches. These branches are all included in the hairs, and do not form an enveloping sheath to them. The chief patch is rather larger than small, irregular, and there are at its circumference tufts of healthy hairs encroaching on the diseased. The patch itself is very bald, since the hairs break off very short. They are rather swollen than atrophied, often to more than a black point at the follicular orifice. Formulated shortly, if the hairs are thick and their fracture a short one, the spores are large, from 7-8 μ in diameter; if the hairs are fine and their fracture long, the spores are small, and have a diameter of 3 μ . The variety with large spores he has named *Tricophyton macrosporum*. There is a close relationship between the obstinacy of the ringworm and the *T. microsporum*; in twenty cases the macrosporon was only found once, but it alone has been met with in tinea barbe and in ringworm of non-hairy parts. According to Sabouraud's observations, if the macrosporon be found in the hairs of an affected child, the case may be pronounced curable in three to four months, not so if the microsporon be encountered; such cases are the intractable ones. Some exceptional cases were seen with parasites not completely conforming to the characters described; such were apparently instances of infection from animals.—*Annales de Dermatologie et de Syphilis*, vol. 1.

BOOK REVIEWS.

Cholera: Its Causes, Symptoms, Pathology and Treatment. By ROBERT BARTHOWL, M.D., LL.D., emeritus professor of materia medica, general therapeutics and hygiene in the Jefferson Medical College of Philadelphia. In one 12mo. volume of 127 pages, with nine engravings. Cloth, \$1.25 Philadelphia: Lea Brothers & Co., 1893.

Dr. Barthowol has signalized his restoration to health by the production of a little book on cholera, at once authoritative, and complete in its detail. The time has gone by when a book is judged by its bulk. What is wanted is a clear and simple statement of the existing facts as they are known. The study of bacteriology, and the immortal discovery of Koch, have relegated the older books to the top shelves in the library, where they are scarcely looked into except by some bibliophile or curious searcher after the obsolete. No single topic in general medicine exceeds cholera in the number of titles of books and articles devoted to its discussion, and Dr. Barthowol has shown how all that is absolutely necessary for the practitioner to know about it may be compressed into a few pages. Nearly one-half the book is given to the treatment.

Electricity in Diseases of Women, and Obstetrics. By FRANKLIN A. MARTIN, M.D. Chicago: The W. T. Keener Co., 1893. Second edition. Price, 82 Cents. Cloth, pp. 278.

A little more than a year has elapsed since the first edition of this book made its appearance, a fact which must be gratifying to the author. Dr. Martin is scarcely as enthusiastic

astic as formerly in regard to cures of myo-fibromata by the Apostoli method as modified by himself. At the International Medical Congress of Washington he asserted that the method was free from danger; painless; that it invariably checked hemorrhage; rapidly reduced the size of the tumors; stopped neuralgic pains, and by exact dosage of the electricity constituted a system of treatment. He now says: "We have discovered by developing it that it will not cure all cases of fibroid tumors of the uterus; that there is still room for the scalpel. About 75 per cent. of all fibroid tumors of the uterus, however, because of electricity, should never be touched with the knife." Dr. Martin emphasizes his previously expressed views that tumors of a cystic nature are not suitable cases for electrical treatment. Four new chapters have been added to the first edition, which give it a wider scope than the title of the book would seem to indicate. The work gives the improved technique of electro-therapeutics very thoroughly, and is an improvement on its predecessor. There are some typographical errors, however, such as "endocervicetus," on page 189, but the book is printed on excellent paper, and the illustrations are fairly good.

MISCELLANY.

The Illinois Board of Health.—The Illinois State Board of Health at its meeting held in Chicago, July 5, elected Dr. Wm. E. Guine, of Chicago, as President, and Dr. Scott of Evanston as Secretary.

A Gas Gun.—The Giffard gun, which projects balls by gas instead of powder, was tested at Nottingham recently. The propelling agent is liquefied carbonic acid gas. The firing of the gun produces no smoke and makes little noise. Bullets fired through one inch board were flattened on the iron backing of the target.—*N. Y. Sun.*

Change of Address.—Frank Parsons Norbury, M.D., removed to Hoffman Building, Jacksonville, Ill.

The Board of Health of Philadelphia has requested the physicians of that city not to place on any certificate "*Heart Failure*" as the cause of death, but the disease of which the patient was suffering prior to the heart failure. This term has never been placed on the list of diseases adopted by the board, it being looked upon as a result of some other illness of which the patient was suffering. Furthermore, it furnishes an opportunity to conceal contagious diseases, and thus permits the ignoring of the rules of this board by the family and undertaker, either innocently or designedly. Hereafter a burial permit will not be issued on the certificate of death of "*Heart Failure*," when unaccompanied with the disease from which the heart failure occurred.—*College and Clinic Record*, June, 1893.

Disinfection by Electricity.—The trial of a new electrical disinfection apparatus was made by the New York city authorities at Brewster's, New York, July 6. The dispatches of the trial, possibly somewhat colored by the sender, state "at the close of the experiments Commissioner of Public Works Daly said:

I regard the electrical disinfectant of Prof. Woolf as one of the most beneficial discoveries of the age. I am entirely satisfied with the result of the experiments.

Health Commissioner Dr. Edson said:

I have no doubt whatever that this is the cheapest and most effective means of disinfecting that has been devised. We have in this disinfectant, in my opinion, an agent combining powerful disinfecting and deodorizing properties which can be produced at a low cost and can be made in any quantity. It is a disinfectant that, in consequence of its cheapness and non-poisonous quality, can be used so freely and unreservedly as to make its discovery one of the

most important, from a sanitary standpoint, that has ever been made.

With apparatus costing \$5,000, which is run at a cost of \$1 a day, Prof. Woolf stated that 4,000 gallons of the disinfectant were produced every twenty-four hours. The disinfecting fluid is conveyed by a pipe into the sewer, and it is claimed that it will kill the germs of all contagious diseases, including those of cholera, diphtheria, scarlet fever, measles, typhoid and typhus fever. The party subsequently witnessed experiments in disinfecting putrid meat and other matter. In less than one minute a piece of putrid meat subjected to immersion in the disinfecting fluid was restored to a healthy color and the offensive odor was entirely destroyed.

This dispatch manifestly exaggerates the facts, but there is enough to warrant further inquiry.

A Busy Doctor.—Dr. Liddell's morning levees were crowded beyond description. It was his pride and boast that he could feel his patient's pulse, look at his tongue, sound him with stethoscope, write his prescription and pocket his fee in a space of time varying from two to five minutes.

One day an army man was shown into the consulting room and underwent what might be termed the instantaneous process. When it was completed the patient shook hands with the doctor and said:

"I am especially glad to meet you, as I have often heard my father, Col. Forester, speak of his old friend Dr. Liddell."

"What," exclaimed the doctor, "are you Dick Forester's son?"

"I am, sir."

"My dear fellow!" exclaimed the doctor, "fling that prescription into the fire, will you, please, and sit down and tell me what is the matter with you?"—*Waverly Magazine*.

The Typhoid Epidemic at Ironwood, Michigan.—We published last week a very interesting report from Dr. Henry B. Baker, Secretary of the State Board of Health of Michigan, on the epidemic prevailing at Ironwood. The following associated press dispatches show the tension prevailing:

IRONWOOD, Mich., July 8.—[Special.]—The board of health at Ironwood will officially advise all who can do so to leave the city for the summer. New cases of typhoid fever are still appearing daily. The water is being hauled to the afflicted city, even from Milwaukee. One hundred families are already dependent on charity, and as the city funds are exhausted and the county poor fund is empty, private charity is alone keeping many from starvation.

IRONWOOD, Mich., July 8.—Supt. S. A. Strouthier of the Ironwood Water-Works company is under arrest at Hurley, Wis., just across the State line. Itequisition papers have been issued. He will be taken to Bessemer for safety, as threats are openly made here to lynch him. He is considered responsible for the present fearful epidemic of typhoid fever. The mines are closed down here because of the violent epidemic raging, and there is no money for the relief of hungry hundreds.

Yellow Fever in Brazil and Colombia.—The brig *Odorilla* arrived at Philadelphia, July 10, from Santos. Capt. Holland alone of the original crew of eight survived the yellow fever. Thousands there died of the disease. Forty-five vessels are in the Santos river without crews. The local banks are closed, all the employes having died. The members of the firm, consignees of the *Odorilla*, have nearly all died. Charles Wadsworth, the American Vice-Consul, also died. Capt. Holland believes the port will soon be depopulated. The patients die more rapidly than their bodies can be disposed of.

NEW YORK, July 9.—A German named Woll, who has just returned from the United States of Colombia, tells a harrowing tale of suffering and wrong. He said that last March he and about 250 Germans, Swedes, Irishmen and Poles were engaged to work on the Magdalena and Cartagena railroad in Colombia. Their passage was to be paid by the railroad company, and if they worked six months the company would pay also their passage back. When they got to the place where the railroad was being built they found the land swampy, and many of them were soon ill with yellow fever and other diseases. The company gave them no medical aid, and they had to take care of one

another. When they asked to be sent back to this country they were told that they had not kept their compact to work six months. Well says that over 100 of the men died within a short time and that of the entire number only sixty-five lived to return north.

Holmes' Country Life. Pittsfield, His Country Estate, was the **Bequest of Ancestors.**—I was curious to know about Dr. Holmes' experience of country life, he knows all nature's processes so well, writes Edward Everett Hale in *McClure's Magazine*. So he told me how it happened that he went to Pittsfield. It seems that a century and a half ago, an ancestor, Jacob Wendell, had a royal grant for the whole township there, with some small exceptions, perhaps. The place was at first called Pontoosoc, then Wendelltown, and only afterward got the name of Pittsfield from William Pitt. One part of the Wendell property descended to Dr. Holmes' mother. When he had once seen it he was struck with its beauty and fitness for a country home, and asked her that he might have it for his own. It was there that he built a house in which he lived for eight or nine years. He said that the Housatonic winds backwards and forwards through it, so that to go from one end of the estate to the other in a straight line required the crossing it seven times. Here his children grew up, and he and they were enlivened anew every year by long summer days there.

He was most interesting and animated as he spoke of the vigor of life and work and poetical composition which come from being in the open air and living in the country. He wrote, at the request of the neighborhood, his poem of "The Ploughman," to be read at a cattle-show in Pittsfield. "And when I came to read it afterwards I said, 'Here it is!' Here is open air life, here is what breathing the mountain air and living in the midst of nature does for a man!" And I want to read you now a piece of that poem, because it contained a prophecy." And while he was looking for the verses, he said, in the vein of the Autocrat, "Nobody knows but a man's self how many good things he has done."

Medical Society of New Jersey. Circular on Asiatic Cholera.—The Medical Society of New Jersey at its 127th annual meeting, June 27, 1893, ordered to be printed the following outline of essential points to be observed and emphasized by the physicians in times of threatened invasions of cholera, as presented by Dr. D. C. English, chairman, in the report of the Standing Committee:

TO PREVENT THE INTRODUCTION OF CHOLERA INTO A COMMUNITY.

1. Inquire into the sanitary administration in your community and give your most energetic efforts to secure its improvement.

2. Obtain the services of men of sterling character and superior executive ability as members of your Board of Health.

3. Require frequent inspections and scrupulous cleanliness of all places, public and private, particularly every street and alley; every sewer, drain, cesspool, vault and pit; every dwelling, store and office, including the plumbing; every yard, out-house and stable.

4. Cause all surface wells to be examined and close up those that are found to be polluted.

5. Establish or perfect a system for the daily removal and safe disposal, by fire if possible, of all garbage, sweepings, rags and other domestic refuse.

6. Be prepared to skillfully and effectually disinfect, at public expense, all infected persons, clothing, baggage, vehicles and premises. Cause a supply of standard disinfectants to be kept ready for use by the health authorities.

7. Exclude from the markets all unwholesome food.

8. Provide and keep in readiness a suitable hospital for communicable diseases, and make engagements with physicians and attendants in anticipation of the need of their services.

9. Instruct the people in regard to the nature of the disease; its mode of communicability; the value of thorough sanitation; how to live; what to eat; the importance of using recently cooked foods; the necessity of boiling drinking water; the uselessness of deodorizers and the benefit to be derived from a liberal use of soap and water, and from pure air and sunshine.

10. Prevent the entrance of infected persons and effects into your community. Isolate every "suspect." Keep ready

for reference to the *Sanitary Code* of the New Jersey State Board of Health.

To arrest its spread after its first appearance in the community:

1. Provide competent employees to carry out rules and directions of physicians and board of health.

2. Promptly and completely isolate all cases of the disease, and also all "suspects."

3. Watch all apparently innocent diarrhea, etc.

4. Thoroughly disinfect all choleraic discharges from patients before emptying into place of deposit. Completely disinfect all vessels, clothing, bedding and everything used by the infected person or in the sick room or nurse. Burn all garments and articles which are soiled by contact with the discharges.

5. In case of death of patient wrap the body in a sheet or blanket which is saturated with a solution of bichloride of mercury, 1 to 500, and pack the coffin full of quicklime. Bury the body privately, with no attendants except those necessary to insure proper burial at least five feet below the ground surface.

6. Give information to the public as to the existence and progress of the disease. Discourage popular fear. Provide free medical service for the poor and have it promptly rendered. Urge upon the people the greatest care in the selection of digestible food and its proper preparation by cooking; present the danger from the use of unboiled water; the advantage of avoiding all excesses. Especially urge upon the people the observance of the strictest cleanliness of person and surroundings.

An excellent paper on "Quarantine of Cholera" was also presented by William Elmer, M.D., of Trenton, N.J.

The Plague at the Holy City. Mecca a most Serious Menace to the Health of the World.—New York *Times*.—The epidemic of cholera at Mecca is making steady progress. A fortnight ago the deaths daily were counted by dozens. A week ago they numbered hundreds. Now they have reached the thousand mark. How much further the roll is to be swelled depends chiefly upon the number of pilgrims who remain in the stricken city. The local authorities can do nothing to stay the pestilence. It must rage until the population is decimated, and then subside like a fire that burns itself out. That has been the record of former epidemics, and there is no ground for hoping any other result in the present case. The root of the evil lies not so much in natural conditions as in ignorance and fanaticism.

Although Mecca lies in a valley with poor facilities for drainage and in a torrid climate it might, under proper administration, be made fairly salubrious. The soil is light and dry, the streets are of good width, and the water supply, brought from afar through a fine aqueduct, is pure and abundant. There is, however, not a sewer nor even a well-constructed surface drain in the city, nor are any of the houses properly equipped with plumbing or other sanitary device. Sewage and offal are simply discharged into open pits in the middle of the streets there to reek, ferment and poison the soil and air. At ordinary times, with the normal population of about 50,000, the place is foul. But when in Zul Hija, the pilgrimage month, 50,000 to 80,000 visitors are in the city, from all parts of the Moslem world, the majority of them living in the streets, it becomes indescribably vile.

Even these conditions, bad as they are, would scarcely make the place the plague spot that it is were it not for the religious fanaticism of the pilgrims. Not only does every Mohammedan seek once to visit Mecca, but when there he drinks from the holy well of Zem Zem or Haggar's well. This is the only well remaining in use in the city, all others having been abandoned at the opening of the aqueduct. Its water is believed by the faithful to possess miraculous qualities, and perhaps it does. But the miracle is one of vice, and not of virtue. A careful analysis of the water, made last year, shows it to be so contaminated by drainage from the cesspools in the streets as to be a rank poison. Compared with the water supply of London is a model of purity. Thus while the water of London contains eighteen grains of solid matter in the gallon, that of Haggar's well has more than 225 grains; and while the former has no

nitrites and only a trace of nitrates, the latter has four and a half grains of the two combined. Other impurities, more or less noxious, abound in the water at all times, and it is evident that when, as at present, thousands of pilgrims are thronging about the well, with many sick and dying of cholera among them, it becomes as active and deadly a disseminator of disease as ingenuity could devise.

Now Mecca is the holy city of Islam, and none but followers of the Prophet are permitted even to visit it. No European power can exercise the least authority over it, save through violent invasion of the rights of a sovereign State. But it seems to be at least an open question whether such invasion would not be justifiable, in the name of the common welfare of humanity. These pilgrims do not belong alone to Mohammedan countries. Many are from the dominions of Great Britain, of France and of Italy, and not a few return home bearing thither the deadly infection acquired at Mecca. The sanitary state of the holy city thus becomes a matter of international concern, and common sense seems to dictate that some vigorous steps should be taken in relation thereto. If the powers of Europe can not compel the Sultan to make the city sanitary, surely they can lay a rigorous embargo on pilgrimages thither from their own territory. In the absence of such an embargo of the strictest character Mecca, through its intercourse with the countries bordering the Mediterranean, is a most serious menace to the health of the world.

International Sanitary Conference.—The *Journal de Médecine*, Paris, June 25, says that the International Sanitary Conference on the measures to be taken against cholera, will be held late in the autumn in Paris, to examine questions relative to the oriental countries.

Honors to Vienna Physicians.—Doctor Kaposi has been named as an officer of the Legion of Honor.

Doctor Kiehl has been named as Chevalier of the Legion of Honor.

Cholera Makes Awful Ravages.—London July 3. Seventy-six persons are reported to have died of cholera in Jeddah Saturday and 440 in Mecca. The total mortality among Mecca pilgrims since June 1 exceeds 5,000.

Bellicose Quater Latin.—The Parisian students to the number of 2,000, marched in procession before the house of Senator Berenger, and derided him. The police attempted to drive them away, some policemen, and one student named Neger, was killed. The students became enraged, dispersed the police, broke the windows in the Palais de Justice and smashed street lamps. The cavalry was called (mounted *ten d'Armes*) and the students again were successful, repulsing them and beating them with their own swords. The regular troops were called before whom the students quickly dispersed.

Can not Evade Quarantine.—Cairo, July 6. Troops are leaving here to form a cordon on the banks of the Suez canal for the purpose of intercepting pilgrims who may try to evade the quarantine.

A Precious Drug.—A drug is used in New China which in actual value far surpasses anything which has been known in other lands. The substance in question is ginseng, the root of *Aralia quinquefolia*. It is so highly valued as a tonic and stimulant medicine in China that it is sold at from 20 to 250 times its weight in solid silver; sometimes for 500 times that amount. It possesses no important medicinal properties. Next to China the drug is produced in good quality in Corea, and is the principal article of export from Corea to China. So much is this the case that the Coreans are loath to part with any seeds of the plant, lest their practical monopoly in this root should be invaded.

Instance of Longevity.—James McMullen, the oldest man in Kentucky, died near Bardwell, July 9, at the age of 117. He was born in Virginia in 1776.

Anecdote of Sir James Paget.—The recent Derby day in England brought out the usual annual crop of Derby day anecdotes. The *Westminster Gazette* tells the following about Sir James Paget, and the famous horse jockey, Archer:

"Archer on one occasion was savaged on Newmarket Heath by Muley Edris, a horse belonging to Lord Falmouth and Mr. Bromhead. Archer being quite severely wounded consulted Sir James, and the eminent surgeon, having bound up the wound, the jockey asked how long it would take to heal. 'Oh,' said Sir James, 'I think in three or four weeks you will be all right.' 'But shall I be fit for the Derby?' asked Archer. 'Ye-es,' was the reply. 'Oh, yes! I think you may go to the Derby.' 'No, but you don't quite understand me, persisted the jockey; 'I mean, shall I be fit to ride?' 'Well, I don't know,' was the answer. 'Better drive, better drive.' Archer, rather taken back by this very innocent and unexpected rejoinder, had to explain, 'I am afraid, Sir James, you scarcely realize who I am?' 'No,' said the surgeon politely, referring to the patient's visiting card, 'I see I have the honor of receiving Mr. Archer, but—' 'Well,' said Archer, 'I suppose I may say that what you are in your profession, Sir James, I am in mine.' Then he proceeded to tell him what that profession was. The surgeon, on learning the status of his visitor was at once interested, and asked him many questions; among others, what would be his loss supposing he would be unable to fulfill the Derby engagement, to which Archer replied, 'About £1,000, perhaps more.' His average annual income he stated to be about £8,000 or £10,000, upon which Sir James is said to have remarked, 'You may well say that what I am in my profession you are in your line; but I only wish that my profession was half as profitable as yours.'

OFFICIAL LIST OF CHANGES in the Medical Corps of the U. S. Navy, for the Two Weeks ending July 8, 1893.

James S. Leys, commissioned an Asst. Surgeon in the Navy, Medical Director G. S. Beardsley, detached from Navy Yard, Washington, D. C.

Medical Inspector C. H. White, detached from Smithsonian Institution.

Surgeon John C. Wise, ordered to Navy Yard, Washington, D. C.

Surgeon C. U. Gravatt, ordered to the Smithsonian Institution.

Asst. Surgeon C. D. W. Brownell, detached from U. S. S. "Newark," and granted sick leave.

Asst. Surgeon S. G. Evans, ordered to the receiving ship "St. Louis."

P. A. Surgeon C. W. Rush, ordered before Retiring Board.

Letters Have Been Received From:

A. Ames, L. L. Onaya, Kan.; (B) Brigham, E. H. Boston; Bartlett, C. K. Minneapolis, Minn.; Bates & Morse Advertising Agency, New York, N. Y.; (C) Comegys, 2, C. G. M. D., Cincinnati, Ohio; Cleaves, Margaret J., Cincinnati, Ohio; Culbertson, J. C., Cincinnati, Ohio; Casselberry, W. E., Chicago, Ill.; Crothers, T. D., Hartford, Conn.; (D) Dewees, Wm. B., Salina, Kan.; Dabney, W. C., University of Virginia; Du Bois, W. C., 357 Warren St., Syracuse, N. Y.; (F) Fitz, R. H., Boston; (G) Hinde, Alfred, M. D., Chicago, Ill.; Heckard, Dr. M. O., 1268 W. Madison, Chicago; Herbert, Judd, Galesburg, Ill.; Hummel & Parmele, Philadelphia, Pa.; Heath, F. C., Indianapolis, Ind.; Hare, H. A., Philadelphia; (I) Ingals, Ephraim, M. D., Chicago, Ill.; (K) Kellogg, J. H. Dr., Battle Creek, Mich.; Kathan, D. L. Dr., Schenectady, N. Y.; (L) Lydson, G. Frank, Chicago; (M) Malsbury, G. E., Cincinnati, O.; McChesney, Jas. M. D., Troy, N. Y.; Montgomery, Liston H., Chicago; Milbourne Adv. Bureau, Baltimore, Md.; Murrell, T. E., Little Rock, Ark.; Magruder, G. L. Dr., Washington, D. C.; Mettler, L. H. Dr., 4228 Greenwood Ave., Chicago; Mellier Drug Co., St. Louis, Mo.; (N) Newcomb, 2 Dr. J. E., New York, N. Y.; Norbury, Frank P., Jacksonville, Ill.; Niles, S. R., Ad. Agency, Boston, Mass.; (P) Pritchard, Donald B., Winona, Minn.; Paquin, P., Lebanon, Mo.; Parke, Davis & Co., Detroit, Mich.; Parsons, Dr. Rosby's Rock, Ind.; (R) Reed, R. Harvey, M. D., Mansfield, Ohio; Rubin, B. M. D., Chester, Ind.; Rush, John D., M. D., Apalachicola, Fla.; Robinson, Pettet & Co., Louisville, Ky.; Rowell, Geo. P. & Co., N. Y.; Ruggles, Gale & Co., Columbus, Ohio; (S) Sajous, Chas. E., Paris, France; Stockton, Chas. E., Buffalo, N. Y.; Small, Edward H., Pittsburgh, Pa.; (T) Todd, F., Walton; Tracy, Edward A., Boston; (W) Woodruff & Co., New York, N. Y.; Woman's Medical College, Baltimore, Md.

The Journal of the American Medical Association

VOL. XXI.

CHICAGO, JULY 22, 1893.

No. 4.

ADDRESSES.

THE ANTIQUITY OF SYPHILIS, AND MOSES AS A HEALTH OFFICER.

CHAIRMAN'S ADDRESS.

Read before the Section on Surgery and Anatomy at the Forty-fourth Annual Meeting of the American Medical Association.

BY J. T. JELKS, M.D.
HOT SPRINGS, ARKANSAS.

While duly grateful for the high honor which the Section on Surgery and Anatomy has generously conferred upon me by this appointment to preside over its annual proceedings, I am also deeply sensible of the growing difficulty, with each succeeding year, of producing for so vigilant and experienced an audience as is here assembled, a theme for an official address that shall not be trite, or to make a contribution of professional knowledge that you do not already possess from more enlightened and impressive sources.

It would be a pleasing exercise to you and me, but I should thereby impart to you nothing new, were I to congratulate you upon the wonderful advances made in medical science during the expiring half of the nineteenth century, of which anaesthesia, and more recently, antiseptis and the germ theory of the causation, cure and prevention of disease, occupy the front rank. To the discoverer of litholapaxy, an American, the surgery of stone probably owes more than to any other means in this or any other age. Either one of these revelations of science would alone suffice to make a great epoch in the progress of the healing art. The genius of Pasteur, who by his now historical experiments, settled many of the long disputes regarding the phenomena of fermentation, and whose English coadjutor, Joseph Lister, devised practical methods whereby the disease-causing and death-dealing microbes might by careful disinfection be effectually excluded from wounds, have rendered feasible and almost innocuous many dangerous and complicated operations, notably those involving the viscera of the abdominal cavity, as well as the brain and spinal cord, which within the memory of surgeons still living were reprehended as utterly unjustifiable and inadmissible. But this appears to be only the beginning of the immense work wrought by bacteriology. Pasteur has made this prediction strikingly evident through his successful preventive and curative inoculations with the attenuated virus of the *charbon* disease, and of hydrophobia, whereby were set on foot in all parts of the civilized world most significant and suggestive experiments with the

attenuated virus of other diseases. The microbes of a whole series of infectious and contagious maladies, such as tuberculosis, typhoid fever, diphtheria, and syphilis, have been identified and isolated, although the cure of most or all of the diseases last cited, has not thus far been greatly or at all advanced, through the medium of these alleged discoveries. The immense advantages which we are confidently encouraged to expect from the modern assistance rendered by chemistry and the microscope to the sciences of hygiene and therapeutics are not, in all probability, a wholly Utopian dream of those enthusiasts who predict that dawn of the day, when all virulent, contagious and infectious diseases shall be effaced as opprobria of our art.

A class of medical writers now somewhat in vogue, affect to belittle the conquests won by our profession in the past, and, captivated by the glamour with which the exceptional discoveries of the present age have invested our probably more glorious future, make scant and ungrateful recognition of the conscientious and praiseworthy work done by the pioneers of our art in the early times. Such writers taunt our predecessors with being too little receptive of new ideas, too rigid in their resistance to innovation and reform, and too slow in their relinquishment of what have since been shown to be erroneous beliefs. They go so far as to assert that medicine has been moving on a wrong track, and that the methods of treatment pursued up to the opening millennium of these writers, instead of being helpful, have been a positive hindrance to cure. They formulated their views in the monstrous dictum that the sum total of all attempted therapeutic assistance in the past has been injurious, and that the medical practice of our fathers did more harm than good.

With such radical opinions it is needless to state that I do not sympathize. But let me not be misunderstood. While I would not hesitate to practice bleeding in any manifestly appropriate exigency, I would not of course retrograde an inch backward toward the extinct Sangrado practice of indiscriminate blood letting; and I would, were it possible, gladly expunge from medical history the accounts of that period when water was withheld from all patients suffering from a fever, and when calomel and purging, leeching, cupping and bleeding are reputed to have been the means selected for the cure of three-fourths of the ailments of humanity. There may have been too much dogmatism and perverseness of opinion displayed by our professional forefathers, but that there was also an absence of much genuine science, was certainly no fault of theirs. The danger that we run in the wholesale upbraiding of the therapeutic shortcomings of our ancestors, is that we shall not only sacrifice that filial gratitude and

respect which we owe to our priceless professional heritage, with all its manifold imperfections, but that we shall also hastily reject with the worthless some of those really invaluable drugs of the materia medica which, although temporarily displaced by their more modern rivals, will probably continue to vindicate their substantial therapeutic worth through the vacillations of all time. To illustrate my last assertion, I need but instance one single agent, that of mercury in the treatment of syphilitic disease. It has descended to the present generation through the mists of antiquity, it has been handicapped with the absurdest pretensions, and abuses of its virtues by the most arrant quacks, it has been occasionally reprobated, when in the unskillful hands of even orthodox physicians, as productive of more harm than good; but despite all its perturbations of history, and making all the deductions for the odium into which it has at times deservedly fallen by reason of its senseless and indiscriminate employment, it still remains, and for aught we know will continue to remain, an absolutely indispensable weapon for our successful warfare against syphilis down to the last recorded syllable in the annals of venereal diseases.

In the medical literature of the past there is likewise not a little that survives to excite our respect and admiration, and while that little may for the most part be unreliable now for our unrestricted guidance, it at least helps us, as the still visible but fast receding landmarks serve the mariner, to take our correct bearings, and to navigate with increased safety amid the rocks and reefs and along the siren shores of our modern age of constant revolution and change.

Even from the fragmentary remains of writings on medical topics that have descended to us from the remotest antiquity, there sometimes dart through the clouds of ignorance, error and superstition which envelop that period, a ray of light that arrests the attention and excites the surprise of the modern beholder. Of this phenomenon no more striking and pertinent example can perhaps be adduced than the sanitary measures instituted by Moses for the government of the early Hebrews.

If I were to offer an excuse for claiming your attention for awhile to-day to the great Hebrew seer in his capacity of sanitary law-giver and health officer, it is, first, that this subject has always been one of much ideal interest to me; second, that a book entitled "Syphilis in Ancient and Prehistoric Times," written by Dr. F. Buret of Paris, and translated by Dr. Ohmann-Dumesnil of St. Louis, has recently appeared, which casts additional and curious light upon the existence and recognition of this disease among the Hebrews, and upon the hygienic measures prescribed by their leader for its suppression and exclusion; and third, because Dr. Buret has supplemented to a remarkable extent our previous scanty knowledge of the extreme antiquity of this scourge.

While it appears probable that syphilis was not generally recognized as a morbid entity by the medical profession until the end of the fifteenth century, at and after the siege of Naples by Charles VIII, when it behaved with unwonted virulence, attacking all classes of society and killing a large number of its victims, yet its primeval origin, which will perhaps remain forever shrouded in impenetrable dark-

ness, was certainly not in America, and is now traced with much clearness and logic by Dr. Buret to a period anterior to the year 1921 B. C., when, according to the biblical narrative, a Hebrew of the name of Abram, who dwelt between Bethel and Ai, was constrained to leave his country by the famine, and went down into Egypt with his beautiful wife and ostensible sister, Sarai. Dr. Buret has introduced considerable evidence in support of this view, and by his positive language has given token of the strong conviction that is behind his words.

Syria and Chaldea, the latter having for its capital Babylon, were noted in ancient times as the center of all debaucheries. On the Assyria-Babylonian cuneiform inscription tablets in the British Museum, derived from the royal library of Sardanapalus, it is related that Istar, the goddess of sinful love, proposed to Nimrod to become his wife, a proposition which the latter very ungallantly refused. Istar demanded satisfaction for this insult from her father Anu. As a result the sacred bull was sent against Nimrod and his friend, Eabani. Eabani seized the animal by one horn and the root of its tail, while Nimrod fatally bored its heart with a weapon. Istar uttered an awful curse, to which Eabani replied by tearing out the penis of the bull and throwing it full in her face. A new curse was hurled by the goddess, and Eabani died after a short illness. Nimrod was likewise attacked with a painful disease. He wandered about until he reached the infernal regions, where he was given a "magic food" for his complaint. This remedy apparently had no effect, for Nimrod continued to complain that the shadow of death lay on his genitals. The god of the infernal regions then took him to the ferryman, and bade him take the hero to the fountain of life, saying: "The man whom thou hast taken has his body covered with pustules; scales have altered the fairness of his body. Take him to the cleansing place, where he can wash his pustules clean, and take off his skins; the sea will carry them off; his body will appear well. The coverings of his head will be renewed, and also the covering of his shameful parts; by the time he returns to his country, there will be no folds; all will be new." Then follows after an interruption in the text: "He renewed his head coverings; the sheath which clothed his shameful parts was new when he reached his native land." I think we must concede to Dr. Buret that the foregoing is a pretty convincing picture of syphilitic disease. This author adds that Eabani also evidently had lues, for Nimrod prayed that he might not die like his companions; and Eabani moreover had spent six days and seven nights dallying with his beloved Uchat.

To return to the narrative concerning Abram and Sarai, Dr. Buret informs us, in accordance with scriptural account, that as the former conducted his fascinating wife into Egypt, he made her pass herself off as his sister, "fearing," as he said, "that the Egyptians might do him an evil turn by taking her from him." The beauty of Sarai gained him admission to the court of Pharaoh. The latter simply appropriated the beautiful Jewess to himself, and heaped her supposed brother with goods and presents.

The Bible states that God "visited Pharaoh and his house with great plagues, on account of Sarai, the wife of Abram," which is interpreted by Dr. Buret to mean that Pharaoh contracted from Sarai a venereal

disease, which he transmitted to his other wives, or to those of his officers, who in turn gave it to others; in short, the whole court became infected.

Pharaoh, after having reproached Abram for not informing him that she was his wife, returned his goods to him, together with his dangerous mate, and dismissed them both. Later on, at Gezur, this husband made the same statements to Abimelech, the king of that country. At that time he called himself Abraham and his wife Sarah. After the same story of the sister, and the same exploits between her and the King, the latter hastened to return Sarah to her husband, and loaded both with presents. Abimelech had, none the less, contracted lues, which he communicated to the Queen and to his concubines. But upon the prayer of Abraham, according to Genesis, chapter xx, the Lord cured Abimelech, his wife and servants, and these could bear children. The Bible informs us that Sarah was for a long time sterile, and that all the women who were similarly infected were sterile. "For the Lord closed the womb of all the women of the house of Abimelech on account of Sarah, the wife of Abraham." Dr. Harmonic, of Paris, who published in 1887, a monograph on "Venereal Diseases among the Hebrews," comments as follows: "It is not irrational to suppose that syphilis was concerned in this sterility. It disappeared with age in Sarah, who became pregnant late, which is good proof that her sterility was not due to organic cause; and outside of syphilis, we cannot see any other disease of genital origin which would correspond with the foregoing facts."

Although not pursuing the chronological order of events, I will now let you hear how Dr. Buret disposes of the case of King David. The latter, the Bible relates, was enjoying the cool of the evening upon the terrace of his palace, when he espied a woman of rare beauty who was washing herself in a brook. He made inquiries and learned that she was the wife of one of his officers, one Uriah; he had her brought to him, said very little to her and found her docile in every respect. The entertainment having terminated, the present victim of David's wiles, who was named Bath-Sheba, quietly returned home. It is not known whether she returned after to see the King, but it is probable; at all events, she became pregnant. Then David bethought him of getting rid of the husband, and found nothing better than to charge one of his generals, who was on a campaign, to place him in the most dangerous post, so that he might be killed—which happened, as a matter of fact.

Bath-Sheba put on mourning and David married her. She was delivered. Up to that time, nothing was more simple. But the two lovers had reckoned without the Lord, for the latter sent a prophet to David, to rail at him and warn him that he would be punished where he had sinned. According to Kings, chapter xii, the prophet Nathan brought to David the decision of Jehovah, formulated in these words: "For the Lord has spoken thus: Behold, I will visit evil upon thee and upon thy house: the son who is born to thee will die." As a matter of fact, in spite of David praying to the Lord, fasting, lying on the ground, etc., the child fell ill, and died at the end of seven days."

Dr. Buret maintains on biblical evidence which will presently follow, that David contracted syphilis from Uriah's wife, and that tertiary accidents rapidly

declared themselves in this libidinous king, suggesting that he may not have troubled himself about the first two periods of his disease, or may have experienced them in a light form; for, nine or ten months later, at the least, inasmuch as Bath-Sheba had time to arrive at term, the symptoms of the tertiary stage manifested themselves by osteocopic pains, ulcerated gummata, syphilitic caries, etc.

Let us now listen to the lamentations of David in the Book of Psalms, who will himself describe with poetic metaphors, the symptoms of his disease:

"Pity me, O Lord, for I am ill; cure me, O Lord, for my bones are diseased; I am the opprobrium of men; all those who have seen me and mocked me." David would probably have been pitied, instead of being mocked, if the nature of his disease had not been known.

"There is nothing healthy in my flesh; my ulcers are putrid and corrupt on account of my folly." Here ulcerated gummata are described, and allusion is made to the shameful source of his malady. "The light of my eyes is no more with me." Dr. Buret in this sees a common accident of the transition period, iritis, or the sequelæ of this inflammation.

"Day and night thy hand weighs upon me." This was probably a nocturnal cephalalgia. He did not even have sleep to forget his trouble. "My bones leave me no peace on account of my transgressions." Galligo, an Italian medical author, who has also contributed a large share to the literature of this subject, avers that "King David suffered chiefly from osteocopic pains, incident to syphilis."

"All my bones separate; I am an opprobrium; those who were near me now stand aloof; all those who have seen me abroad run away from me." He thus hints significantly at syphilitic caries, and for the second time he makes us understand that he had a contagious disease which nobody trusted.

Dr. Harmonic, before quoted, says: "The symptoms mentioned in the Psalms of David, although somewhat vague, have none the less a great diagnostic value, especially if they are grouped and placed in relation to one another. Here is a man who contracted from a woman he rendered pregnant a disease of genital origin, whose symptoms are marked, since they are those upon which the patient especially insists, consisting in terrible pains, coming on chiefly at night, and in alteration of the bones. The bones are the seat of acute suffering. They disintegrate and separate (by caries or necrosis). Purulent and chronic ulcer occur, and are probably related to the diseased bones. It must be through that the fragments of bone escape."

The patient loses his strength, and falls into a marked cachexia. His emaciation is extreme. His mouth (especially the tongue) is diseased. He is a disgusting object to everybody. The morbid symptoms at first localized, become more and more general ("there is nothing healthy in my flesh") and what caps the climax, the eyes are implicated and the sight is obscured. Visceral symptoms appear at a given time, and this terrible general disease plunges the unfortunate David into a hypochondria and discouragement which it is easy to understand, in view of the chronicity of the lesions and of their resistance to the inadequate therapeutics directed against them. Furthermore, the child borne by Bath-Sheba, who had transmitted her disease to David, died at the end of seven days, a fact which, when added to

the others, naturally leads us to make the diagnosis of syphilis.

This occurred about the year 1034 B. C., so that David, who according to Kings, chapter III, required a young virgin to warm him, in his old age, was probably in point both of personal age and of epoch of reign, one of the oldest *sypilitic* kings that ever lived.

There is nothing for me to add concerning David but to suggest that, if syphilis is a just punishment, which is a debatable question, it was never, nor could it have been, better applied than by being grafted on this lecherous old king, who deserved the epithet of venerable, only on account of his years and his sacred religious associations.

In the fifth book of the Proverbs of Solomon, are to be found a few impressive words of advice which go to show that cohabiting with the prostitutes of the time might be followed by painful and disastrous remembrances, capable of lasting for years, and of gravely compromising the general health. "We again show our preference," writes Dr. Buret, for the Latin version of the Hebrew text edition of 1715, in the National Library at Paris, in order that the reader may see for himself that our interpretation has nothing in it of a fantastical nature: "For the lips of the harlot distill honey; but the consequences are as bitter as wormwood, and as sharp as a double edged sword; do not draw near the gate of her house, lest thou shouldst give up thy honor to strangers, and the remainder of thy life to something cruel; and that thou mayst not groan later, when thy flesh and thy body will have been destroyed through thy fault." Despite Solomon's wise and impressive counsels to beware of the harlot, his graphic lessons have profited but little since his death.

In Ecclesiastes, Chapter XIX, a collection of maxims, also attributed to Solomon, would seem to refer to the tertiary period of syphilis: "He who has relation with prostitutes will become unclean, for everything gangrene and worms will seize upon him, and he will serve as a terrifying example to others."

The following verse of Leviticus, Chapter XIII, proves that there existed in scriptural times ulcers whose scars were white, and others that preserved a brownish color as in modern lues: "If an ulcer has arisen in the skin or within the flesh, and it has healed, there appears at the place where it existed, a scar, white or somewhat reddish."

From the information furnished by Rosenbaum, in his "History of Syphilis in Antiquity," the name "Baal Peor" signified among the Hebrews *the god Peoris*, the Priapus of the Romans. His temple was built on the Mount Peor, and young girls repaired to it to prostitute themselves. This worship was analogous to that of Phallus, in the rest of Asia; and we may still see to-day in China, a phallus on a stone over the door of licentious houses, as it was in Pompeii.

Moses makes note in Numbers, chapter XXV, of the scourge which the Jews brought upon themselves by the worship of Baal, in the following words: "Israel tarried at Sittim and inhabited there; it fell into fornication with the daughters of Moab." In more symbolic terms, the Hebrews worshipped the gods of the daughters of the Moabites, and devoted themselves to the worship of Baal Peor.

Therefore the wrath of Jehovah made itself felt, and manifested itself in an epidemic disease, which spread like a train of powder and decimated the Israelites. Moses taking active alarm, caused all those that had bowed to Baal to be killed: that is to say, all those who had had relations with the Moabite women, for they were all infected, or likely to be. "Twenty-four thousand men were thus killed by the steel," says the text, a prophylaxis which would in our day be viewed as extremely radical. Jehovah is made to say: "In order to appease my anger, let each chief of the tribes sacrifice those of his tribe who have gone over to Baal Peor." Later on, the Bible adds this remark: "Thus the plague was averted, after having cost the lives of 24,000 men." Many commentators of the Hebrew text have departed from this to explain that the 24,000 men died of the disease, but this is contradicted by the text itself. Besides, Philon and Josephus, Jewish historians, expressly state that this massacre was ordered by Moses.

At all events, this terrible execution did not suffice to destroy the root of the evil; for Joshua, seventeen years later, while reproaching the Hebrews for their debauchery, plainly says, (Joshua, chapter XXI): "Is it not enough for you to have committed the sin of following the worship of Baal Peor, a sin whose sign exists unto this day?" Nearly seven centuries later, in 810 B. C., the prophet Hosea, again had occasion to rail against those who sacrificed to the altars of Baal Peor, and he groaned over the results of this worship in the following terms: "They have been initiated in the mysteries of Baal Peor; and they have become terrible like those things which they worshipped."

Moses superadded to his trenchant domestic precautions against the scourge of Baal Peor, a declaration of war against the Midianites, because the women of that people had drawn the sons of Israel to the worship of Baal Peor; and as a matter of fact, the latter was the principal focus of the disease. The Hebrews marched against Prince Midian, defeated him, killed all the men, and, after the accessory work of pillaging, brought back with the flocks the women and children. According to Numbers, chapter XXI, Moses became angry at the generals because they had spared the women; and indeed, it was scarcely worth while to have executed their own men, either diseased, or suspected of being so, and then to introduce into the Hebrew camp strange women who contained the virus. Moses had but one course to pursue, viz., to kill them also. It was cruel, but intensely logical, and the great legislator reasoned about it as follows:

"Are these not the women who have seduced the sons of Israel at the instigation of Balaam, and who have made you deny the Lord, your God, to make you sacrifice to Peor, from whom has come the scourge which has stricken our people?" The conclusion of this apostrophe is easily anticipated: "Therefore strangle the women who have known men carnally, but allow young virgins to live."

For the attentive reader of Mosaic history, it is needless to add that this command was duly executed.

It is difficult to believe that the following isolated verses of the Bible did not deal with syphilis, and we reproduce them with a word of comment:

"The Lord will render bald the vertex of the heads,

the Lord will cause their hair to fall; instead of flowing hair it will be baldness." Is not alopecia syphilitica here distinctly pointed out as one of the inherent diseases of prostitution?

Again: "The appearance of their face speaks for them; they publish their sin, nor do they dissimulate."

"The Lord will cover thee with bad ulcers, from the soles of the feet to the head, upon the knees, on the legs, and thou wilt not get well." We here see described a generalized syphilitic eruption, with pustules and ulcerations.

"Thy sores will increase by the will of God, as also those thou hast given to thy progeny; then there will be large and presevering sores, the worst and most lasting lesions." Heredity is here clearly indicated.

The Hebrews were as much exposed as other people of Asia to contract venereal diseases, inasmuch as they had the depraved habits of all the Asiatics. Without mentioning Sodom and Gomorrah, does not Moses forbid, in Leviticus, incest, bestiality, perverted sexual relations, and even legal prostitution, which is the best proof that these vices existed? In spite of the most severe punishments, the Hebrews gave themselves up to these shameless excesses; and as prostitution was forbidden in their camp, they visited strangers, particularly the Midianites and the daughters of Moab. These latter initiated them into the worship of Baal Peor, or Belphegor, a sort of Priapus, whose temples were nothing but places of debauchery. These orgies in common were eminently favorable to the communication of syphilis; and, as a matter of fact, it was rapidly propagated, and known as the plague of Baal Peor, the epidemic which has just engaged our attention.

That this plague of Baal Peor was actual syphilis appears to be an almost irresistible conclusion. It was of venereal origin, and it could have been neither gonorrhoea nor balanoposthitis, nor genital herpes, nor even chancre, although these lesions, with the exception of the last, have been likewise established as being rife at that period among the Jews. These latter ailments alone would certainly not have alarmed Moses to the pitch of adopting such extraordinary and radical measures, even if they had multiplied, as a result of excessive coitus and uncleanness. The disease of Baal Peor was something more intense, more violent, and more dangerous to the public health. Flavius Josephus says, that it was highly contagious, and was frequently transmitted to members of the same family. It was plainly a disease that constituted a grave social danger, which Moses endeavored to avoid by all possible means. It was not leprosy, for this learned and experienced legislator was too keen an observer of phenomena to make a gross error of diagnosis between diseases which already existed among his people, and the new epidemic. To read even the fragmentary detached accounts of its clinical symptoms furnished by the Bible, one might almost fancy them a summary of one of these monographs of the fifteenth century treating of the *nolus galliens*.

The present speaker here records his belief that the epidemic of Baal Peor was frankly and purely syphilis. Not syphilis as it first stole upon this globe, to curse its human occupants perhaps forever, but a revival of it akin to that outbreak which in medieval

times lashed humanity with such fury and virulence at the siege of Naples. Nor, in all probability, was it syphilis as it exists to-day. All the recognizable features of the latter were no doubt there, but, fortunately for our patients, there was more of the primitive and unmitigated sting in the ancient form.

Buret also refers to the work of Captain Dabry, who translated the records of the Chinese Empire. Dabry found that syphilis was very common among the Chinese about 2700 years B. C. Their records then speak of it as an old disease, and one for which mercury was in general use. This Chinese record antedates the appearance of the disease in Egypt in the family of Pharaoh. We find also from this book that wherever prostitution existed syphilis was its companion. The former being as old as the human race, it seems very evident that the latter is also. But we find older records than the Mosiac or the Chinese. Its history has been written and may to day be traced in monuments more lasting than written records. Wherever human remains have been found, even there the record may be traced. We know that to-day hereditary syphilis manifests itself in unmistakable evidences on the bones, especially in the form of exostoses about the superciliary arches, the frontal and parietal bones. These evidences, wherever found to-day, are pathognomonic of syphilis. Then if we find remains of the buried races of the past bearing these syphilitic exostoses, we may unhesitatingly affirm that the subject was the victim of hereditary syphilis. Buret has collected all the evidences bearing on this point, and we find syphilitic skulls and tibiae have been excavated from the caves and dolmens of France, from the tombs of the Incas and the mounds of the mound builders of the United States, which bear unmistakable evidences of hereditary syphilis in the form of syphilitic nodes. Those who are in a position to know the value of these discoveries estimate their age at 60,000 years.

At the outset of this address, which has already I fear transcended in length your most reasonable and indulgent bounds, I incautiously purposed to say much of Moses in his capacity as a health officer and hygienist to the Jews. But this intention must now be abandoned, or postponed, which is perhaps a greater disappointment to me than to you. Suffice it for the present to say that of all the laws and precepts invented and instituted by Moses, the most brilliant were his rules of hygiene, applied to the enforcement of scrupulous cleanliness, and thereby to the limitation and extinction of disease.

If I may be permitted, after my very meager mention of the career of Moses as a hygienist and protector of his people against the ravages of disease, to estimate him for a moment in his guise as a man, as best befits a medical essay, and not in his character as a God-inspired liberator and ruler, I will add that the history of his life, derived from non-biblical, as well as biblical sources, irresistibly forces the reader's conviction of his grandly towering personality. As a military leader, he successfully braved, with his untrained warriors, a great King and his disciplined armies, and his rare administrative qualities enabled him later to hold the brutalized hordes of Egyptian slaves into a great nation. His calm self-possession, impartiality, patience, perseverance, united with keen energy, promptness of action, and unflinching courage, constituted his extraordinary power over the hun-

dreds of thousands who wished to know no law but their freshly acquired liberty. His self-prepared code of laws for their government, surpassed, for his time, these of a later period by Justinian and Napoleon, which were the work of jurists. The Rationalist school explained his alleged miracles as an advantage cleverly taken of his superior knowledge of natural phenomena. Voltaire, Tom Payne and Robert Ingersoll, trenchantly attacked him as the gigantic tramp of ancient times. There seems, however, but one conclusion. History discloses few, if any, men of his transcendent grandeur of genius, and despite every discount that the most hostile criticism has yet proposed, Moses remains, and will probably continue to remain, the most wonderful human product of all time.

ORIGINAL ARTICLES.

POINTS IN THE ETIOLOGY AND CLINICAL HISTORY OF ERYSIPELAS.

Read in the Section on Practice of Medicine at the Forty-fourth Annual Meeting of the American Medical Association.

BY J. M. ANDERS, M.D.
PHILADELPHIA, PA.

In discussing the predisposing causes of erysipelas, authors are greatly at variance as to the influence of age, sex, seasonal effect, etc., among other well recognized factors. It must be confessed, however, that no statistical inquiries have heretofore been instituted to show the exact effect exerted upon the disease by these supposed etiological elements.

In a recent paper on "Seasonal Influence in Erysipelas, with Statistics," the writer has shown, by careful analysis of 2,010 cases collected from different sources, the relationship existing between the various seasons of the year and this affection; and he ventures to hope that he may be pardoned for calling attention briefly to some of the tabulated data contained in his former paper. Table (1) demonstrated clearly that the cases increase month by month in slightly varying ratio, from August to April, which latter month gives the greater number; and that there is a rapid decrease in the percentage of cases from April to August, the latter giving the smallest number. Again: "One-half of all the cases occurred during the months of February, March, April and May, and 15.9 per cent. during the month of April alone. It would appear that the winter and spring months, though more particularly the latter, influence the susceptibility to this disease." To account for this augmentation of cases during the winter and spring seasons no satisfactory explanation has been found. That it is not due to the increase in sickness in general which, as pointed out by M. J. Lewis, occurs in the spring season, may be readily shown. Erysipelas gives the greatest percentage of cases in April, whilst on the other hand, the greatest percentage in the aggregate of human illness, when computed month by month, occurs in March.

Researches were also instituted with a view to showing any relationship that might exist between the mean relative humidity, the mean barometer, and the appearance of cases of erysipelas.

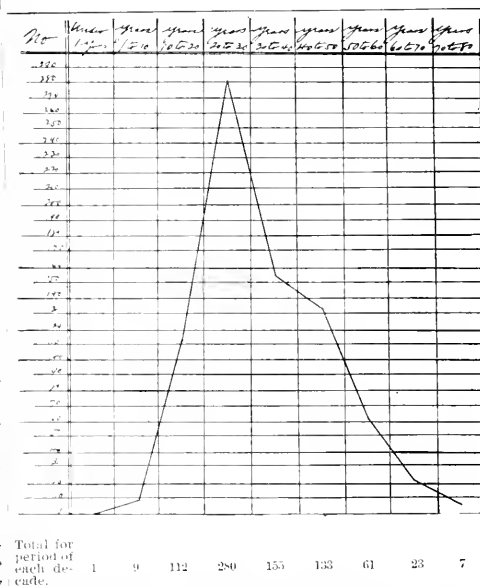
Suffice it to re-state here a few of the deductions which may be found in my former paper relative to

the rôle played by certain leading climate elements in the causation of this affection.

1. That a low barometer and mean relative humidity invariably correspond with the annual period in which the greatest number of cases occur, and the highest percentage of relative humidity with the months affording the fewest cases.

2. Among the meteorological factors, temperature has the least, and relative humidity the most, intimate connection with the disease.

TABLE I.—AGES.



Representing 781 cases occurring from 1852 to 1892, inclusive.

Erysipelas is not to the same extent as chorea and rheumatism related to the seasonal variations in the totality of human illness.

That the foregoing conclusions are based upon adequate data will be seen by a glance at the accompanying table. It however will also be observed that, for the months of September, October, November and December, the tracings do not maintain the same resemblance to one another as during the months from January to September, hence the effects of the various meteorological factors alone are inadequate to account for the steady rise, in the percentage of cases, throughout the cold months and more especially the quite considerable April augmentation. The interesting fact, however, remains proven, even though not explicable, that the disease is to a considerable extent dependent upon seasonal influence.

PREDISPOSING INFLUENCE OF AGE.

The period of life at which persons are most liable to erysipelas has not, up to the present, been definitely determined, though there appears to be a pretty general impression among medical writers that it is most commonly met with in the young. Dr. J. A.

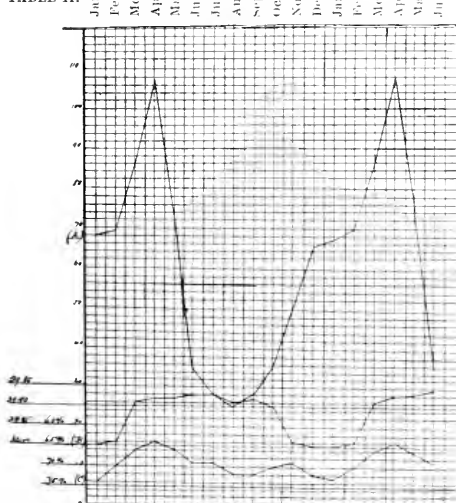
¹For a more complete discussion of the points raised, the reader is referred to the original article—Proceedings of the American Climatological Association, for 1895.

Glaser (*Therapeutic Monatshefte*) reports 148 cases of erysipelas, in part from his private practice and in part from cases observed in the hospital. "These did not include any but his severe cases, and were scattered through fifteen or sixteen years. The patients varied in age from three-fourths of a year to seventy-five years. The largest part of them were between twenty and forty years old."

With a view to ascertaining with some approach to exactness the influence of age as a predisposing factor, I have obtained notes in 1,891 cases. Of these, 1,754 were acquired from the records of the various hospitals of Philadelphia and 143 from my private practice and the practice of others, who kindly furnished me with reports of their cases.

In a small proportion of the cases only, the age of the patient was not given. The records of Blockley Hospital, Philadelphia, furnished 1,113 cases. It should be pointed out, relative to the latter statistics, that I can do nothing more at present than to give the average age of the patients. During the years from 1857 to 1870 inclusive, there were 234 cases whose average age was 45 years. In 879 cases which were admitted into Blockley Hospital during the years from 1870 to 1890 inclusive, the average age was 43 years. On the other hand, the average age of the cases derived from all other sources (781 in number) was 29 years. The average age of the 143 cases reported from private practice was 29.5 years. The explanation of this apparent great discrepancy in the ages is to be found in the fact that the average age of all patients admitted into Blockley Hospital is much greater than the average age of those admitted into other institutions or those met with in private practice. The patients cared for in the wards of Blockley Hospital come from the pauper element of the population in Philadelphia and elsewhere—an element composed in great part of middle-aged and old persons.

TABLE II.



[Explanation of Table.—A—1163 cases occurring from 1871 to 1890, inclusive. B—Mean barometer from 1871 to 1890, inclusive. C—Mean relative humidity from 1871 to 1890, inclusive. The cases increase in increments of 10. Barometric pressure reckoned in inches. Mean relative humidity given in percentages.]

With this brief reference to the statistics I gleaned from Blockley I dismiss them, and desire to call attention to some interesting as well as practical points growing out of a further analysis of the 781 cases previously mentioned. In order to indicate the proportionate percentage of cases for the different periods of life the subjoined table has been carefully prepared.

Since this chart is quite simple and readily self-explanatory, it will be unnecessary for me to do more than to call attention to a few facts, which are of sufficient importance to be emphasized. The tracing in the table represents the whole series of cases and increases in increments of ten. It will be observed that more than one-half of all cases occur before thirty years of age; that the period of greatest liability is from twenty to thirty years; that from thirty to fifty years the cases slowly decrease, and after fifty years quite rapidly. It should be noted especially that under ten years the disease is extremely, and between ten and twenty comparatively rare. The period of greatest frequency—from twenty to thirty years—furnishes 35.8 per cent. of the aggregate number of cases.

No attempt has been made to separate the idiopathic from the traumatic form of the complaint, and chiefly for the reason that in most instances the distinction was not noted in the records.

The Effect of Sex. The influence exerted by the sexes was also shown by the results of these investigations. The sex was noted in 1,767 cases. Of these, 1,219 were males and 548 females. It remains to be stated, however, in reference to the hospital statistics, that, in proportion to the whole number of cases of all complaints among the males as compared with those among the females, admitted into the institutions named, the preponderance of the former over the latter would not be so great as indicated by these figures. And yet, after making due allowance for all modifying conditions, the ratio would be as three to two in favor of the male sex. The same thing may be shown by considering separately the 143 cases gleaned from private practice, of which eighty-five were males and fifty-eight females. Of the 148 cases of erysipelas reported by Dr. J. A. Glaser (*loc. cit.*), fifty-one were women and ninety-seven men. That the disease is more frequent in the male than the female sex is thus definitely shown. This dictum may excite surprise in view of the fact that by most authors erysipelas is stated to be more common in women than in men.

The fact is rapidly becoming recognized by the profession that slight abrasions and fissures, either in the mucous membrane of the nose or in the skin of the face or the ear, as well as all forms of slight injuries, are liable to furnish a path of ingress to the specific poison. This point has also been corroborated by the results of our researches. In 643 cases which were examined with reference to this question, slight injuries and abrasions were noted in 113. Doubtless in many of these instances the examiner omitted to search for such lesions as we are considering. In most of the instances (here enumerated) the character of the changes was particularized as follows: slight contusion of forehead,

I desire to express a few words of acknowledgment of the services kindly rendered in the collection of these cases, to H. C. Babner, Wm. Osler, George Booth Miller, L. S. Bromley, Weiser and Litchfield and by numerous professional friends for cases from their private practice.

in six cases; small wounds of forehead, six cases; slight scalp wounds, seven; trifling lesions of the ear, four; slight wounds of skin of nose, six; syphilitic erosions of nasal bones, four; wounds of eyebrow, three; wounds of eyelid, three; slight injuries to leg, three; slight wounds of cheek, wounds of thumb, two each; vaccination, excoriation of elbow, toe rubbed by boot, corn cut, caries of tooth, small sty, excoriation of foot, dog bite, one each.

It is interesting to note that, out of a total of 301 histories examined for me, by Dr. M. Booth Miller, acute coryza preceded the attack in thirteen instances. Doubtless in these, slight lesions of the Schneiderian mucous membrane favored specific infection.

Testimony confirmatory of the well known fact that certain chronic diseases, such as chronic Bright's, phthisis etc., increase the susceptibility to the complaint, was also brought to light by these inquiries.

The chronic affections in the course of which erysipelas occurs most frequently are shown by the following analysis of 1,665 cases, viz: in the course of chronic leg ulcers, sixty-seven occurred; in chronic pulmonary tuberculosis and chronic nephritis, fifteen each; in rheumatism, fourteen; in organic heart disease, ten; in urethral stricture, six; in syphilis and synovitis, five each; in asthma, chronic pleurisy and chronic alcoholism, four each; in bone necrosis, malaria, locomotor ataxia, senile debility and puerperal state, three each; in typhoid fever and sciatica, two each. Instances in which single cases occurred secondary to other chronic affections were numerous, but need not be detailed here. According to these figures the proportion of examples in which erysipelas is secondary to chronic diseases is not formidable, the percentage being 7.8, if we include those diseases that furnish but a single case of erysipelas.

Individual predisposition to the complaint was shown in some instances, though not as frequently as some writers would have us believe. Of 450 instances previous attacks were noted in thirty-nine, or in 8.66 per cent. One patient had had seven previous attacks; another, four; several, one, two and three attacks respectively. Family predisposition was noted in four instances. One of these patients stated that he had had many previous attacks and that his father and two brothers were also very susceptible.

POINTS IN THE CLINICAL HISTORY.

As to the chief seat of the local manifestations exact figures cannot be given since, in numerous instances, no mention of the locality was made; and yet the data obtained on this head were full of interest. The notes of the cases examined gave the result here stated. The locality was ascertained in 712 cases; of which 517 or 72.6 per cent. were facial; 127 or 17.8 per cent. affected the leg and foot; seventeen cases or 2.3 per cent., the arm; eight cases or 1.1 per cent. the hand; while five cases or .7 per cent. implicated the scrotum. The cases in which the inflammation occupied portions of the body other than the head could not all be classified as idiopathic. For instance, as before stated, sixty-seven cases were secondary to leg ulcers. Here the ulcers served as a gate of entrance for the specific virus. After a careful elimination of cases in which there seemed to be any doubt, we have 586 as the aggregate number belong-

ing to the idiopathic variety. Of these, 517 or 88.2 per cent. were facial; 50 or 8.5 per cent. occurred on the leg and foot; ten or 1.7 per cent. on the arm; five or .85 per cent. on the hand; and four or .68 per cent. on the scrotum.

It is seen that nearly all cases of idiopathic erysipelas attack the face—a fact previously well known. The next most favorite seat of this disease is the leg—a fact not heretofore demonstrated.

Course and Duration.—Both the clinical course and duration of erysipelas were found to be quite variable; and this was owing largely to the presence of complications (which are numerous), the previous condition of the patient, age, etc. I regret that the limits of the present article will not permit me to discuss the various complications that were noted as occurring in this complaint. The average duration of the affection was computed in 1,880 cases and found to be (including relapses) 25.13 days. At any period of life, according to these observations, the stay in a hospital, or the duration of a case in private practice, was lengthened almost indefinitely when the patient had been previously in an enfeebled condition on account of chronic disease, and when complications existed. The average course was found to be much less in uncomplicated cases occurring in persons under 40 years, which is the time of life corresponding with a preponderating proportion of cases, viz., about fourteen days.

These results point strongly to the important practical facts, that erysipelas in a typical form is a self-limited disease; that the length of the attack is greatly influenced by the age of the patient *per se*, its average duration in persons of 50 years or over being considerably longer than in younger subjects. Sex has no influence in this direction.

That relapses are rather common in this disease is a fact long since learned by the profession. Among 476 cases recorded, relapses occurred in 54, or 11.3 per cent. It is interesting to note that in one patient five relapses occurred; in two others, four; and in three patients, three. First and second relapses were still more common. Single relapses were frequently observed, in typical cases, in otherwise healthy subjects. On the other hand, multiple relapses occurred most frequently in persons whose general health had been previously impaired.

DR. HOBART A. HARE, Philadelphia—There is always danger in averages on cases; you can not get a correct idea of the average age at which a disease is apt to attack a person by looking over a column of figures, and if you make a mathematical average you may get an average which is misleading. A few years ago I looked over some statistics and found the average age was something like forty years, but by a careful examination of tables I found that the disease affected persons early in life and very late in life; forty years was not the most common, although the average age; seventy and ten added together gave me an average of forty, which was misleading. I appreciate the fact that Dr. Anders has eliminated as far as possible the dangers which are always present in making the averages in statistics.

My experience in St. Agnes and Jefferson Hospitals has convinced me of the truth of the statement made by Dr. Anders in regard to the frequency with which the erysipelas we are apt to call typical, depends upon lesions of the nasal or conjunctival membrane. I remember a few years ago in St. Agnes Hospital in convalescent cases of typhoid who had erysipelas, there were always marked complications of the

face and nose. The stuffing up of the nasal cavities with dried secretions had been present to a great extent. In the mucous membrane of the nose we have the means of entrance of the microorganisms, the bacilli which first come with the destruction of the mucous membrane, with the pus. Unlike many diseases which are dependent upon the streptococcus, introducing itself in low vitality which decreases normal resistance and gives opportunity for the streptococci to produce the characteristic lesion.

I have also been much interested in what Dr. Anders said in regard to the frequency with which the disease attacks males instead of females. Most tables will show that acute inflammatory disease does not affect the male more than the female. The reason is the male is so much more exposed to traumatism, injuries which will allow the entrance of the streptococcus, than the female, but if women had the same opportunities for receiving injuries we might find them suffering from the disease even more frequently than men.

Dr. J. M. ANDERS, Philadelphia, in closing the discussion, said: One of the points he raised should be answered. He stated that in adding together all the cases year by year and dividing by the total number of cases and in that way obtaining the average age of persons affected would in a great many cases give a misleading result, especially where the disease was most frequent at either extreme of life. If Dr. Hare had followed me closely he would have known that I added the cases together and got the total number, and I also gave the period of greatest frequency and the time of life at which cases were the most numerous, in that way overcoming his objection to the manner of investigating the subject. All the other points were well taken.

THE DETERMINATION AND SIGNIFICANCE OF CARBOHYDRATES IN THE URINE.

Read before the Section on Practice of Medicine at the Forty-fourth Annual Meeting of the American Medical Association.

BY CHARLES W. PURDY, M.D.

CHICAGO.

Carbohydrates are so called because they are compounds of carbon, hydrogen, and oxygen; the last two elements being present in the proportion in which they occur in water. The carbohydrates met with in the urine are chiefly glucose, levulose, lactose and inosite. They resemble one another in their chemical composition, in all containing six atoms of carbon or a multiple thereof. They also resemble one another in their chemical characteristics: being neutral in reaction, not prone to enter into combinations, and with the exception of inosite, they all possess a strong rotary power over polarized light.

The chief clinical interest with regard to the presence of carbohydrates in the urine at present belongs to grape sugar; some knowledge of the other carbohydrates met with in the urine is necessary for differential purposes in testing; as well in a few cases for their clinical significance, but since the latter are for the most part of comparatively minor importance, the greater part of this paper will be devoted to the consideration of glycosuria.

GLYCOSURIA.

Grape sugar in its pure form crystallizes in rhombic tablets; is soluble in its own weight of water, and gives a dextro-rotary power over polarized light of + 57.60. Its solutions become brown when boiled with liquor potassæ, but with picric acid a deep mahogany red. In the presence of strongly

alkaline solutions, it reduces cupric salts, precipitating red oxide of copper; it also reduces bismuth salts with resulting black precipitate. Faintly alkaline solutions of grape sugar colored blue by indigo, when boiled, exhibit a beautiful color, reaction beginning with violet and ending with yellow. Lastly, with sodium acetate solution it reduces phenyl-hydrazin hydrochlorate to phenyl-glucosazone, forming highly characteristic and beautiful golden yellow acicular crystals.

Grape sugar exists in minute quantity in normal blood, varying chiefly with the functional activity of the liver. In some abnormal states of the system, the amount of sugar in the blood becomes markedly increased, reaching its maximum, about one-tenth of one per cent., in the more pronounced diabetic conditions.

It has long been a disputed question if sugar be present in normal urine as first affirmed by Brucke. The investigations of Sægen for some time seemed to negative such assumption; but quite recently this question has received emphatic confirmation through the researches of Wodenski. Taking advantage of Baumann's discovery, that benzoyl chloride forms insoluble compounds with carbohydrates, Wodenski succeeded in separating from the precipitate thus formed in normal urine a body which gave all the reactions of grape sugar; so that these investigations must be considered conclusive. Although therefore sugar exists in normal urine as above shown, the quantity is so exceedingly minute that it is unrecognizable by our ordinary methods of testing, and consequently its significance is physiological rather than clinical, and need not further detain us.

CLINICAL SIGNIFICANCE.

Glycosuria may appear as a temporary condition in the course of a number of diseases, as cholera, intermittent fever, scarlatina, gout, cerebro-spinal meningitis, diseases of the lungs, liver and brain; especially if involving the fourth ventricle. It must be admitted, however, that glycosuria is comparatively rare in such cases, and when present the quantity of sugar in the urine is small.

Sugar appears in the urine after the administration of phloridzin, and until recently we have been taught that temporary glycosuria may be induced by the administration of certain drugs, as strychnia, curare, chloroform, ether, and carbon monoxide. Our improved methods of testing, however, have conclusively shown that the substance in the urine in these cases which reduces the copper test is glycuronic acid and not sugar.

Temporary glycosuria may be induced by cutting or puncturing various parts of the nervous system, by wounds of the liver by means of needles; by injecting acids or stimulants into the hepatic veins, and by violent irritation of some sensory nerve. It is more than probable that in all such cases the glycosuria is brought about by interference with the center for the vasomotor nerves of the liver. Inasmuch as in all these cases the glycosuria is slight, and of only temporary duration, the interest attached to temporary glycosuria of this order falls more within the province of the experimental physiologist than that of the clinician.

Comparatively recent observations have shown that complete extirpation of the pancreas in dogs

gives rise to permanent diabetes, resulting in the death of these animals. These observations are of value in demonstrating that the pancreas, in addition to secreting the pancreatic juice, plays an important rôle in the process of general metabolism.

In working out the significance of the above observations the author hopes soon to lay before the profession the results of some experiments he is conducting with the view of determining the possible influence that injections of healthy pancreatic extract may exert over genuine diabetes.

Glycosuria of pronounced and persistent form belongs to the province of diabetes mellitus, and may always be regarded as symptomatic of grave defect, either in the brain, liver or pancreas. In young subjects the disease is pretty uniformly progressive; and that towards a fatal termination in from a few months to four or five years. This is notably the case in patients under twenty years of age. In the middle period of life, the disease is somewhat less severe, and slightly less fatal. After fifty years of age the disease is often mild and amenable to careful dietetic management.

Persistent glycosuria is the most constant and certain of all the symptoms of diabetes mellitus, being in fact often the only symptom of the disease, and herein lies its great clinical importance. It is therefore of the utmost importance to be able to readily recognize the presence of sugar in the urine, since by the habit of routine search very serious forms of disease are often unexpectedly revealed, and in the course of clinical investigations, diagnosis of the most positive nature often hinges upon this point alone.

DETECTION OF SUGAR.

The tests for sugar in the urine at present are numerous, but few, if any, of them, however, can be said to be altogether satisfactory. If the quantity of sugar be large, little difficulty will be encountered in its detection by the most ordinary tests in use. If on the other hand the quantity be small, say one-half of one per cent., or less, most of the ordinary tests for sugar in the urine behave with uncertainty, and moreover, many of them absolutely fail to give trustworthy information.

Preliminary to submitting the suspected urine to chemical tests for sugar, the physical characteristics of the urine should be noted, more especially the color and specific gravity. As a rule if the urine contains a marked amount of sugar, the color is light and of a greenish hue, and the specific gravity is decidedly high—1.030 or above. The most popular method of searching for sugar in the urine is by means of the copper tests. These all depend upon the fact already noted, that in strongly alkaline solutions grape sugar reduces the copper salts to lower grades of oxidation, precipitating the suboxide in the form of a yellow, or yellowish opaque deposit.

TROMMER'S TEST.

This test may be most conveniently performed, as follows: About two drachms of urine in an ordinary test tube is first treated with sufficient cupric sulphate solution to render the urine a light green color, after which an equal volume of liquor potassae is added. At first a blue precipitate of hydrated cupric protoxide results which dissolves upon agitation, forming a beautiful clear blue solution. If allowed to stand a half hour or so, reduction gradu-

ally takes place, especially if much sugar is present, resulting in precipitation of yellow, or yellowish red suboxide of copper. If instead of standing half an hour, gentle heat be applied, this test becomes more delicate, and moreover reduction occurs at once, as follows: First, a yellowish opacity appears, due to the formation of hydrated suboxide of copper, and upon further boiling it loses its water and forms a brick red precipitate of anhydrous cupric suboxide.

The test is open to two objections: First, if it be not submitted to boiling it is not very sensitive and will only detect sugar when present in considerable quantity. Second, if boiled, more especially very long, the test is rendered over sensitive so that reaction may occur with substances in the urine other than sugar for the following reasons: The power of reducing cupric oxide in alkaline solutions is possessed to a feeble degree by a number of substances in both normal and abnormal urine, such as uric acid, creatinin, mucus, indican, hippuric acid, hypoxanthin, tannin, carbonic acid, etc. Now, in Trommer's test the quantity of urine submitted to the copper solution is relatively large, which greatly increases the chances of reduction by non-saccharin agents.

FEHLING'S TEST

has perhaps enjoyed the greatest popularity of all the copper tests for clinical use. The great objection to Fehling's solution is its well known tendency to deteriorate upon keeping, which is chiefly due to the instability of its contained sodium tartrate. It will be remembered that when an alkali is added to a solution of cupric sulphate an abundant precipitate of hydrated cupric protoxide is thrown down. In order to hold this in solution some vegetable product must be added which will not reduce the cupric protoxide. Unfortunately in Fehling's solution a very unstable salt, the sodium tartrate, was chosen for the above purpose. Schiedeberg suggested an improvement in the formula which adds greatly to the stability of the solution, viz., the substitution of pure mannite for the sodium tartrate. Fehling's test is also now prepared dry, in the form of two compressed tablets, or pellets, which are dissolved forming the solution as per regular formula at the time of application of the test. In the author's experience these pellets are even more unstable than the old form of Fehling's solution and are therefore not recommended.

HAINES' TEST.

On the whole the most excellent form of the copper test for sugar qualitatively is that devised by Professor Walter Haines of Chicago. The preparation of this test is simple in the extreme, as follows: Thirty grains of sulphate of copper are dissolved in half an ounce of distilled water, to which half an ounce of glycerin is added, and the whole is then mixed with five ounces of liquor potassae. In testing with this solution a drachm is gently boiled and the urine added drop by drop until six or eight drops are added but not more. If sugar be present a copious yellow or yellowish red precipitate is thrown down consisting of the usual anhydrous suboxide of copper.

The advantage of Prof. Haines' test for qualitative purposes over other forms of the copper test are: First, it is entirely stable, which enables it to be

kept on hand indefinitely. Second, it is simple in construction, its components being at hand in all ordinary drug stores. Third, the relatively small quantity of urine employed in testing—six or eight drops only—renders it least likely to mislead one through reducing agents in the urine other than sugar. Fourth, its delicacy is at least equal to that of any other form of the copper test.

With regard to the copper tests in general, it is important to bear in mind that boiling should not be too long continued, otherwise slight reduction is liable to occur with urine when free from sugar; about half a minute should constitute the usual limit of time. Lastly, it should be remembered that strongly alkaline solutions are apt to precipitate from the urine the earthy phosphates of calcium and magnesium in the form of a grayish cloud which should not be taken for the cupric reduction.

FERMENTATION TEST.

This test depends upon the fact that grape sugar is decomposed in the fermentation set up by yeast; yielding alcohol, carbon dioxide, succinic acid, and a number of other products with resulting decrease in the specific gravity of the urine. For qualitative purposes the following method of applying the fermentation test will be found best. Fill an ordinary test tube half full of mercury and the remaining half with urine to be tested, and introduce into the urine a small piece of German yeast. Next close the mouth of the test tube with the thumb and invert over a small vessel of mercury and set aside in a warm room for several hours. If sugar be present fermentation proceeds at once, liberating the carbonic acid gas, which collects in the upper end of the tube, displacing the urine and mercury more or less according to the quantity of sugar present.

This test may be considered trustworthy for the detection of considerable quantities of sugar; but the capacity of the urine itself for absorbing carbonic gas renders this test uncertain in detecting sugar if present in quantities less than one per cent. This, with the fact that it takes several hours to make this test renders it inapplicable for routine work.

BISMUTH TEST.

Sugar possesses, as already noted, the power of reducing bismuth salts with resulting black precipitate, and upon this fact Bottger first suggested the bismuth test. Traces of sulphur which are often present in the urine, cause the same reaction with this test as does sugar, and therefore this test cannot be considered trustworthy unless performed by Brucke's method, which is too tedious for practical clinical work.

PHENYLHYDRAZIN TEST.

This test suggested by Fischer, depends upon the power possessed by phenylhydrazin in forming with grape sugar a highly characteristic crystalline compound termed phenylglucosazone. This test may be practiced as follows: Two parts of phenylhydrazin hydrochlorate—as much as will lie upon a dime piece—and three parts of sodium acetate are mixed together with two drachms of the suspected urine in a test tube and a little water added. The whole is brought to the boiling point and gently boiled for about half a minute, and then set aside and allowed to cool. If sugar be present, even in a minute quantity, there forms a yellowish crystalline deposit,

which may appear amorphous to the naked eye, but which when examined under the microscope is seen to contain yellow needle-shaped crystals, detached or arranged in star-shaped clusters.

This test gives probably the most trustworthy results of all known tests of sugar in the urine, equally reliable with every variety of morbid urine. The phenylhydrazin test gives no reaction with uric acid, urates, creatinin, muens or normal urines; nor with such bodies occasionally present in the urine as oxybutric acid, urochloralic acid, uroxanthic acid, tannin, morphin, salicylic acid, carbonic acid, etc.

Among the other tests more or less used for detecting sugar in the urine may be mentioned picric acid, brought forward by Johnson, of London; acetate of lead and ammonia (Rubner); alpha, naphthol and thymol (Molisch); indigo carmin (Mulder); bichloride of tin (Maumene); chromic acid (Hunefeld); sulphuric acid (Runge) and polarization.

None of these tests possess special advantages; of those considered, on the contrary, most of them are greatly inferior.

In searching for sugar in the urine, a test should be selected for routine work which is simple in application, reasonably trustworthy, and perfectly stable, so that it may be kept on hand for use when required. In all these respects Haines' test is very desirable.

The following suggestions may aid the observer in avoiding error and reaching accurate results. First, before testing always thoroughly cleanse all utensils to be employed in the analysis. Second, in using the copper tests always employ at first a minimal amount of the suspected urine, gradually increasing until reaction be obtained or the stated limit be reached. This method greatly decreases the risk of reduction by other substances than sugar in the urine, and moreover it gives a rough idea of the quantity of sugar when present. Third, if any doubt arise as to the presence of sugar in the suspected urine, after the application of the routine test, an appeal should be made to one or more of the others mentioned. For this purpose the phenylhydrazin test is desirable above all others, both because of its exceeding delicacy, and its present known property of reacting with few other substances than grape sugar.

DETERMINATION OF SUGAR.

Having detected the presence of sugar in the urine, it is in all cases highly important to determine its quantity, for the following reasons: Such knowledge furnishes the truest evidence of the grade or severity of the disease; it furnishes the most solid basis upon which to construct the prognosis and it gives the most trustworthy evidence as to the results of treatment.

THE FERMENTATION METHOD

is best conducted by Robert's system of observing the differential density of the urine before and after complete fermentation. The objections to this method are that it takes twenty-four hours to reach results which are by no means accurate when attained, which may be proved by making a series of observations upon the same urine. The fermentation saccharometer devised by Einhorn is even less accurate than Robert's method. These instruments are intended to collect and measure the carbonic

acid gas involved in fermentation, but the urine itself absorbs a very considerable volume of the carbonic acid gas of which the instrument takes no account.

TITRATION METHOD.

This has hitherto been most practiced with Fehling's solution. The principle of the process depends upon the fact that in reduction of cupric oxide in solutions of definite strength by grape sugar, the blue coloration disappears by the addition of a definite quantity of the sugar.

The chief drawback with this test is the fact that when the blue color fades, the yellow suboxide of copper takes its place, and so obscures the color change that it is almost impossible to determine the precise point of complete reduction. This can only be approximately remedied by repeated boiling and standing after successive additions of a few drops of the urine, and it has already been stated that prolonged boiling impairs this test. In addition to this, Fehling's solution is so unstable that it must be freshly prepared to be depended upon. It will therefore be found if all precautions be observed that the determination of sugar by this test is tedious and difficult, and calls for an accuracy of manipulation which few but experts possess. It therefore seems amazing that by common consent this test has been so uniformly recommended to meet the requirements of the physician in every day clinical work.

In view of the fact that quantitative testing to sugar in the urine has never been rendered satisfactory for the requirements of the clinician, the writer has after some labor and experimenting constructed a formula which will overcome the objections to the present methods, and over two years' experience in its daily use warrants the claim that it is well adapted to the requirements of the physician and student, for the following reasons: It enables one to determine accurately the quantity of sugar in a given sample of urine in from two to five minutes; the test solution is stable and will if properly prepared keep for months without impairment. It is easy of application, the apparatus required being of the simplest order. It may be made available either for exact or approximate estimation; in the latter case more simple and rapidly than in testing qualitatively for albumen.

The formula for the test is as follows:

- R. Sulphate of copper (pure), 48 grains.
- Caustic potash (pure), 144 grains.
- Strong ammonia, 9 ounces.
- Glycerin (pure), 6 drachms.
- Distilled water to 20 ounces.

This solution should be prepared by dissolving the copper sulphate in part of the water and adding the glycerin. In another portion of the water dissolve the caustic potash. Mix the two solutions and add the ammonia. Finally, with distilled water bring the volume of the whole to twenty ounces.

The principle upon which the application of this test depends is the fact that a definite quantity of the solution is reduced upon boiling by a definite quantity of grape sugar, causing complete disappearance of the blue color, and leaving at the exact point of reduction a brightly transparent and colorless fluid. Thus ten drachms of this solution are reduced upon boiling by exactly one-third grain of grape sugar.

The test is best conducted as follows: Have on

hand an ordinary retort stand, a graduated minim burette, a four-ounce glass flask and a spirit lamp. Proceed by measuring ten drachms of the test solution into the glass flask and dilute with about two volumes of distilled water. Place the lighted spirit lamp beneath the flask and while the solution is heating fill the burette with the urine to be tested and screw the burette into the arm of the stand in such a position that the urine will drop into the test solution when the stop cock is turned. When the test solution begins to boil, discharge the urine from the burette, slowly, drop by drop, into the boiling test solution until the blue color completely vanishes and leaves the solution transparent and colorless. The quantity of urine it takes to discharge the blue color represents just one-third grain of sugar. Divide 480 (the number of minims per ounce) by the number it took to discharge the blue color and the product is the number of one-third grains per ounce, which divided by three gives the number of grains per ounce. Thus if sixteen minims of urine reduce the test there are thirty third grains, or ten grains per ounce; $\frac{480}{16} = 30 = \frac{30}{3} = 10$ grains. If it be desired to know the percentage amount of sugar, simply divide the number of grains per ounce by 48.

POLARIZATION.

Grape sugar possesses a right rotary power over polarized light, and upon this fact has been based a method of quantitative testing for sugar by the polariscope. The more elaborately constructed instruments for this purpose are those of Lippich, Mitstürlich, Soliel, Laurent, Wild and Von Fleischel, but the expense of such instruments, and the dexterity required in using them, must always prevent their general use. Ultzmann has recently devised a polarizing saccharimeter which is comparatively simple, both in its construction and manipulation; and the entire apparatus can be had for a comparatively small cost. From considerable experience in the use of the instruments, the writer finds that they are not to be depended upon for determining sugar in the urine if present in quantities less than one and a half or two per cent. It should always be borne in mind that in diabetes the urine is apt to contain laevulose and oxybutric acid, both of which rotate polarized light to the left, rendering this test subject to occasional errors from these sources.

LAEVULOSURIA.

Fruit sugar—laevulose—has been found in the urine of persons whose symptoms correspond closely with those of diabetes. In such cases the laevulose may be associated with grape sugar, or it may appear alone, but usually the former is the case.

Laevulose turns the plane of polarization to the left, and this fact enables us to distinguish it from grape sugar, which turns it to the right. Laevulose reduces copper salts, as does grape sugar, although more feebly than the latter. It also yields the characteristic reaction of yellow crystallization with phenylhydrazin hydrochlorate. Laevulose does not crystallize, and does not ferment so readily as does grape sugar.

CLINICAL SIGNIFICANCE.

Aside from the fact that laevulose is sometimes found in diabetic conditions, either alone or in association with grape sugar, little else is known of its clinical significance. It has been stated

that the excessive ingestion of cane sugar, as well as sugars of certain kinds of fruits, may cause the appearance of laevulose in the urine, more especially in conditions of disturbed digestion. This, however, is rather conjectural than the result of observation, although cane sugar is converted in the intestines into glucose and laevulose.

DETECTION.

If saccharin urine deflect polarized light strongly to the left, we may infer that the saccharin substance is laevulose. If other known substances which turn polarized light to the left be excluded, it may be regarded as certain that laevulose is present.

LACTOSURIA.

Lactose, or milk sugar, crystallizes in white rhombic crystals, is soluble in six parts of water, possesses a right rotary power over polarized light of $+59.30$, does not readily undergo alcoholic fermentation, and it reduces the copper salts upon boiling in alkaline solutions. If long boiled with dilute acid, it forms galactose, which, treated with nitric acid, yields mucic acid.

CLINICAL SIGNIFICANCE.

Lactose occurs frequently in the urine of women who are nursing, the quantity being very small as a rule, although it may reach as high as three per cent. and be attended by all the usual symptoms of diabetes, as in the case under the care of Dr. Ralfe at the London hospital. In this case the woman was suffering from debility, and lactosuria occurred after three successive confinements, the urine being free from sugar during gestations.

Lactose may be said to be nearly always present in the urine of women two or three days after confinement, and just before milk appears in the mammary glands—during milk fever; and the same may be said of women within a day or two after weaning their children. Lactosuria may also arise from any cause which prevents the milk from escaping from the mammary glands during lactation, such as inflammations involving the mammary ducts.

DETECTION.

If urine give the characteristic reaction of grape sugar with alkaline solutions of copper salts, and if it also causes extreme deflection of the polarized ray to the right, it is probable that lactose is present. If confirmation be desired, the lactose may be isolated from the urine and recognized by its characteristic crystalline form.

INOSITURIA.

Inosite, or muscle sugar, crystallizes in two forms: *a*, in large rhombic tablets, and *b*, in small groups of oblique prisms. It is soluble in six parts of water 20°C ., is insoluble in alcohol and ether, does not undergo alcoholic fermentation, possesses no rotary power over polarized light, does not reduce alkaline solutions of copper salts, although it gives with them a greenish tint upon boiling, which clears up on standing, and again turns green on heating.

Although termed muscle sugar, inosite has been found in the lungs, spleen, liver, kidneys, and brain; and it has been found in the urine in a number of morbid conditions.

CLINICAL SIGNIFICANCE.

Inosituria has frequently been met with in dia-

betic condition, either alone or associated with glycosuria. It has also been observed in typhus, phthisis, syphilitic cachexia, and in diseases of the medulla. In a number of cases of inosituria Ralfe observed moderate polyuria, loss of flesh, general malaise, and considerable aching of the limbs, although no tangible disease could be made out.

Inosituria not infrequently takes the place of glycosuria, especially in the milder grades of diabetes, or in convalescence from the latter. Inosituria is also occasionally associated with albuminuria in Bright's disease. Galois found inosite in the urine of seven out of 102 patients examined. Of these it occurred five times in thirty cases of diabetes and twice in twenty-five cases of albuminuria.

DETECTION.

If a solution of inosite be evaporated with a little nitric acid on platinum almost to dryness, and the residue be moistened with ammonia and solution of calcium chloride, and the mixture be again evaporated carefully to dryness, a vivid rose red color arises, which is apparent with even one milligram of inosite (Scherer); other sugars do not give this reaction.

55 East Twentieth street, Chicago.

Dr. N. S. DAVIS, JR., Chicago.—I wish to bear testimony to the excellence of Dr. Purdy's test. During the last few months I have tried it a considerable number of times and found it both complete and accurate. It is no more convenient it seems to me than Fehling's solution when one is familiar with it, and sufficient experience is gained so that the time when there is complete reduction is easily detected; but if one has not had this experience Dr. Purdy's apparatus is much more convenient and reliable. In using Fehling's solution, if a copper solution of standard strength is kept separate from the remainder of the solution, and mixed each time it is to be used, it can be kept indefinitely.

Dr. C. W. PERRY, Chicago.—In reply to Dr. Davis I would say that it is not only the advantage of the mere novice being able to detect the exact point of reduction in the quantitative test, but it is the *keeping* qualities of the test, which are as perfect, I think, as any test can be. It will certainly keep well from three to six months in an office, if it is corked; if not, it loses the ammonia. The keeping qualities are of importance in a test of this character.

THE COMPLICATIONS OF CHRONIC NEPHRITIS.

Read in the Section of Practice of Medicine, at the Forty-fourth Annual Meeting of the American Medical Association.

BY WM. C. DABNEY, M.D.

PROFESSOR OF PRACTICE OF MEDICINE, ETC., UNIVERSITY OF VIRGINIA.

It is not an easy matter to draw a fast and sharp line between the *symptoms* of chronic nephritis and the *complications* which occur with greater or less frequency in this disease. Indeed, the symptoms of the different forms of chronic inflammation of the kidneys may become so serious as to constitute complications of the gravest character and necessitating the most careful management.

I shall not attempt in the present article to study all the complications of chronic Bright's disease, nor shall I attempt to consider any of them in very great detail, but I wish to bring to your attention some of those which seem to me most important, either from the frequency of their occurrence or the

gravity of the symptoms to which they give rise. I propose to study them under the following headings:

1. The cardiac and vascular complications.
2. Those connected with the nervous system.
3. The respiratory.

The Cardiac and Vascular Complications.—So far as the heart is concerned I shall limit my remarks to hypertrophy of the organ, and shall not consider the connection between valvular diseases and chronic renal inflammation.

With respect to the frequency of hypertrophy of the heart in Bright's disease the investigations of Formad have given us positive and clear information. In 300 cases of chronic Bright's disease examined by him, hypertrophy of the heart was found in 62 per cent. But while this was the per cent. of all cases, there was a very striking difference in the frequency of cardiac hypertrophy in the chronic *parenchymatous* form on the one hand, and the *interstitial* on the other. Thus of 150 cases which he himself examined, "hypertrophy of the heart in connection with the parenchymatous form of nephritis occurred in 54 per cent. of the cases, and in the interstitial nephritis in 92 per cent." Of 150 cases taken from the records of the Philadelphia Hospital, "hypertrophy of the heart in connection with parenchymatous nephritis occurred in 56 per cent. of all cases, and in the interstitial nephritis in 60 per cent."

The vascular changes—that is, the changes in the aorta and larger blood vessels—were present also in a large proportion of Formad's cases—52 per cent.—but endarteritis and peradenitis of the renal blood vessels was rarely found except in connection with interstitial nephritis, where it was observed in 90 per cent. It is a matter of interest to determine if possible what relation the cardiac and vascular changes bear to the renal disease, but I need not say that there is still a wide diversity of opinion on this point.

There are three possible explanations of the connection between the two: 1, that the kidney disease *precedes* the heart and arterial trouble and stands in a causative relation to it; 2, that the two are caused by the same agent and progress simultaneously; and 3, that the disease of the vessels is primary and the renal affection secondary thereto.

I do not propose to go into a consideration of the general causes of endarteritis and atheroma or the physiology of the kidney, but there are several points of practical importance in this connection, and about which I believe there is no difference of opinion among those who have studied these subjects carefully. Briefly stated these points are as follows:

1. Various substances are found in the body or are taken into the body from without which are capable of causing inflammation or degeneration of the tissues with which they come in contact.

2. These substances enter the blood vessels and are carried by these vessels to different parts of the body, where they are or should be eliminated.

3. The organs whose duty it is to eliminate these substances are the kidneys, the bowels and liver and the skin. (Elimination may take place from other parts also, but it is of little practical importance.)

It follows from these general propositions that the noxious matters which cause inflammation of the parts with which they come in contact may be present in the blood in excessive quantity, either from increased formation or from defective elimination,

and it would reasonably be inferred also that the most frequent seats of such inflammation would be in the heart and blood vessels and in the eliminative organs, the kidneys, liver, etc.

Now how far do the facts accord with these theoretical considerations? We know that certain toxic matters, such for example as the poison of scarlet fever, are apt to cause inflammation of the lining membrane of the blood vessels and also of the kidneys.

Another common illustration is found in the endarteritis and renal changes which occur in gout.

In the case of scarlet fever we have a poison which is entirely foreign to the body and is never found in it in health; in the case of gout the toxic substance is found normally in the body, but is present in this disease in great excess. In the one case—scarlet fever—the poison is not constantly found and is soon eliminated so that its action ceases, while in the case of gout the toxic substance is constantly found and the irritation resulting from it is more prolonged, and leads to changes of a far more lasting character. There is a further difference, however, in the two cases. The poison of scarlet fever, so far as the kidneys are concerned, acts chiefly on the cells lining the tubules, while the gouty poison acts but little on these cells, but causes inflammation and thickening of the walls of the renal blood vessels. Formad, in the paper to which I have already referred and which is such a mine of information, calls attention to the slight degenerative changes in the renal epithelium in cases of interstitial nephritis, "red granular" or "gouty" kidneys. Gaucher states that the large white kidney (one stage of parenchymatous nephritis), is due to excessive formation in the body or the introduction from without of extractive matters, and he says it may be caused by the excessive use of beef extracts.

In all cases of parenchymatous nephritis of *serious character* there is renal inadequacy; or in other words, certain substances which should be removed by the kidneys are retained in the blood; and this renal inadequacy leads to increased arterial tension (Musser, *Times and Register*, Philadelphia, October 17, 1890; also Bradstreet on *The Pulse*, p. 156). Nor is the renal inadequacy confined to *parenchymatous* nephritis. In interstitial nephritis it is very marked, but it is probably of late occurrence in these cases, and is due rather to a diminution in the extent of excretory surface than to a change in the excretory cells themselves. It is a well known fact, furthermore, that hypertrophy of the heart does not occur to any appreciable degree in acute nephritis; nor is it marked in the early stages of the chronic parenchymatous disease. As a rule, however, the cardiac and vascular changes become more and more marked in proportion to the duration of the affection. But in many cases, as Formad's examinations show, it is slight at the time of death. The following cases, which have been under my immediate observation for a number of years, will illustrate this point:

Mrs. R. J. M. had a severe attack of puerperal eclampsia in 1880, from which she recovered in due time; since then she has given birth to six children, but her urine has never been free from albumen, and hyaline and granular casts can often be found in it; she has some dropsy occasionally also. During each of her pregnancies the condition of her kidneys has been such as to cause me great anxiety, but she has never had a recurrence of the eclampsia.

Now in this case there has never been any evidence of cardiac hypertrophy or of vascular change. In another case which terminated fatally during the past winter there were the gouty symptoms but no enlargement of the heart:

Miss G. came under my care in August, 1890. Her age was 36. She consulted me for some attacks of nausea and headache; there was no dropsy, and my attention would probably not have been called to the condition of her kidneys but for the singularly dark color of the skin, to which I have called attention elsewhere as a frequent symptom of chronic Bright's disease. On examination of this lady's urine I found albumen in large amount and considerable numbers of hyaline and granular casts. The symptoms continued with occasional periods of improvement till her death during the past winter, but at no time was there any perceptible enlargement of her heart.

The frequency and extent of the cardiac and vascular changes in chronic parenchymatous nephritis probably depend more on the nature of the toxic substance than on the amount in the blood at any one time, or even on the length of time that the poison is circulating in the blood. This explains the extreme frequency of such complications in connection with the "gouty kidney."

But it would not be in accord with the facts for us to adopt an exclusive view as to the connection between the cardiac and vascular changes and the renal disease. It seems to me then that we are justified in adopting the following views:

1. Cardiac and vascular changes are far more common in interstitial nephritis than in the parenchymatous form of the disease. In these cases the renal, cardiac and vascular changes go on simultaneously and are due to the same cause, and the cardiac and vascular changes are not the consequence of the renal disease, though they may be aggravated by it. It is an interesting fact that this form of nephritis occurs especially in gouty and rheumatic persons who are liable to inflammatory disturbances about the ligaments, etc., and that in such cases also endarteritis and atheroma also occur, being observed chiefly in the connective tissue coat of the arteries.

2. Cardiac and vascular changes also occur in connection with chronic parenchymatous nephritis, but they are much less frequent than in the interstitial form, and are probably *secondary* to the renal disease and caused by the retention of toxic matters in consequence of the renal inadequacy.

Directly connected with the cardiac and vascular complications are the *hemorrhages* which are of common occurrence in cases of chronic nephritis, and may lead to the most serious consequences.

Saverny (Thèse de Paris, 1890), has called attention to hemorrhages from the nose, which are of comparatively common occurrence in interstitial nephritis, and occur in the late stage. They are plainly due to the cardiac hypertrophy and the changes in the vascular walls.

Of far more importance and unfortunately of comparative frequency, are cerebral hemorrhages. Like bleeding from the nose, cerebral hemorrhage is far more common in the interstitial than in parenchymatous nephritis, and usually occurs late in the disease. Of the 150 cases tabulated by Fornad from autopsies made in private practice or for the coroner, cerebral hemorrhage caused death in 16 per cent. Of the 150 cases taken from the wards of the Philadelphia Hospital, only 7 per cent. died from apoplexy.

Complications Connected with the Nervous System.—*Apoplexy*, while it is perhaps the most common complication of chronic Bright's disease, has already been briefly considered in connection with the cardiac and vascular changes, and I shall not have time to consider it more in detail at present. There are two or three other nervous complications, however, to which I wish to call attention as briefly as possible.

One of these is *sweating*. This symptom or complication might perhaps be classed with the cutaneous disturbances, but it is so clearly of nervous origin that I shall insert it here. Sweating is so common that it is apt to be overlooked or to have but little attention paid to it, but I have seen a most interesting case of *local sweating* in the course of chronic interstitial nephritis which was sufficient in degree to occasion great discomfort. The patient was a well known member of the medical profession and had been a sufferer from sclerotic Bright's disease for several years when profuse sweating of the face and head came on. The attacks occurred chiefly at night or in the early hours of the morning, and the amount of sweat secreted was very great, but it was confined exclusively to the head. The disturbance persisted with occasional intermissions till his death, about eight months after it first appeared.

Another nervous complication of Bright's disease to which considerable attention has been given of late years, is *insanity*. Alice Bennett (*Med. Standard*, December, 1890), thinks the mental disturbance in these cases is due to the renal insufficiency. Florant holds a similar view, but he thinks the patients have usually a "neurotic diathesis" (*Gaz. des Hôpitaux*, July, 1890). Raymond has reported an interesting case (*Gaz. Med. de Paris*, November, 1890), in which the mental alienation was more marked whenever there was an exacerbation of the renal disease.

The form of insanity differs in different cases. Acute mania may occur in chronic Bright's disease, as in a case mentioned by Raymond.

Sometimes the insanity takes the form of mental weakening, as in the following case:

Mrs. J., married a number of years and having two children, came under my care in the summer of 1889; she was then 43 years old. Twelve years before, just before the birth of one of her children, she had received a violent shock—had seen a man murdered in front of her house, and for months she lived in constant terror because her husband's life had been threatened by the Molly McGuire, who were then terrorizing the coal regions of Pennsylvania. Her child was born shortly afterwards and she finally seemed to recover her health and spirits entirely till some years afterwards—I could not learn the exact date, dropsy developed and Bright's disease of the chronic parenchymatous form was found to exist. From this time she continued more or less of an invalid, and her mind gradually weakened until she became almost entirely imbecile.

The following case presents a different picture:

Mr. C. D. came under my care in June, 1882; he was then about 50 years old; had always been temperate and had no history of syphilis; he was happily married, had a number of children, some of them grown, and was in comfortable circumstances. For some time before his friends had observed that he was inclined to exaggerate the most trivial matters and that his statements were not always entirely in accordance with the facts. He was inclined to indulge in silly or extravagant ventures. When I saw him the delirium of grandeur was well marked; there was no appar-

ent trouble about his heart or lungs, but his urine contained a considerable quantity of albumen and some hyaline casts. His mental symptoms grew worse during July, and Cheyne-Stokes breathing appeared and continued for several days. Early in August this symptom disappeared and his mental condition began to improve. His strength, which had been greatly impaired, also improved greatly, and by September he was able to be on the street and the only evidence of mental trouble was a decided emotional tendency. All this time the albumen and casts were found in the urine. During the early winter his intellectual faculties became so much impaired that it was found necessary to put him in an asylum, where he died a few months later of general paresis. No autopsy could be had. At no time prior to his removal from home was his urine free from albumen, and casts were frequently found in it.

The only other complications which I shall mention now are those connected with the *respiratory* system.

By far the most common of these is dyspnoea, which may occur in paroxysms or be more or less continuous. As a general thing it occurs in the late stages of the disease, but not uncommonly it comes on at a comparatively early period. Nor are all cases to be traced to the same cause. Leaving out of consideration its occurrence in pneumonia, which is not a rare complication of Bright's disease, it may be traced to, 1, uræmic poisoning; 2, cardiac failure; 3, pulmonary oedema; 4, oedema of the larynx; and in some cases to, 5, pleural effusion.

So far as I can judge from my own experience, the paroxysmal form is most common in interstitial nephritis, and is commonly connected either with a temporary but decided diminution in the amount of solid urine discharged or with cardiac degeneration and dilatation. It occurs especially in persons having a gouty history, as in the following case:

Mrs. D., aged 69, was taken about 2 o'clock one morning with a severe asthmatic attack which lasted several hours, and was finally relieved by inhaling the smoke of burning "niter paper." The family history of this lady showed a remarkable tendency to gout and she herself had gouty deposits in the finger joints of both hands; her heart was considerably enlarged and her pulse full and hard. From that time to the present she has been subject to similar attacks of dyspnoea, which are always relieved by the same means. She has frequent attacks of giddiness, often so distressing as to cause her the greatest anxiety, and her urine is abundant and of low specific gravity. I have seen her in a number of these attacks, and in none has there been any evidence of heart failure, so that I think the dyspnoea can scarcely be attributed to this cause.

Some years ago I saw in consultation this lady's brother in an advanced stage of interstitial Bright's disease. The trouble from which he suffered most was dyspnoea, but in his case it was plainly due to weakness of the heart's action and perhaps dropsical accumulation in the chest, for he had severe attacks of angina pectoris and there was general dropsy in addition; his heart was greatly hypertrophied and his arteries atheromatous. He died a few months later in an attack of angina pectoris.

In other cases the dyspnoea is plainly due to *pulmonary oedema*, but it is questionable whether this occurs frequently, if ever, unless there is serious loss of heart power.

Oedema of the larynx is a rare cause of dyspnoea, and only occurs, so far as I can learn, in cases characterized by great oedema elsewhere.

Pleural effusion, even in small amount, sometimes causes a very marked difficulty of breathing, as in the following instance:

A woman 24 years old applied at my clinic in November last for treatment. She had a general oedema and her urine was scant and contained albumen in very large amount. She had never had a child and the trouble came on gradually. She was given digitalis, squills and niter, and in a short time the dropsy had disappeared and she said she felt much better, but her urine contained albumen in large quantity. She was given wine and digitalis, and gained flesh and strength for some time. In January she complained of some pain in the right side and considerable dyspnoea, and flatness was found at the lower part of the left side of the thorax. She was again given digitalis, squills and niter, and the urinary discharge was greatly increased. In three weeks the pleural effusion had disappeared and the dyspnoea was almost entirely relieved.

Time will not permit a consideration of some other very interesting complications of chronic Bright's disease. It would seem from Formad's investigations that *pericarditis* is one of the commonest causes of death in the chronic forms of this disease, whether parenchymatous or interstitial, and yet I am satisfied it is often overlooked, and it is probable, I think, that in some cases the dyspnoea is due to this.

OBSERVATIONS BASED ON AN EXPERIENCE WITH NEARLY ONE THOUSAND CASES OF TYPHOID FEVER.

Read before the Section of Practice of Medicine, at the Forty-fourth Annual Meeting of the American Medical Association.

BY JAMES B. HERRICK, M.D.
CHICAGO.

Within the past five years I have seen in the city of Chicago, in Cook County, Presbyterian and St. Elizabeth Hospitals and in private practice, nearly one thousand cases of typhoid fever.

The following observations are based on the experience with these cases:

Observations the result of clinical experience are accepted as true by the reader, only so far as the facts accord with those he himself has noted, or as the conclusions appeal to his reason, or as he has confidence in the ability of the observer to make accurate observations and correctly to interpret them. I fully realize the truth of the Hippocratic motto Professor Osler has put at the head of his book, "Experience is fallacious and judgment difficult," and I am aware of the weak points in a paper clinical in character, not experimental nor even statistical; and I fear lest what I write may seem trite and commonplace, for I am daily made conscious that much that is being put in type concerning the clinical side of typhoid fever is really but the restatement, though often from a different standpoint, of facts old, known to our predecessors, and often plainly set down in words in works now regarded as out of date. I have repeatedly been surprised, not to say chagrined, to find that some fact new to me, and that came to me with the pleasurable freshness of a genuine discovery, was a fact already noted by previous observers. [It pleases one that one's own conclusion, arrived at independently, tallies with that of a Fagge, Murchison, Liebermeister, Eichhorst, Troussau or Flint; but one is chagrined to think that it requires a read-

ing and again and again, a rereading in the light of experience to fasten the facts once read firmly in mind.]

It has been my aim in preparing this paper to touch only those points of unusual interest, because of the clinical phenomena, or because current literature, or discussion among medical men, seems to betray variety of opinion concerning those matters, or what has seemed at times a wrong conception of them.

Circulatory System. The pulse of typhoid is a *slow* pulse, and this notwithstanding a high temperature. I could show many history sheets where the pulse never reached one hundred, while the temperature ranged from 103° to 105.5°. The average in women is higher by five to fifteen beats to the minute than in men. A pulse of ninety in a bed-patient, with a temperature of 103°, should be regarded as a diagnostic feature in favor of typhoid. A pulse of over one hundred and six in a male with typhoid is one needing most careful watching. And above all, a pulse that is, especially in the first two weeks, to-day one hundred, to-morrow one hundred and four, one hundred and ten, one hundred and sixteen, etc., is one of bad omen.¹ The disproportion between pulse and temperature is, I believe, as characteristic of typhoid as is the rapid pulse of scarlet fever. Liebermeister lays great stress upon this point, and says that of those with a pulse as high as 140, 50% die; over 140, 80%; over 150, 90%. The compressibility of the pulse and its frequent dirotism, and occasional intermittent character, have been repeatedly noted. Bradycardia is a common phenomenon of convalescence; but, on the contrary, many a patient whose pulse has never exceeded one hundred while in bed and who, as apyrexia has been reached, has had a pulse rate of only fifty or sixty has, on first getting out of bed, had the pulse jump to one hundred and twenty or one hundred and forty. The pathological basis of this irritable heart may be in myocardial degeneration. One of the County Hospital typhoids who left contrary to orders, after the temperature had been normal for only one week, on arriving home and after climbing two flights of stairs, fell suddenly dead. No autopsy was permitted. The existence of this cardiac irritability during convalescence carries its own lesson of enforced quiet during this period.

It has seemed to me that the absolute rest that has been insisted upon, together with the naturally low arterial tension and slow heart beat, especially as convalescence approaches, might account for the large number of cases of femoral thrombosis met with. In private practice I have seen it in five per cent. of cases in adults, never in children. In the Presbyterian Hospital last fall about one in ten had thrombosis. Murchison is authority for the statement that it occurs usually in only one per cent. of cases. No serious consequences have followed this complication beyond the persistence, often for months, of œdema of the affected limb, whenever the limb was for any length of time in a dependent position. I have never seen pulmonary embolism in consequence of femoral thrombosis. No veins other than the femoral or its radicals have been affected.

¹ Chantemesse, quoting Mallierbe and Parizot, says the period of cardiac weakness, begins at one hundred and twenty beats to the minute and that the pulse of the fœtogram oscillates between 8 and 104 in men and 104 and 120 in women. *Traité de Médecine*, I—p. 796.

Arterial obstruction by thrombus or embolus has not been met with in any of these cases.

Twice during convalescence an increase of temperature, pulse one hundred and twenty to one hundred and fifty, distinct endocardial murmur where none previously existed, in one case, precordial pain, have given evidence of the rather rare complication, acute endocarditis. In one case there were, inside of a week, subsidence of temperature, reduction in pulse-rate, and almost total disappearance of murmur. In the other, the patient, at the end of four weeks in bed, left the hospital with rapid heart and mitral systolic murmur.

Skin. In my experience sweating is not usually present until late in the disease, that is, a sweating not produced by antipyretics. The statement of authors are here at variance; for instance, Pepper stating that sweating is more common in typhoid fever than in almost any other of the acute diseases, except malaria, relapsing fever and rheumatism.

The papular rose-colored eruption has been present in the great majority of cases, yet absent in many. Eichhorst's one thousand consecutive cases with rash in every case is an unique record. It has seemed to me that where the papules were very abundant the patient was always very sick. On the contrary their scantiness, or absence, was no evidence of a light case. In only one case have I noticed the eruption on the face. In this instance it covered the arms and legs as well, and persisted, appearing in successive crops for over four weeks. I do not remember to have seen labial herpes in typhoid. The "peliomata" or "taches bleuâtres" I have seen but once. Body lice were found in this case. Bed-sores have been rare, owing to careful nursing. The only circumstances under which a bed-sore in a patient properly nursed can possibly be excusable and be looked upon as other than a blunder, as Dr. Henry calls it, is where an intestinal hemorrhage demands, for a time, absolute quiet of the patient. The skin over the sacrum kept moist by the oozing, bloody stool will become rapidly necrotic under a few hours pressure. One of the cases of acute endocarditis, above referred to, occurred in a patient with an unhealed suppurating bed-sore; I regard this as the infection atrium. The daily sponge bath with soap and water and also with alcohol, *i. e.*, the keeping of the skin as aseptic as possible, is I believe, responsible for the very few cases of furunculosis I have seen. I can recall but one case and that of moderate severity.

Facial erysipelas has not occurred in my cases, though in a few cases that sprang up in one of the wards at the County Hospital there was a uniformly fatal result.

Respiratory Tract. Epistaxis has been an early phenomenon in about 20 per cent. of cases. It was seen, not infrequently, in influenza, yet by no means as often as in typhoid. Severe epistaxis during the height of the disease, such as to cause evidence of acute anemia and to call for radical treatment, I have met with twice.

Laryngeal ulceration has not been carefully sought for. In one case only has laryngeal perichondritis occurred. This was in a lad of seventeen and convalescence from an unusually severe typhoid. A laryngeal ulcer, detected by the laryngoscope, probably gave to the bacteria admission to the deeper

² An American Text-book on Theory and Practice of Medicine, Vol. 1 p. 79.

tissues resulting in the suppurative perichondrial inflammation. The patient recovered under tracheotomy, though he nearly died later by the closure of the tube through plugs arising from a fibrinous bronchitis. I do not know of any other instance of perichondritis in either the Presbyterian or County Hospitals during five years. Dr. E. Fletcher Ingals, whose counsel in this case was of great value to me, tells me that in twenty years experience as a laryngologist he has seen but one other instance of perichondritis arising during typhoid. Hölcher reports fifteen cases among 2,000 fatal ones.

Bronchitis has been of such frequent occurrence as to be regarded rather in the light of one of the pathological accompaniments of the disease, than as a complication. Its extent and severity, however, in some instances have made it a source of danger, and obscured the diagnosis. Once a case I regarded as miliary tuberculosis arising during typhoid, or perhaps, such from the beginning, made a complete recovery and compelled a return to the original diagnosis. And once in consultation, remembering this case, I was enabled rightly to reverse the diagnosis of tuberculosis back to typhoid.

Pneumonia has been very rare, at least rarely recognized clinically and *post-mortem*. Its insidious onset, the absence of chill, additional temperature, cough and rusty sputa, make us fall back on rapidity of respiration and physical signs as diagnostic data and rapidity of respiration is by no means a reliable sign. Many cases are probably due to the streptococcus, possibly the bacillus typhosus, and not to the diplococcus of Fraenkel. I believe the stern insistence upon strict cleanliness of the mouth and nose is responsible for the small number of cases of pneumonia and severe bronchitis I have seen. Air inhaled through a foul nose, mouth and pharynx carries to bronchi and alveoli numerous bacteria that excite irritation, if not specific inflammation. Inhalation of bronchitis and pneumonia I have aimed to avoid by oral cleanliness, and by insisting that the patient should be made often to change the position from one side to the other, and to the back, and lately by instructions to have him take several times daily full and deep inspirations. By these procedures fewer organisms enter the respiratory tract, there is less passive congestion of any one part, mucus tends less to accumulate in any one portion of the bronchi or alveoli, and it is more readily dislodged by the cough excited by the deep inspiratory effort.

Fever. The highest temperature observed was 106° axillary. This was in a child of ten years who had been given, by visitors, cake and candy. The mild course of the disease seemed from this time on to be aggravated, delirium, involuntary discharges, rapid emaciation following with continuance of unusually high temperature. Recovery followed. In another case, in private practice, a colored woman of forty, who varied her liquid diet by occasionally indulging in crackers, meat, peanuts and popcorn, and whom I could not induce to go to the hospital, and who spent nearly one-third of her time out of bed, I found twice a temperature of 106°. Three days after a normal evening temperature had been reached, she was up, weak and trembling to be sure, but doing a fair day's work at the ironing table. Her boy of ten years with a typical typhoid was, during his illness, never in bed for any one twenty-

four hours, and never undressed. He recovered. In several cases temperatures have been prevented, I think, from passing 106° by antipyretic measures.

I have become strongly impressed with the great tenacity with which the fever in the early days, say the first twelve days, will cling to the high points in spite of our efforts to make it let go its hold. Again and again nurses have told me, with despairing faces, how after half an hour's sponging, the temperature has actually gone up instead of down. And, during the early days larger doses of antipyretics are required to produce an appreciable effect on the body heat. In the third week the fever is much more tractable. The five grains of phenacetin that on the ninth day barely reduced a temperature of 105° to 104°, will on the fifteenth cause a drop from 105° to 100°, or even to subnormal. I have learned to be extremely cautious in giving even moderate doses of these drugs in the third and fourth weeks of the disease. Seldom do I give more than three grains of phenacetin or two grains of acetanilid at such a time. The sponge bath at this time will usually reduce temperature without difficulty.

Prolongation of temperature when all evidence of typhoid is past, *i. e.*, when the bowels are regular, rose spots and tympany have disappeared, tongue is moist and spleen apparently normal in size, and where no demonstrable complication is present, is a very perplexing condition whose pathological cause cannot in all cases be explained. Catarrhal inflammation of the small intestines, ptomaine absorption, nervous influences, post-typhoid anemia, may explain some cases. Unrecognized inflammation of the mesenteric glands may exist. Twice have I finally found a serious pleuritic exudate, trifling in amount, which I thought explained the temperature. Lately I have, in this class of cases, commenced a cautious use of solid food, in spite of evening temperatures of 100° or 101°, have, a few times, allowed the patients to get out of bed, and had gratifying results. The nervous excitement is allayed, the condition of the blood improved, and as strength returns from the additional nourishment, the causes keeping up the temperature seem to vanish. The pleural exudate in the two cases referred to, disappeared under light diet.

I certainly believe that errors in diet may be the cause of inducing not only a recrudescence but a genuine relapse. I have never seen more than two genuine relapses in one patient, the entire duration of the fever being seventy-seven days. Several times I have seen what was apparently a reinfection occur before the temperature had reached normal.

Mild cases have been common. Apyretic typhoid I diagnosed once on the basis of exclusion of other diseases, prevalence of typhoid, mental dullness, physical weakness, condition of tongue, enlarged spleen and slightly tympanitic abdomen, as well as by the fact of gradual improvement at the end of three weeks. Two other cases in the County Hospital, though not in my service, have been diagnosed as apyretic typhoid. One of these recovered. The second came to autopsy and typhoid fever lesions were found. This latter case must convince even the skeptical of the actual existence at times of typhoid infection without fever.

Of so-called abortive cases, or rapid cases, those that run their pyrexial course in from ten to twenty days, I have seen several, and especially in children.

In one boy of five years, rose-spots, delirium, diarrhoea, subsultus with typical temperature, going as high as 105°, make the diagnosis of typhoid unequivocally sure. Yet on the sixteenth day there was no fever, nor other evident relic of the disease.

Alimentary. The tongue gives to me much less evidence in making up a diagnosis, than in forming a prognosis. Only once have I seen a pharyngeal ulcer, and in this case on the uvula and extending slightly over to the soft palate.

In two cases parotid abscess has formed. Strict cleanliness of the mouth preventing so far as possible severe stomatitis and infection of the parotid, by way of Steno's duct is the best prophylactic against suppurative parotitis, as it is one of the preventive measures against bronchitis and pneumonia, and middle ear suppuration. One case of parotid abscess was in a patient who came under my care on the tenth day of her illness, and who was in circumstances such that no nursing that ought to go by that name, was obtainable. She had, without exception, the filthiest mouth I ever saw in a typhoid.

In several cases vomiting had been so prominent early in the disease as to obscure diagnosis, by drawing attention to the stomach. It usually subsides in a few days. Vomiting late in typhoid has rarely been met with, and always excites suspicion of over-medication or over-feeding. Diarrhoea has not been present in more than half the patients, and then usually appearing in the second week. Patients with diarrhoea are sicker than the constipated.

Hemorrhage has occurred oftenest in cases attended by diarrhoea. I have never seen any benefit follow these hemorrhages, but on the contrary have too often seen death follow, once even in an hour, after the first appearance of blood, or later after the repeated recurrence.

Typanites I seldom meet with, now that I use from the beginning some intestinal antiseptic, usually salol. Certainly its occurrence to such an extent as to be regarded as complication is a rarity compared with its rather frequent manifestation four years ago.

It is a mistake to expect sudden, sharp pain whenever intestinal perforation occurs. In some cases pain has been so marked as to cause the nurse to hurry for the house physician, with her diagnosis of perforation. But I have seen three cases where the patient, with perception not even ordinarily blunted by the disease, has had no sensation of sudden pain, made little complaint of pain save on rather violent manipulation of the distended abdomen. Autopsy in one case enabled me to make the diagnosis, in the other two it confirmed the ante-mortem diagnosis. Loss of liver dullness, especially if shortly before the dullness had been present, is a valuable sign, though not infallible.

Urine. Retention has several times necessitated catheterization. In a few instances a mild cystitis followed. Nephro-typhoid has been rare. Albuminuria has been common. Ehrlich's test has been frequently applied. Dr. A. R. Edwards, then interne at the County Hospital, made a careful examination of the urine of one hundred and thirty typhoids (not all in my service) and found Ehrlich's reaction in ninety-eight and one-half per cent of the cases. He also found the reaction marked in the urine of tubercular patients, malarial, septicæmic, anemic cases,

etc. It is known to be usually present in the urine of measles. Its diagnostic value is, therefore, extremely limited. Its absence speaks with a fair degree of certainty against typhoid, yet it failed me once in a case of typhoid just when I most needed it.

Nervous. I am convinced that under the treatment by intestinal antiseptics there is less delirium than without this method. A great many patients are mentally quite bright throughout the illness. Post febrile melancholia I have seen twice, and well marked mental weakness, once. All three cases recovered. One case of peripheral neuritis was observed in the Presbyterian Hospital last year, the lower extremities being involved. In not a few cases pain has been complained of over the region of the spleen. This I took to be due to a tightly stretched splenic capsule. Pain and hyperæsthesia in the soles of the feet and in the leg, especially over the tibia, have been several times observed during convalescence.

I regret my inability to furnish exact figures as to the proportion of cases among new comers to Chicago. In private practice twenty-six per cent. of my patients with typhoid had been in the city less than one year. I am confident that in the County Hospital where foreigners make up a goodly percentage of the inmates, thirty or forty out of every one hundred typhoids were new comers. The large influx of population to Chicago for the past few years, the new comer not possessing immunity against typhoid infection, may explain in a measure the fearful prevalence of this disease during the past five or six years. It has seemed to me that the new resident has been especially liable to a severe form of the disease. Almquist quotes Murchison as saying that sixteen per cent. of his typhoid patients had not been in London a year. Louis is quoted as noting about the same percentage of new city residents among his typhoids and Almquist thinks in his own practice the same is true. "He who has not been early exposed to the poison," he says, "more easily falls a victim to the same." The frequent occurrence of the disease among medical students coming to Chicago from the country is worthy of note.

The necessity of extreme care in the nursing of typhoids, in the disposal of excreta, etc., has been strongly impressed upon me by the occurrence of a second case in the family in ten instances where the nursing was done by unskilled nurses or by the members of the family, as well as by the variety of the appearance of second cases where the services of a careful nurse have been available, and by the very infrequent appearance of typhoid development in the wards of our hospital where at times in a single ward forty and fifty patients with illness other than typhoid have been crowded in among as many typhoids.

The belying of the muscle as the biceps on sharply pinching it I seldom fail to find even quite early in the disease. I have found it as well in pneumonia, pulmonary tuberculosis, septicæmia, very rarely in malaria.

TREATMENT.

Rest. The recumbent position in bed has been insisted upon even during mild cases. No patient

² The Medical News, April 2, 1892.

³ Sammlung Klin. Vorträge, No. 5, 1886. Typhoid: Hauptmoment der aetiologie des Abdominaltyphus.

has been allowed to get up until there has been a normal temperature for at least a week, and in the greater number of cases for a longer time than a week.

Diet. Liquid diet has been ordered, consisting chiefly of milk given at regular intervals every two to four hours, day and night, an adult taking, on an average, three pints during this time. Coffee, chocolate, cocoa, beef-tea, ice cream, egg-albumen water, egg-nog, are allowed to vary the monotony of the milk diet. Light diet is not allowed until there has been a normal evening temperature for from three to five days.

Fever. Sponging has been resorted to in most cases, whenever the temperature reached 103° or 103.5°. Cold, tepid or warm water has been employed, according to the effect upon the individual patient, or his likings. The ice-pack has been occasionally made use of, as has the ice-cap, and ice-coil to the abdomen. The cold bath treatment has not been employed, because circumstances made it unavailable. At times in private practice, and the hospital where crowded wards made systematic sponging for temperature a physical impossibility for the limited number of nurses, and again in those cases before mentioned, where sponging failed to produce the desired effect, antipyrin, phenacetin, or acetanilid have been given. Since I have learned to be cautious in using these remedies, and to give small or moderate doses, I have never seen any bad effect. Lowered temperature, slower pulse with firm, full beat, improvement in mental symptoms, free perspiration are the effects usually noted.

Intestines. Salol, ten to twenty grains in twenty-four hours, has been given in almost all of my late cases. Either these cases have been naturally light, or the intestinal antiseptic has modified the course of the disease, so that symptoms of intoxication have been less marked. The mind is clearer, there is less delirium, diarrhoea and tympanitis are present only in a trifling degree; prostration and emaciation are comparatively insignificant. An initial dose of calomel has been very frequently administered.

An enema usually of glycerin and water has been regularly administered on alternate days, whenever necessary by reason of constipation. Turpentine for excessive diarrhoea, especially if combined with tympanitis, has seemed, in cases, of benefit, though for tympany the enema, or use of the rectal tube, is more reliable. I have lately avoided opium unless strongly indicated.

Perforation. Surgery offers the only hope of relief, and from the fact that perforation occurs usually at a time when the patient is poorly able to withstand the shock of beginning peritonitis, let alone that of anaesthesia and operation, the recoveries must necessarily be few. When occurring in a patient not profoundly depressed by the disease, where the diagnosis is made early, and surgical interference is prompt, operation may result in cure. I was privileged to see the case under the care of Drs. Fisher and VanHook, where the early and accurate diagnosis of the one and the prompt and scientific operation of the other resulted in a brilliant recovery. Of several cases operated on in the Cook County Hospital all have proven fatal. In no case where perforation has been diagnosed before death has there been any evidence of localization of the

resulting peritonitis. General peritonitis and death have always followed.

Circulatory. The loss of four women in as many weeks in the female ward at County Hospital, where ante- and post-mortem diagnosis failed to reveal the anatomical lesion of any complicating disease, and where death occurred from sudden failure of the heart and collapse, taught me to give early, before symptoms of cardiac failure begin, some cardiac stimulant. Nux vomica, or strychnia I usually prescribe often from the start in small doses, so that the amount can be gradually increased. Alcohol I give much less freely than formerly, reserving it for the class of cases where in the third week we have the patient in the typical typhoid state.

Hemorrhage. I give ergot and acetate of lead usually, opium always. The latter drug even if it have no direct effect upon the circulation, quiets the patient, often restless and anxious from the acute anemia, and lessens the peristaltic movements of the intestines. Cold is usually applied to the abdomen. The efficacy of treatment, save that of rest and opium, is doubtful.

TREATMENT OF TYPHOID FEVER.

Read in the Section of Practice of Medicine, at the Forty-fourth Annual Meeting of the American Medical Association.

BY CHRISTIAN SIEHLER, M.D.

CLEVELAND, OHIO.

When the chairman of this Section invited me to read a paper here on the hydratic treatment of typhoid fever in private practice, I wrote him that I would come but only deliver a short sermon on this text.

The cool bath treatment of typhoid fever can, ought, and will be carried out in private practice.

This method can be carried out in private practice; this I know, because I have been using it now for almost three and one-half years during which time I treated over ninety-five cases and must have had administered over 5,000 baths. Incidentally I would remark that so far I have never been called on account of any mishap or dangerous symptom depending on the baths. Now I think what I have done any of you can accomplish. My patients belong to the class of artisans and laborers, thus representing the masses of the people and the bulk of the community, and I think I have thus demonstrated that for the people as a whole the method is adapted. It would seem to me that amongst the educated and well-to-do I should have—in some respects at least—less of difficulties to overcome, because the former can more fully appreciate the reasons for the application of the method, and because the latter are better able to carry out the method to perfection.

And yet, while I insist upon it that the method is one generally applicable I am fully aware that there exist objections and difficulties in connection with this line of treatment. I will mention three. The first one which I think is the most valid one is this: It is not a pleasant sensation to step into a bath of 68° F., and the last five minutes which the patient has to remain in the bath seem very long to him. Furthermore, we know that four out of five of our patients would get well without the treatment, and on this topic allow me to quote from a letter from Dr. Brand: "As far as the pleasantness, or the oppo-

site, of the method is concerned you may give my regards to the gentlemen in Milwaukee, whom I should very much desire to answer the question which I have proposed to the confrères in France and Germany, but which has not been answered by them nor by myself. What are the signs in the beginning of the illness which will allow one to discern whether the course of the disease will be grave or mild? Out of 100 cases eighty will get well, and do not require the hydratic treatment in its entirety. These are made to suffer to no purpose and might be treated more pleasantly if one could only recognize that they would certainly get well. But as this cannot be done, they have to be treated exactly as the twenty that are (or would be) doomed to die. It would be a great step forward if this matter could be remedied, and I would be the first one to express my joy and congratulations to him who could point out to me the signs of an absolutely favorable prognosis."

But to come back to the unpleasantness of the bath. Dr. Osler in a lecture quoting from a letter illustrates this difficulty. The quotation reads: "The prayers, entreaties, supplications, and last, but not least effective, the lusty yells of this girl at each bath were such as not to materially increase the repose of the neighborhood or strengthen to any extent the nerves of the family."

While I can not complain particularly about my female patients, and while I think that Dr. Osler pictures here an extreme case, I fully appreciate what Dr. Osler wishes to say, and know from experience with my patients enough of this matter—yet I am obliged to say that there are thousands and millions of sensible people in this country who are willing to be chilled and to shiver in order to increase their chance of recovery; mothers will do it for their children, fathers for their family—young people for their parents and themselves, and the physician certainly has no right to withhold the baths from his patients on this account. When the patient has positively refused to be bathed it will be time enough to do that. Should all the sensible people be deprived of the benefits of the baths, because a few silly persons behave like children? I think not. Furthermore, the patient is amply repaid for his sufferings lasting minutes, by sweet sleep and feelings of *bien sauté*, lasting hours.

In passing I will remark that in my opinion patients would suffer far less from a bath 65° of fifteen minutes than from one 70° or 72° of twenty minutes.

The second objection may be put in this form: The method is so complicated, demands so much time, so much skill and training on the part of the attendants that but rarely the conditions will be found that will allow the execution of the method.

Now, my experience has shown me that this objection is not as formidable as it seems to be. I have told you that the method was carried out by my patients, and only exceptionally were the conditions such that the method could not be employed. The majority of my patients were treated by other members of their family or friends, without any nurses. Glancing over my list I find A. Nehrenz, over ninety-five baths, nursed by his parents. O. Beyer, over ninety baths, also nursed by his parents. Soph. Walker, seventy baths, bathed by her mother and aunt. Rob. Schacht Schneider, nursed by wife and

her sister, Ida Mann, sixty-seven baths; Anna Mann, eighty-eight baths, sisters, nursed by parents.

A great many of my patients have been nursed even by inexperienced persons with great accuracy and thoroughness—and to show how perfectly the thing is often carried out I send around the record of such a case, a young man nursed by his father and mother.

Now, there are thousands upon thousands in this country who are able and willing to do this as well—why, let me ask you, should they be denied the privilege of doing it—even if there be a few ignorant and slovenly people who can not use the method or do not care to use it?

But while a great many of my cases have been treated by members of the family, yet nurses, who have learned to use the method and have some experience with it, are in some instances a necessity and would be a great boon in every case, both to patient and doctor. There are some families that have very little natural ability for nursing, or that lack the necessary determination to carry out the treatment of our unwilling patient, or the case may be a grave one, where no error should occur, or where contingencies might arise to make modifications of the directions necessary—in all such cases nurses should have charge of the case, and nurses then may be put down as a necessary part of the outfit to carry on the treatment. But this can not be urged as an objection to the method. It will be our duty to train such persons, and to overcome that difficulty.

The third objection is, the method will strike the laity as something so dangerous and unheard of that its introduction will be next to impossible.

Here again my experience has shown me that this objection on the part of laity is not insurmountable—it has not been very great even. In fact, the hindrances to the introduction of the method are to be looked for somewhere else. I have found that if I asked 100 persons of the laity to use the baths, ninety-five used the baths, five refused. If I ask 100 doctors to employ the baths, ninety-five will refuse and five only will make use of them.

Why should a patient be afraid of the method if his physician can assure him that there is no danger? Where the method can not be introduced there must be something wrong with the relation of patient and physician. I must admit that where the method is altogether unheard of it requires some backbone on the side of the physician, but there are men who have that. I believe that there are always sensible people who will not object to the use of the method. They will set an example and happily the good effects of the method are so glaring that the laity, especially such as know something about typhoid fever and the zero-effects of the medicinal treatment, will soon be converted and will recommend the method to their friends. Inasmuch as I refuse to treat any case not willing to use the baths, I had some patients go somewhere else—but for every case I lost I have gained two or three. In the first year I had to do some talking and had to make my patients acquainted with the contents of these tables, but now I think the majority would not be treated otherwise than by baths, and people come to me for the very reason that I use the Brand method. Of course, the laity really become acquainted with the good effects of the baths sooner than the physicians, because the latter never see them.

And now if there are any present who should feel like giving the method a trial, to them I would give a few words of brotherly advice under the following heads: 1. Bath tubs.—First of all when you get home have a bath tub. I had one one-half year before I could use it, and while it was standing around in my shed my wife had her own opinions about the big box. My tubs are four cornered and of sheet iron; a convenient size being 5½x2 feet and sixteen inches high. If you have such a tub you will feel like using it, and if you have not, you will have a good excuse for not using it. The reason why you should have your tubs on hand are three: First, your patients, thinking you know all about the method, will use it with more confidence. Second, you can save expense to your patient and make it easy for poor people. Third, you can act promptly. My once lonely tub has now nine companions, of course of different sizes, and with none of my instruments have I done as much as with these tubs.

2. Nurses.—As soon as you have a chance instruct one or more suitable persons in the use of the method. Such persons must have a natural inclination to such work, be willing and able to do bodily labor, must be reliable, wide-awake, cleanly and a little domineering—so that patients will obey her orders. I have trained two such nurses and the success I have had is in a large part due to their excellent qualities, and I say in cool blood, if one of my children should have typhoid fever and I should have the choice between all the medical wisdom in this room—that of Murchison thrown in, *without the bath tub* and between one of these nurses with her tub, I should unhesitatingly place it under the care of the nurse.

At times when the patients are in moderate circumstances, such a nurse goes to the house just for a day or two; by that time the family will have acquired the necessary skill and—what is of the same importance—the necessary courage. But as there is not much expense for medicine when the baths are used, and as the physician can restrict the number of his visits if one of his nurses is present, people who otherwise can not, are enabled to retain a nurse, and how much good do they not get out of a *good* one? Our nurses need not belong to the so-called trained nurses—we need some muscular christianity here. I do not know much about them. Seeing some little patients with a colleague, one of these trained nurses brought a long column of figures showing pulse and temperature, absolutely good for nothing, excepting to show off her having been trained. Had she, instead of disturbing the patient, darned the stockings or washed the diapers, I would have more respect for her and her kind. Such sort of persons we have, of course, no earthly use for. Pick out your own material and train it if you can.

3. First case.—You may do yourself and the method a great deal of harm, as did the young physician about whom Prof. Osler tells in his lecture, in case the first case you treat does not get well. Therefore, it is a thing of doubtful propriety to begin using the method on a case that has become grave and is in an advanced stage. I cannot urge upon you too strongly to make yourself acquainted with the views of Brand on this matter, who informs us that the principles for treating such cases are quite different from those for treating fresh cases. Let your first case then be one which you can treat from the

beginning, and at the same time accurately, according to Brand.

4. Early cases.—The cases which will offer you the least resistance to the use of the method will be such, where friends or relatives have died from the disease. Here friends and patients are apt to yield readily, and further, those who had experience with the disease, having nursed perhaps a grave case under medicinal treatment, will appreciate your efforts more than others without such experience. I was much amused at a mother of one of my patients detailing to me the good effects of the hydragric method. She had formerly nursed two other children through attacks of typhoid and could not help drawing comparisons.

5. Get your cases early, as it is of great importance that the baths should be given from the very beginning; inform your families, so that they will report early. Making visits if you have a few minutes to spare, tell them about the Brand method, what has been accomplished with it, how favorably it influences the course of the disease; if they are well-to-do people tell them how to buy a thermometer and how to measure the temperature in the rectum and tell them to report early. And if typhoid fever patients come to your office hand them a thermometer to be used in the evening, so that the baths may be begun next day if necessary.

6. Follow the directions of Brand as accurately as possible, and do not try to improve upon it. Let me also tell you that Vogl says one ought not to be discouraged if during the first years our success is not as great as those of men who have used the baths for twenty or thirty years.

And now let me just speak about a few cases illustrating what we have to do in using the method:

About a year ago, between 5 and 6 o'clock p.m., I was called to a lad 13 years old, with a high fever, ill a few days. His mother was a widow who went out washing, and the household was a poor one, but not a dirty one—the latter fact telling me that I might use the Brand method. Perhaps the circumstance that the mother was poor and went out washing would have been in the eyes of many a sufficient obstacle to the use of the method, washerwomen perhaps being considered too poor and not intelligent enough to carry out the treatment. But I inform the woman that if I am to treat the boy she must use the baths—which she is willing to do—I suppose she had heard of them and she had lost a brother formerly and did not want to take a chance on the life of her boy—she made no objections. Although the diagnosis was not yet certain, I told the woman to send for my four and one-half foot tub and a thermometer; I show her where to place the tub, in a room, adjoining the bedroom; I tell her to fill it one-third full of water from the hydrant, and to have the boiler full of boiling water by 8 o'clock. At 8 I go to the house, I instruct the woman in the use of the clinical thermometer, show her how to shake the mercury down, have her introduce the thermometer and read it, etc.; we then prepare a bath of 88°, and while I support the head of the boy and use a pail of cold water, the mother rubs the body and limbs; after ten minutes we take him from the bath, dry him, and he walks back to his bed. I now inform the mother that in three hours she is to measure the temperature of the patient again and if it is 102 the boy is to have his second

bath, this to be 84°. As she is alone I tell her to procure a board, to place it slantingly under the head and shoulder, so that she will be able to give the bath without any aid; she is to use a pail of water for the head. Three hours after the second bath she is to give one of 80°, and three hours later one of 76°—providing the fever should rise to 102, and with the bath of 76° she should continue to give every three hours if necessary. She is to write down the time of the baths and the temperature of the patient. This will be enough for her to have learned for the evening. Next day I call again and I now inform her that she must take the temperature of the patient one-half hour after the bath. The boy will perhaps have been chilled by the last bath or two, and I inform her that this is just the thing we are after, that she must not be alarmed but that she may wrap the feet in a hot blanket and place a jug of water or some hot bricks against the feet when the patient comes from the bath. I tell her that the best time for feeding is one-half hour after the bath. I instruct her in making the compresses to front part of body—which exceptionally this boy liked. I do not insist on heavy feeding at any time, particularly not the first days. I tell her now to give the boy some hot drinks—punch if he likes it—when he comes out of his bath. And now to lower the baths to 72°, finally to 68° and to continue with 68°, of course only if the temperature reaches 102 in the rectum. Well, this was about all the work I had with the boy. The method was carried out perfectly and the washerwoman's boy was treated as well as anybody. I would here say that I am using less alcohol, as I have more experience. To women and children, if they do not like punch, I give none, and I would warn everybody not to mar the good effects of the baths by too much whiskey. How can a stomach carry on any digestive work into which one and one-half pints of whiskey are poured in twenty-four hours? Of course men who are accustomed to it should have their allowance.

My little patient had between fifty and sixty baths and my work after the first two days was short, consisting in reading the record, examining the patient and encouraging the mother. She seeing the splendid condition in which the boy continued, carried the method out thoroughly.

I think she spent not more than fifty cents for medicine. You see, in less than four hours from my seeing the patient he had his first bath, and in twenty-four hours the method was carried out according to Brand. It is so very important to begin at once. One can, if in doubt, use lukewarm baths; while these are being used the attendants are instructing themselves in the use of the method.

Quite differently did I act in the case the record of which I send around. I saw she was desperately ill, and I knew the husband was not much of a nurse, and she having a baby five days old made it necessary to have one present to inspire confidence, beside lending material aid. Under these circumstances I drove out and brought back with me one of my nurses at once, and I think that without such a good nurse I could not have managed that case. But we succeeded, and a glorious justification the method received in spite of the dismal prophecies of the whole neighborhood.

Then I had a case of a widow with a string of children from two years upward. Here there was

no money for a nurse and a married sister was very timid. So I sent one of my nurses to the house, and after six baths had been given the necessary fortitude and skill for patient and sister was obtained and everything went ahead smoothly and much to the satisfaction of all concerned.

Here is another case where a nurse came handy and was necessary on account of the pertinacity of the fever entailing a good deal of work, because we wanted the baths colder, and because a good nurse will keep up the courage of the household.

Here is the record of a case where we had extensive bronchitis, lymph and diarrhoea, and delirium in a young baby; the baths acted like a charm here, one bad symptom after another disappearing.

TYPHOID FEVER—A SYNOPSIS.

Read in the Section of Practice of Medicine, at the Forty-fourth Annual Meeting of the American Medical Association.

BY M. J. CROUCH, M.D.

UNION, KY.

I retain the old name in preference to the newer ones, as "enteric fever." This new name refers to a single lesion, which lesion, however constant, is not the cause, exclusive seat, or descriptive of the condition; but is plainly the result of a general process.

Nor is all the fever produced in or confined to the intestinal tract. Typhoid fever is a specified condition of the economy, with local modifications.

We shall consider the condition known as typhoid fever first, then the lesions which are results of the process producing that condition. The laws of "disease" in general are to be reached inductively, by generalizations of physiological facts supported by clinical phenomena and morbid anatomy.

These laws applied to the special conditions under consideration, are illustrated and supported by the phenomena and changes observed.

The fever is the *result*, and not the *cause* of the abnormal condition. Heat is normal to the organism, and is produced in the culmination of nutritive metabolism. By cellular activity these changes are accelerated and the normal condition has become abnormal. In keeping with these principles we have developed slowly a continued febrile condition, finally the well known typhoid condition and complete *asthenia*.

Lesions Associated with the Condition.—We would expect to find lesions in those organs and tissues most directly connected with the process, and located where the process was most active. So we find the lymphoid tissue most prominently involved, as the glands of the intestines, mesenteries and spleen. The spleen, as type, from all attainable evidence seems to be intimately associated with the nutrition of the body and the blood-making process. That it is subject to morbid changes in so many diseases, especially in all continued febrile processes, would warrant the deduction that these *abnormal* processes were intimately associated with the normal nutritive process; the difference due to the form and course.

Physiological facts, supported by pathological data, warrant the following law: That disease is a process, differing from the normal processes only in "form and course." Clinical phenomena and morbid anatomy prove that in the condition typhoid fever, as well as in other diseases, nutritive changes

take place. These changes only differ in form and degree from the normal changes necessary to the well being of the economy.

So this disease is not an entity, but a condition of the economy; a condition which involves a process at one time normal, but by reason of continued disturbance, no longer so.

Treatment must be a rational treatment.

The tendency in all "disease" is to return to health—the abnormal to become normal. We should aid this tendency. The means used may be called alteratives. I use the following: R. Hyg. cum. creta; acid salicylic; acid boracic. Also frequent and large draughts of water, rectal injections and warm baths. I give the baths every four hours during the fever. If necessary a cold douche after the warm bath, poured on head from a bucket. The length of warm general bath is varied from twenty minutes to one hour. Temperature 100° F.; of cold douche about 60° F. While the number of cases treated after this manner is not over twenty, the result has been remarkable; duration of fever lessened, intensity mitigated, mortality nil. Stimulants used if necessary, whisky, strychnia, also oil turpentine.

DISCUSSION ON TYPHOID FEVER.

DR. JOSEPH EICHBERG, Cincinnati, O.—In discussing the value of the Brand treatment of typhoid fever it seems to me the first and only question it is fair to consider is what this treatment has accomplished that we can not obtain in another way. This question has in part been answered in Dr. Thompson's paper. It seems to me the only thing the Brand treatment offers, is immunity from severe nervous disturbances; patients who have been subjected to rigid hydrotherapy will not have delirium and pass into a comatose condition. But I do not think we are prepared to endorse the statement which has been made, that now we have the Brand treatment we ought not to try to do anything more but should adhere to it for all time. The gentleman has pointed out that the Brand treatment may be given under circumstances apparently of the most unfavorable kind, and he has pointed out that it is a very inexpensive treatment. But it is not inexpensive, for the giving of seventy to ninety baths during the treatment, means that when convalescence is established you will have an exhausted mother or sister as well as an exhausted patient. The Brand method does not shorten the duration of the disease—its warmest advocates admit that; it does not tend to diminish the tendency to relapse. It must be remembered that the Brand treatment is thirty-five years old, whereas the treatment by the newer antipyretics dates back only five or six years. Patients enjoy one advantage under the Brand treatment that other patients do not, that is constant supervision. The patient makes no movement of hand or foot that is not observed by an anxious nurse or relative previously warned of the dangers of any indiscretion. The same intelligent care, with modern antipyretics will secure equally good results—I am prepared to defend that statement with figures—with much less discomfort to the patient and less demand upon the nursing of the family. The lowered temperature which follows the baths is of uniformly short duration as compared to the effect obtained from moderate doses of antipyretics combined with friction of the skin with cold water while the patient is lying in bed. In the wards of the hospital in Cincinnati we have frequently tested this by limiting the Brand treatment to one side and on the other using the cold sponge and antipyretics every time the temperature reached 101.2°. With the baths alone the temperature has remained at 101.2° and

105°, in spite of the baths, and has gone up at times in the bath. While the temperature was still high, for the sake of observation these patients have been given a single dose of antifebrin and the temperature has gone down 4.2° to 5° and has remained down from twelve to eighteen hours, a result not possible with the use of the baths alone. I would not in any way discountenance the use of cold water in this disease, but I believe we can obtain its results without having two or three people to watch the patient, and using the thermometer every two or three hours, and without involving the patient in the discomfort of being plunged from his bed into cold water, with great pain at times. In children the results of cold sponging, with antifebrin in minute doses, are more striking than in adults. What is accomplished by the cold baths, the cold sponge can secure for us. The cold baths produce their effect not only by the reduction of temperature because that is not a constant attendant, but by stimulation of the peripheral vessels, securing a tendency of the blood towards the organs for the time being by the capillary action of the skin. Friction of the surface with cold water, will produce this result with less trouble. Dr. Siller alluded to a case where the patient on the fifth day of puerperal fever was attacked with typhoid. I am not prepared to believe this was typhoid. A simple case of sepsis would probably run the same course as a typhoid attack.

As to the cheapness of the treatment, the cost of antifebrin is about 28 cents an ounce. With a temperature of 102.2° a single dose of antifebrin will lower it in four to six hours. I do not know of any case treated in the wards of the Cincinnati hospital in five years, in which we have used a half ounce of antifebrin in the entire course of the disease.

DR. WILLIAM E. QUINE, Chicago.—The more the temperature which is natural for typhoid fever is tampered with, whether by the Brand method of treatment, by sponging, or by the internal administration of the coal tar series of products, the greater is the liability of prolonging the course of the disease and the greater is the liability to relapse. In general terms it may be stated that relapse occurs in about six per cent. of all cases. In Prof. Thompson's paper something like ninety-five cases are reported where the Brand method was employed and relapse occurred in about ten per cent. of all the cases; sustaining the general proposition that the more the temperature of typhoid fever is interfered with, the greater is the liability to relapse and the greater is the duration of the primary attack in case no relapse occurs. There can be no question as to the utility and life-saving effects of the Brand method of treatment; there can be no question as to the utility and life saving effects of the judicious administration of the coal tar series. But I submit that the Brand method of treatment if used injudiciously, can be as destructive as can any medicine administered with a free hand, that is capable of producing ill effects. I have seen a patient die in the tub. I have seen patients seized with rigors while in the tub and develop a catarrhal pneumonia within a few hours afterwards. The liability of the development of complications in the administration of the Brand method of treatment is not to be altogether ignored or overlooked. The ferocity with which this method is employed by its enthusiastic advocates seems to me almost appalling; there is no contra indication in the minds of these gentlemen, to the administration of the cold bath, provided the patient is known or even believed to have typhoid fever. Pregnancy is no contra indication to the administration of the bath, and if abortion or miscarriage should occur it is no contra indication to the continuation of the bath; if hemorrhage should occur it is no contra indication to the continuation of the bath; just keep on ad-

ministering the baths, and bid the patient God speed. It seems to me that this indiscriminate, wholesale, thoughtless administration of a single method of treatment is *not* to be commended; the time has not yet come when we can write a receipt for curing typhoid fever as a housewife writes a receipt for mince pie. One gentleman has spoken warmly of the utility of the antipyretic medicines of the coal tar series; I have used them as extensively during the past five years as perhaps most practitioners have done, and I have reached certain general conclusions in regard to the persistent administration of medicines of this kind: they increase liability to relapse, they increase liability to intestinal hemorrhage. I have had ten fatal cases of hemorrhage in one winter from typhoid fever, three fatal cases within a range of half a block and a period of six days, cases in which phenacetin had been administered as judiciously as I knew how from the beginning to the end of the history of these cases. It does not require many years of this kind of experience to compel one to regard the medicines of the coal tar series with a good deal of misgiving. Still I am prepared to reiterate that there are not a few cases of typhoid fever in which sponging alone will not be adequate to the control of bodily temperature, in which the cold pack will not control the temperature and in which the element of exalted temperature seems to be the dominant one. In these cases judiciously administered stimulants and phenacetin or antifebrin, will serve an exceedingly useful purpose. One gentleman has asked whether recovery will ever follow the administrations of these medicines; I have seen recovery follow dozens if not hundreds of times.

DR. FULLER, Mass.—I am very much interested in typhoid fever for, as a general practitioner, I have attended it thirty years, four years in the army where I treated it by the French method of expectancy with a mortality of about 20 per cent. On going into private practice I chanced upon *Letters to Young Physicians*, by Dr. James Jackson of Boston, in which he gave his method of treating typhoid fever in the Massachusetts General Hospital. This method, which I adopted, was to give the patient in the beginning three grains of tartaric antimony. I washed the stomach, afterwards with salt water and then with clear water, and the result is to reduce the temperature from 103.2 to about 100, and the pulse will stay below 100⁰ for a week or ten days; if it recurs I give salt and mustard and wash the stomach out again and then give tincture of iodine. Brand's method gives 7.5 per cent. of deaths, Dr. James Jackson reported 5 per cent. and in my practice I have not seen 5 per cent. of deaths in twenty-five years. I believe the clearing out of the stomach in the beginning is very desirable in a great many ways; you have no fever to deal with and they do not become delirious. I have always used tincture of iron when I could in these cases; those cases in which the stomach is intolerable to tincture of iron are the ones I lose, when I do lose a case. We can go back to the old fathers in medicine and learn something; it is not as disagreeable to the patient to take one emetic, as to be put in a bath tub ten or twelve times a day for fifteen days.

DR. N. C. SCOTT, Cleveland, O.—There are some questions connected with this subject which it seems to me need to be explained by its advocates: what becomes of the local congestion when you get a person in a cold bath of 60 or 75 degrees, when the blood is driven from the surface to the visceral organs? it seems to me that would insure hemorrhage, would insure congestion. The Brand treatment when carried out by its strongest advocates admits of medication aside from the bath; what becomes of the poison, what becomes of those retrograde metamorphoses that take place in all conditions where we have high temperatures?

Are they eliminated through the Broun system? do you get rid of them through that system? I have heard it claimed in the discussion of this subject that the underlying effects of disinfectants in the stomach and abdominal canal was a total failure; that they didn't do a speck of good or der any circumstances when administered for that purpose. How does the Brand system get rid of these changes in the alimentary canal? It seems to me the propaganda upon these major questions rests with the advocates of the system, and it is not asking too much of them to prove it. Dr. Brand in his book has not answered these questions. I recall some fifteen or twenty years ago this subject was agitated and a committee was appointed by the various medical organizations which was to go into the hospitals and make experiments with this plan of treatment. They reported as a result of these experiments that they more frequently had hemorrhages and congestion of the lungs with this treatment than by other modes of management. That report made a strong impression on my mind and I have never forgotten it. Not long ago in a discussion of the subject I brought up the suggestion and a gentleman present said that this committee took the very worst cases they could find in the hospitals of Paris to make this experiment; but I think that is a mistake because they took the *consentive* cases as they came into the hospitals and made a fair investigation of the subject. Thirty years ago the cold treatment of fevers was rampant over the whole country by means of the cold pack, cold effusion, cold applications of all sorts. What became of them? They were given a thorough trial and were utterly condemned and they went out of use entirely. I could detail cases in which serious accidents happened to patients under this sort of treatment and it seems to me that with the experience the profession has had we ought to go a little slow in adopting a system as laborious as this and as uncertain of good effects, for it does not shorten the duration of the disease and that is one evidence that they do not get rid of the ptomaine poison which causes it.

DR. J. M. ANDERS, Philadelphia—I regret very much the absence of Dr. Wilson of Philadelphia, who has had a large experience in the treatment of typhoid fever by this method; had I known he would not be here I might have brought a few definite statistics bearing on the subject. I have assisted to some extent in carrying forward the work in Philadelphia, and am a thorough advocate of the method. Time forbids entering into all the points raised by the papers that have been read; it will suffice, therefore, to call attention to the facts that seem to me to be of leading importance. One gentleman thought the chilly sensations produced by the bath were beneficial. It seems to me that is rather unsound doctrine. Chilly sensations after a bath are usually very easily recovered from without bad effects, but chilly sensations produced during the first ten minutes of the bath, and after friction of the surface, should be a signal for the removal of the patient from the bath tub, at all events during the first bath in the case. Another point is that patients who are very weak, when placed in the cold bath should be held in one position by the attendants and as much of the surface of the body rubbed as possible; turning these patients about can do nothing else than harm. Dr. Eichberg advocates small doses of antifebrin as an antipyretic in the treatment of this disease, though only under certain conditions. We must bear in mind that this is an acute infectious disease, attended by high temperature that results in more or less degenerative change in the cardiac muscles, and it seems to me that any remedy that reduces temperature at the expense of cardiac power is not good. I have long since ceased to give antipyretics. Dr. Eichberg also said that the good effect of the cold bath was due in the

first place to its causing the blood to flow to the internal organs, then to the surface, resulting in cooling the body by elimination of heat. Surely nothing could be farther from the truth than this. According to my own experience and the impressions gained from rather wide reading on the subject, the chief effect of the cold bath is its stimulating effect upon the nerve centers. Take its effect upon the centers of respiration; it stimulates at once a deeper inspiration, and in that way overcomes the tendency to pulmonary complications; the effect upon the stomach is brought about in the same way. Take its effect on the nervous system—a patient who is in a profound coma, or perhaps delirious, under the cold bath will show signs of returning consciousness, or will fall asleep.

DR. LOVELAND.—While typhoid fever may be properly treated by the Brand cold water method, or by antifibrin and antipyrin, it has always seemed to me that those who claim so much for these remedies in the treatment of typhoid fever overlook the fact of the etiology of the disease,—that typhoid is produced by a germ, or rather by a ptomaine resulting from the typhoid bacillus in the bowel; the poison being absorbed by the alimentary canal is taken up by the system, poisoning the nerve centers. So there should be an effort made to subdue the poison in the alimentary canal. I have tried the cold water treatment; I have used antifibrin to a considerable extent, but my typhoid fever treatment consists in disinfecting the alimentary canal. A disinfectant that will destroy the ptomaines in the alimentary canal it seems to me will have a much better effect than to rely upon such remedies as will reduce the fever without going to the cause of the disease. Several years ago Dr. Wilson of Philadelphia, gave us a treatment for disinfecting the alimentary canal, composed of carbolic acid and iodine; that was used for some time with good effect, but it was not ideal treatment. We need something which when taken into the alimentary canal will pass into the bowels without being absorbed from the stomach; iodine and carbolic acid to a large extent is absorbed from the stomach and it takes too long a time to get the patient from under the influence of it and to disinfect the bowel. Naphthalin, properly given, when it passes into the bowel will disinfect it to such an extent that those hard discharges the patient has in typhoid fever that are offensive, will be made non-offensive; the odor is entirely removed in a short time. When the alimentary canal is disinfected thoroughly you will have no use for antifibrin. I have treated these cases year after year and I know from experience that when you get the patient thoroughly under the influence of naphthalin, or any of that class of remedies, the temperature will remain so low that antipyretics are unnecessary.

DR. C. G. STOCKTON, Buffalo, N. Y.—I feel very greatly indebted to Dr. Sessler for showing to me what determination of purpose can carry out, in what has seemed to most of us a very difficult matter, and I admire the way in which he has succeeded in carrying into the homes of the poor a means of relief which cannot be too highly spoken of. I have seen enough of typhoid fever in the homes of the poor under ordinary forms of treatment to make me think that if this can be carried out with anything like success in the matter of detail, which has been done in Dr. Sessler's cases, the utmost good would come. That we have a fatality of the disease among the poor we all know. When we compare the statistics in private cases in the homes of the wealthy and the poor, we find a great difference. It makes a great deal of difference whether the patient is seen at first or at the end of a week. In hospital cases I have seen such great benefit from the Brand treatment that I think it is, so far as we now know, the best one to adopt. If I had ty-

phoid fever I want the Brand treatment given me, because I shall be certain that when over it I will be in far better condition physically than after any other treatment. I have never seen patients come out with as strong hearts, as well preserved nervous systems, and in every way in as good condition as my ward patients during the last three years under this treatment.

DR. C. SHULER, Cleveland, O.—I feel that the Brand treatment has not any too many friends here. I am a poor fellow to make friends; I don't think I ever convinced anybody of anything in my life. I find the logic of men differs and the logic of doctors differs, and of course we can not convince each other. As far as the men are concerned who have had no experience with the treatment, I do not listen to them. We have sulphur for the itch, mercury for syphilis and cinchona preparations for malaria—those are a few things with which we know we can do good, and in typhoid fever I think the Brand method has placed in our hands something that is equal. So far as pneumonia is concerned, if that is caused by the Brand treatment, we who use that method should see a good deal of it, but we don't. I would ask Prof. Quine whether the typhoid we have now is particularly liable to hemorrhage? It seems to me we lose more patients from hemorrhage than from fever. As to my case, of course I would be a brilliant diagnostician if I could diagnose every case of typhoid on the fifth day; the facts are the woman had typhoid fever before she was taken sick; the profuse local discharge, the rose spots, the course of the disease and the combined general symptoms proved to me that in that case I was right. As far as sponging is concerned, I know nothing about that. I thought it was a good thing in the Brand method that my patients know how to give the bath after I explain it to them. I would just as soon take a bath as to be rolled over and sponged. Just as the surgeon does not say that he can take care of a wound when he gets the case, one or two weeks after it has been made, so we do not claim success unless we can get our patients early, but our private patients ought to have the benefit of this treatment.

VISCERAL PHLEBOTOMY.

BY DR. GEORGE HARLEY, M.D., F.R.S.

LONDON.

Corresponding Member of the Royal Academy of Sciences of Bavaria; of the Royal Academy of Medicine of Madrid; Vice-President of the Royal Medical and Chirurgical Society, London, etc.

Pari passu with the recent advances made in scientific physiology and pathology have most marked changes and improvements taken place in the medical and surgical treatment of disease. Some of them have appeared startling by reason of their novelty, others have intimidated on account of their seeming temerity. Many have been stigmatized as chimerical. While not a few have been actually condemned as being beyond the pale of rational therapeutics. Nevertheless on better acquaintance most of them have been found to be as replete with wisdom as they have proved to be pregnant with advantage to the healing art. Visceral phlebotomy, of which I am about to speak, may not untruthfully be said to belong to the latter class. For when it was first introduced by me to the notice of the profession in 1886¹ in the form of hepatic phlebotomy it was not only abused as a most dangerous, but stigmatized as a most unjustifiable operative procedure. Nevertheless, although only six years have glided away since its death knell was so vociferously sounded, instead

¹ Hepatic Phlebotomy, Brit. Med. Jour., Nov. 13, 1886—ib. Jan. 15, 1887.

of having been consigned to an oblivious tomb, it is not only still alive and flourishing, but has had added to it a twin sister in the shape of pulmonary phlebotomy, by Dr. Christian Simpson, and now I am about to advocate the extension of this mode of curative procedure to every other come-at-able visceral organ of the body.

Thinking no simpler or more effective place of proving either the safety of, or the benefits to be derived from any novel system of treatment can be adduced than by quoting successful illustrative cases, I will not waste time in exposition; but at once briefly narrate two most successful examples which can neither be gainsaid nor doubted; and in order to save space, and yet put it in the power of those specially interested in the subject to obtain possession of the details in each case, I will cite cases that have elsewhere been published *in extenso*. The one by myself,² the other by my son, Dr. Vaughan Harley:

Case 1.—The patient, a lady of intemperate habits, aged 38, was not operated upon until she was supposed to be in a dying state, from the combined effects of a greatly enlarged and inflamed liver complicated with ascites and marked anasarca. After Dr. Dunbar Walker (whose patient she was) had rendered her insensible with the A. C. E. mixture, I pierced the upper part of the liver from right to left with an eight inch long trocar of the diameter of between a No. 2 and 3 sized English catheter. The normal liver being at least two inches broad in an average sized woman, and this liver being greatly enlarged—several inches both laterally and perpendicularly—I felt perfectly safe in thrusting the eight inch trocar up to its very hilt. This was done with the hope that during its penetration it might wound one or more blood vessels of sufficient caliber to yield a free stream of blood. On withdrawing the end of the canula about an inch or two, blood issued freely, and twenty ounces were abstracted. The skin around was then closed with a piece of sticking plaster, and a bandage applied. Such was the benefit derived from the operation, that from the very next day the downward progress of the case was arrested. The liver decreased in size, and with the aid of tapping, the ascites and anasarca disappeared, and within three months the patient was so well and strong that she could walk a distance of three miles, and she never had a return of the disease.

Case 2.—Is one of an entirely different character, cited with the view of showing, equally forcibly, the value of hepatic phlebotomy in a case of enlarged and inflamed liver—the seat of strumous abscesses.

The patient was a country lad, aged 17, whom I was called to see by Drs. Cooper, They and Surgeon Heaven. The liver dullness extended from the right nipple level down to two inches below the umbilicus, and four to the left of the navel line. Phlebotomy was performed while the patient was under the influence of the A. C. E. mixture. But although the liver was punctured in several places, such was the hardness and compactness of its tissues (on account of the inflammation) that only a very little blood was obtained. Fortunately, however, profuse hemorrhage took place some hours afterwards from the wounded liver through the bile ducts into the intestines, with the result that within thirty-six hours the liver had diminished in size, no less than an inch and a half all round, which made an enormous diminution, and within six days the first ab-

cess had pointed and been emptied. In three days more a second abscess was equally emptied and on the thirty-eighth day the patient returned to his home in Lincolnshire, a distance of 120 miles, without a single bad symptom. The results of these two cases, must I think, convince even the most skeptical, not only of the safety of this operative mode of procedure, but of its utility as a curative agent; for without it, I have not the slightest hesitation in saying that both of these patients who were subjected to it would have been in their graves within a few days.

I now come to pulmonary phlebotomy first proposed and practiced by Dr. Christian Simpson. This, I consider to be the most difficult form of visceral phlebotomy. From the fact that from lungs being contained within the ribs, and constantly contracting and expanding it is impossible by the application of an external bandage to bring the thoracic parietes into firm contact with the orifice of the wound made in pulmonary tissues, so as to effectually close it. Consequently the closure of the wound in the lung after the operation must be effected by the resistance of the pulmonary tissues being sufficient to retain a blood clot in the channel made by the trocar. In order to favor this, Dr. Simpson adopted the plan of "after the withdrawal of twelve ounces of blood the canula was held *in situ* with the finger over the end, to allow a clot forming, and then it was slowly withdrawn." . . . "The patient was immediately and markedly relieved, both as regards the cerebral (she had been comatose G. H.), and pulmonary conditions. No effusion took place; there was only trifling hemoptysis, and a suspicion of a small patch of pleurisy, without a rise of temperature." Dr. Simpson employed aspirating needles in his operations and although they did not prove like mine successful this can scarcely be said to have been due to any fault in the operation, but to the diseases complicating the pulmonary congestion for which the phlebotomy was had recourse to. Two of them being cases complicated with advanced organic heart disease, and the others, two cases of equally incurable Bright's disease.

Having thus shown that the apparently heroic method of extracting blood directly from an inflamed internal organ can not alone be practiced with safety on a favorably placed gland like the liver, but on one of the most unfavorably placed organs of the body for the successful performance of the operation, namely the ever moving lungs, I think I need scarcely dread censure if I boldly recommend the performance of visceral phlebotomy on every suitably situated internal organ, (when it is in a seriously congested condition) in preference to the application of leeches or cupping glasses to the external parietes over it, seeing that the cutaneous blood vessels have in no case whatever any direct communication with the internal organs lying beneath them. Consequently the theory of doing good is but a delusion, and the practice of leeching and cupping but a snare, if done with the intention of directly diminishing the amount of blood circulating through or stagnating in a visceral organ. As the withdrawal of blood from the cutaneous capillaries can only act beneficially in such cases, in so far as it diminishes the entire amount of blood in the body, and seeing that the largest of the internal organs

² Brit. Med. Jour., Nov. 13, 1886.

³ This is a safer form of anæsthetic than chloroform, consisting of 1 part of absolute alcohol, 2 parts of chloroform, and 3 parts of sulphuric ether proposed by me, and recommended by the committee "on the Uses and Effects of Chloroform," appointed by the Royal Medical and Chirurgical Society of London, (of which I was a member). See the Transactions of 1861, p. 341.

⁴ This case is reported in full by my son Dr. Vaughan Harley in his paper "On Abscess of the Liver," Brit. Med. Jour., Nov. 25, 1887.

⁵ "A New Method of Bleeding in some Forms of Pulmonary Congestion with Four Cases," Lancet (London) Nov. 1, 1890.

forms but a small proportion of the whole frame, its thus diminished blood supply cannot be but an insignificant one. Whereas by my proposed method, as shown in the case of the liver where twenty ounces of blood were directly withdrawn, and Dr. Simpson's of the lung, where twelve ounces of blood equally directly extracted from the organ, as much or as little blood can be removed from the congested parts as the operator thinks needful.

Within the last few days, I proposed extracting blood from a tender, greatly enlarged and inflamed spleen; but was thwarted by the nervous apprehensions of an imperfectly educated coadjutor, from his not knowing, that even needles as large as No. 3 sized catheters can be not only thrust into, but kept for twenty minutes in the ventricles of the hearts of living dogs, with perfect impunity. 'Tis knowledge which inspires surgical confidence and without it no one ought to attempt visceral phlebotomy.

For those who are about to have recourse to it as a curative measure for the first time, the following hints, perhaps, may be of service:

1. If it be deemed advisable to render the patient insensible, induce anaesthesia of the skin at the point selected for puncture, by the local application of the hydrochlorate of cocaine.

2. Select the seat of puncture, and give such a direction to the trocar as will ensure the point of its entrance with the organ, being brought into direct contact into the parietes by the application of pressure to them by a bandage after the completion of the operation, in order that the mouth of the wound in the organ may be thereby readily and effectually closed.

3. Let the trocar or aspirating needles be of the size of a No. 2 or 3 sized English catheter, and sufficiently long to penetrate deeply into the organ operated on, without there existing any risk of entirely transfixing it.

4. Let the direction of the instrument be such as to avoid its puncturing any large blood vessel.

5. When all these points have been attended to it will save the patient pain if the instrument be rapidly and at once thrust into the organ to the full depth it is intended to puncture.

6. If no blood flows, then slowly, and by distinct degrees, withdraw the cannula, in the hope that a sufficiency of blood will ooze from the transfixed capillaries into the canal made in the organ by the instrument as will yield a free stream and enough for the required purpose.

7. When the wished for amount of blood has been obtained, before withdrawing the cannula altogether from the organ, but just before it leaves it, in order to obtain a blood clot to stop up the wound with, place the finger on the mouth of the cannula and keep it there till a clot has had time to form both in its interior and in the canal made in the organ itself by the instrument.

8. The next point is to get the clot in the cannula to break off from that in the canal so as to leave the latter behind, in order that by its presence there it may prevent any oozing of blood from the organ, after the withdrawal of the instrument. This is best done, I think, by giving a slight twist to the cannula at the moment it is felt to leave the organ. And the resistance of the tissues of the organ will cause them to contract sufficiently firm round the clot within it to prevent its being drawn out along with the cannula.

9. All that now remains to be done is to place an inch square sized piece of adhesive plaster over the seat of the external puncture, and bind a pad over it with a long flannel bandage, sufficiently firm to insure the internal surface of the parietes being brought into close contact with the orifice of the wound in the organ: the more effectually to prevent the possibility of accidental internal hemorrhage taking place. All I have to add is that if I am not very much mistaken the day is not far distant when the old fashioned, erroneous, as well as unsatisfactory mode of withdrawing blood cutaneously, will be totally abolished in all cases of inflammation and congestion of internal organs, having no circulatory connection with the skin, and that the practice of visceral phlebotomy will become the recognized orthodox method of depletion in such cases.

NECROLOGY.

Dr. Louis A. Destrampes.—President Oliphant of the Louisiana State Board of Health, received July 14, 1893, a cablegram from Bocas del Toro, United States of Colombia, announcing the death of Dr. Louis A. Destrampes, quarantine physician at that port. Dr. Destrampes was a well known citizen of New Orleans, a native of Havana, Cuba, where he was born in 1831. He had been a resident of New Orleans for thirty years.

Dr. David Harlan died July 12, at the age of 84 years, at his home at Churchville, Harford county, Md. Dr. Harlan was born near Stafford, in Harford county. He leaves four sons: Dr. Herbert Harlan, Judge Henry D. Harlan of Baltimore, W. B. Harlan and David E. Harlan. He was a member of the board of visitors to the Naval Academy at Annapolis, and a medical director in the United States Navy and was one of the best known and most highly respected citizens of Harford county.

Dr. Harlan began the study of medicine in 1829 under Dr. John Archer of Rock Run. He afterward attended the University of Maryland. He graduated in 1832 and located in Chestertown, Kent county, and practiced there for three years.

He applied for admission to the United States Navy and was examined in 1835 and commissioned as assistant surgeon. In the spring of 1835 he sailed from New York on the Peacock to Rio Janeiro, around the Cape of Good Hope to Zanzibar, to Muscat, Bombay, Ceylon, Bangkok, Siam and Canton, China. While in Siam the Asiatic cholera broke out aboard the Peacock. Dr. Harlan had charge of the vessel and lost but one of the crew. Upon his return to the United States two years later he was presented with a sword by the members of the crew. In 1872 he was stationed at the naval hospital on the government farm at Annapolis. He was promoted to the rank of medical director in 1871 and upon reaching the age of sixty-two he retired. He built Trinity Protestant Episcopal church at Churchville and was often a prominent member of diocesan conventions.—*Maryland Medical Journal*.

To Drain the Red River Valley.—Gov. Nelson of Minnesota, July 15 appointed an auditing committee under whose auspices the work of draining the Red river valley will be conducted in accordance with a law passed by the legislature. The committee consists of Gov. Nelson, Secretary of State Brown, Ezra F. Valentine of Breckinridge, and Nelson D. Miller, chief engineer of the Great Northern railway. The work will proceed without delay. The drainage is rather for agricultural than sanitary purposes.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:
PER ANNUM, IN ADVANCE \$5.00
SINGLE COPIES 10 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
NO. 68 WARASH AVE., CHICAGO, ILLINOIS.

All members of the Association should send their Annual Dues to the
Treasurer, RICHARD J. DUNGLISON, M.D., Lock Box 1274, Philadelphia, Pa.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Dunglison, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues and subscription for THE JOURNAL. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

SATURDAY, JULY 22, 1893.

THE PUBLIC PRESS AND THE PHYSICIANS.

"If you would wish another to keep your secret, first keep it yourself."
—Seneca.

The recent indisposition of the President of the United States has been made the occasion for a renewed attack by some influential members of the daily press upon the Code of Ethics. When these complaints are examined they are reduced to a single charge, namely, that DR. JOSEPH D. BRYANT, Surgeon-General of the National Guard of New York, who is at present the physician of PRESIDENT CLEVELAND, refused to give a detailed statement of the nature of the President's illness to the reporters who flocked to the Gray Gables cottage in great numbers. The voice in refusal was DR. BRYANT'S, but the real culprit, they say, was the poor old Code of Ethics, and so the changes have been rung by one newspaper and another until the code of their imagination has not a morsel left of the original parchment.

But the attack on the Code was based on ignorance of its provisions, and a misunderstanding of the point involved.

The reporters assert that as the public is interested in the physical welfare of their Chief Magistrate, therefore the physician should give them daily or hourly bulletins of the progress of the case. They mistake the situation. The public has a political, not a personal interest in their President. The fact that a citizen of the Republic in whom the people have confidence, is in their service as President, can not operate to take away his personal rights as a citizen. No public man, whatever his rank or station likes to have his ailments set before the world. If he be really sick, the statement pleases only his enemies, and those sighing for his political estate. If he be suffering from a trifling ailment, even a detailed statement of the case is viewed as colored to suit the occasion, and a virtual concealment of some surely fatal affection.

The physician, whatever he may say or not say

in attendance upon a public officer of high rank, is almost certain to be misunderstood. The wiser course then is to keep silence, commit to the family of the distinguished patient the duty of giving to the press such information as they may choose to give.

"What to give, and what to keep,
Requires an understanding deep."

This action of the physician is based on regard for the feelings, and protection of the rights of the patient, and the Code of Ethics has nothing to do with the physician's refusal to make public the nature of the patient's illness.

DR. BRYANT has done a praiseworthy act in preserving silence in this matter, and his professional brethren will uphold him in his action.

THE PRESENT STATUS OF THE SURGERY OF
THE PROSTATE.

Among the many ills which were marked *noti in lingua* until recent years, and which modern surgery has done much to relieve, prostatic hypertrophy occupies a very prominent position. There is no disease perhaps, in which routine let-alone policy has done so much to retard surgical progress as in the one under consideration. Thousands of old men have had their declining years made miserable by prostatic disease for which neither medicine nor surgery offered substantial relief. Indeed, the most miserable period of the old man's life has usually begun with his first experience with his surgeon; i. e., his initiation into catheter life. Thousands of old men are to-day suffering unspeakable tortures because of the so-called conservatism and total reliance upon the catheter practiced by their physicians.

With an increasing confidence in modern surgical methods, pioneers in the surgery of the prostate have sprung up within something over a decade, and much has been accomplished. In 1884 two papers appeared which were destined to become memorable landmarks in prostatic surgery. The HARRISON operation of perineal puncture, and MCGILL's operation of supra-pubic prostatectomy marked the beginning of a new era in genito-urinary surgery. GUYON, MULLIX, WYETH and many others have been enthusiastic workers in this field, but we are mainly indebted to REGINALD HARRISON and the late MR. MCGILL, of Leeds, for the principal advances in the surgery of the prostate that have been recently made. Scarcely less important, however, has been the popularization of supra-pubic cystotomy by our distinguished countryman, HUNTER MCGUIRE. The resources at present at our command may be briefly stated as follows:

1. Supra-pubic cystotomy followed by the establishment of a supra-pubic fistula and simple drainage.
2. Supra-pubic cystotomy and removal of projecting growths, division of a bar at the vesical neck, or incision of the floor of the prostate and lowering of the level of the prostatico-vesical outlet.

Supra-pubic cystotomy may be combined with simple dilatation of the prostatic ring.

3. Perineal drainage by HARRISON'S method of tunneling the prostate.

4. Perineal prostatectomy or dilatation as circumstances may require.

5. Combined supra-pubic cystotomy and perineal drainage.

6. DITTEL'S operation of enucleation of the lateral lobes of the prostate by external incision.

7. Supra-pubic section with symphyseotomy.

The greatest drawbacks to any method of operation on the prostate are: 1, the danger of lighting up acute hyperemia or even inflammation in already damaged kidneys; 2, the ever present danger of sepsis.

Unfortunately we have no very accurate data for determining the precise degree of so-called surgical nephritis present. We are, however, justified in inferring considerable renal impairment in long standing cases of prostatic hypertrophy.

The danger of both uræmia and sepsis is in direct proportion to the length of time that the patient defers operation.

With earlier operations and the method by two stages, surgical intervention should be much more encouraging in its results.

There is one point in relation to supra-pubic cystotomy with simple drainage, which should be better understood, viz.: this operation is something more than a *dernier resort* for palliative purposes; it is often directly curative. It will be found that the rest secured to the prostate and bladder promotes absorption of the adventitious growth which constitutes a large part of the obstructing tissues at the vesical neck. The enlargement of the prostate proper is, in a large proportion of cases, a minor factor in the pathological *ensemble* known as prostatic hypertrophy. Glandular and interstitial hyperplasia in the tissues about the prostate and vesical neck, constitute the bulk of the mass felt through the rectum. This hyperplasia is largely due to the disturbance of micturition which exists. With the relief of this disturbance, resolution occurs, and if the prostate be examined by the rectum some weeks after a supra-pubic cystotomy for prostatic obstruction, considerable reduction in size will be observed. Prostatic obstruction is not due primarily to disturbance of micturition, but once the latter occurs, it becomes responsible for certain plus conditions which can only be removed by putting the bladder at rest. By considering these points, we are able to understand how a simple supra-pubic section may restore the normal function of micturition *per vias naturales*.

In many cases, a combined supra-pubic and perineal section constitutes the ideal operation. Through and through drainage has manifest advantages in

certain cases, and the operation is not greatly complicated by a *boutonnrière*; then, too, any circumscribed obstruction may be removed by the route which seems most favorable. With thorough dilatation of the prostatic ring, followed by prolonged perineal drainage by a large tube, it is rarely necessary to do a cutting operation on the prostate itself. It is to be remembered that we are working in a septic field, and not a scratch should be made unless necessary for the removal of circumscribed obstructions. Symphyseotomy would seem to offer a very valuable aid in some cases of prostatectomy, especially when the peritoneal fold extends low down, or the bladder is greatly contracted.

With a combination of symphyseotomy and the TRENDLENBURG position and cross section, the prostate may be attacked with great facility, even under seemingly unfavorable circumstances.

It is to be hoped that ere long the general practitioner will be more appreciative of the advantages of surgical interference in prostatic disease. There is no reason why such cases should be allowed to suffer indescribable torture, to die finally sacrifices to a conservatism that conserves nothing but a routine let-alone policy which has no place in surgery.

In closing, it might be well to invite attention to the practical fact, that prostatic hypertrophy—so-called—begins at a much earlier period than is usually supposed. The disease is usually dated from the time of the appearance of disturbed micturition, and it is well to remember that the disease is far advanced before the vesical function becomes disturbed. Careful treatment at an early period will often prevent serious trouble in after life. Perineal drainage early in the case is comparatively safe and may bring about complete cure. The free exhibition of ergot in combination with the iodide and bromide of potassium for a prolonged period may, if begun early, act so effectively as to enable us to avoid operative interference.

A CONVENTION OF AGED PEOPLE.

Some members of the staff of *La Science Médicale*, of Paris, have arranged for a convention of very old men at Paris, their object being to make a biological record and comparison. No person under ninety years of age will be eligible as delegate, and every one who offers himself for membership must show positive proof of the time and place of birth. The management of the congress promise to defray all the traveling and hotel charges of their nonagenarian guests, and good medical care will be devoted to them in order that they may undergo no improper strain or exposure. Prizes in the form of gold medals and money purses have been arranged for, and will be presented by the presiding officer, DR. DE

Boissy, at the end of the convention. The president is himself a hearty centenarian who has practiced medicine at Havre for seventy years. No restrictions as to nationality are to be placed upon the delegates, but it is not expected that any very old contestants will appear from beyond the confines of France. At the time of the last French census, there were about two hundred men and women whose ages were reported at or beyond the centenary point. There is, however, little probability that many centenarians can be present, since the by far greater number of them have their homes at points remote from the place of meeting. A very considerable proportion of the alleged centenarians who were found at the time of the last census, were residents of the departments that border along the Pyrenees,

consisting of Majors Smart, Havard and Captain Brechemin, was convened at Fort Leavenworth, Kansas, to consider the various propositions and decide upon the best methods. A cardinal principle of this board was to limit the authorized movements to those absolutely needful and to exclude everything that savored of dress parade. Military movements were to be restricted to the maneuvering of the men as a company or detachment; and when drilling with dummies as wounded men each litter squad of the detachment was required to be drilled or instructed individually so as to prevent any attempt by over zealous tacticians at commanding the simultaneous movement of wounded men by a number of squads. This board labored under the difficult task of providing a litter drill that would be applicable to any litter, as the style to be adopted in this important part of the equipment of a bearer company was then an unsettled point. The board printed the results of its labors and sent copies to every military post for trial, suggestions and criticism, and after a delay of some months on this account, the "Manual of Drill for the Hospital Corps" was published in 1891. This, however, was but one of the steps in the progress of evolution. A litter was adopted ultimately with a sling attached to each of its poles, and as the Manual of Drill gave no instructions for the management of a fixed sling, Majors Höff and Havard were directed to consider the subject and revise the volume, embodying in their revision all the improvements which their experience as commanders of the companies of instruction at Forts Riley and Russell led them to suggest. This revision after criticism by those officers who had shown special interest in the elaboration of the drill, is the work shortly to be issued. Few medical volumes of its size have had so many minds concerned in its production. Few have had the value of their every word weighed so carefully before acceptance. In fact this little book, when it makes its appearance, may be regarded as one of the curiosities of medical literature. Many surgeons of the National Guard are as much interested in it as our friends of the Army because the subjects of organization, drill and instruction in first aid are prominently before them, as may be seen by the report of the proceedings of the meeting of the Association at St. Louis, Missouri, in April, 1892.

THE MAYOR OF CHICAGO AND HIS ISLAND.

There will be issued from the office of the Surgeon-General of the Army, in the course of a few weeks, a small volume of about 100 16mo. pages, which will require a good deal of concentration of mind to enable medical readers generally to understand it,—we refer to the Hospital Corps Drill Regulations," the manuscript of which is now in the Government printing office. The elaboration of this system of drill has been a work of time; and there are few medical officers of the Army, who have not contributed ideas towards its progress. Previous to the organization of the Hospital Corps in 1887, the men detailed from the line of the Army for hospital duty were drilled and disciplined as soldiers with their companies; but since that organization was effected the officers of the medical department have become responsible for the drill and discipline of their men. Many of the younger officers and not a few of their seniors took kindly to the work implied in this and entered with enthusiasm into its prosecution. The men had to be taught, and the officers had not only to learn to teach but to decide upon what was needful and proper to be taught. As the men constituted a military body they had to be moved, when necessary, after the manner usual with such bodies; and when thus drilled they had to be taught the management of the litter and of the wounded man. A Provisional Manual, compiled by Major Charles L. Heizmann was issued, not so much as a guide to be followed, but as a suggestion; and medical officers were requested to vary and improve its methods in practice. As a result many criticisms on every paragraph of the Manual were forwarded to the Surgeon-General, and six or eight complete systems were formulated by as many Army medical officers and submitted for approval and adoption. The Provisional Manual was found to be particularly defective in its primary drill; and a board of officers

At this time when six thousand men are engaged in the work of digging a drainage canal for the turning of the Chicago river away from the lake, in honor, the Mayor has made public his desire to build an island at a considerable distance from shore—say eight or ten miles if need be—and there obtaining the purer water, which is to be brought to the

city through extensions of the existing tunnels. His honor fails to specify how long it would remain uncontaminated if Chicago continues to grow, and her population to increase. A few years ago, the proposition to build a four mile tunnel was viewed as visionary, and a useless expenditure of money. Now that there is little doubt that the water may occasionally be contaminated at that intake, the proposal to place it six miles further into the lake does not seem preposterous; but it does not touch the real evil. The danger to the water supply is from that open sewer which the Chicagoese call the Chicago river. That stream keeps on pouring into the lake a black, stinking mass of non-disinfected sewage. The evil can not be remedied by lengthening tunnels or building pleasure islands for the Mayor. The sewage should flow away from the drinking water, and be diluted with lake water as it flows. The great drainage canal will doubtless accomplish the work in time. It is learned that four years more will be required for its completion. In the meantime the enlargement of the pumping facilities, long ago advocated by Illinois' most distinguished sanitarian, JOHN H. RAUCH, is the need of the hour.

AN APOLOGY.

Referring to our issue of June 24, 1893, and particularly to the editorial article attacking DR. R. HARVEY REED of Mansfield, O., for having, as is alleged, sent out a circular letter assailing THE JOURNAL and its former editor, we have to say that we regret the publication of the editorial, as we are satisfied that DR. REED only sent the letter to the members of the Business Committee and certain members of the Board of Trustees, and was not actuated by any motive hostile to the ASSOCIATION JOURNAL or its best interests.

SOCIETY PROCEEDINGS.

The Mitchell District Medical Society

held its twenty-third annual meeting at West Baden Springs, July 12, 13, 14, under the presidency of Dr. Dudley S. Reynolds. Some of the proceedings are of permanent value.

A comprehensive essay on the "Importance of Early Operation in Tuberculous Disease of the Bones and Joints," by DR. B. MERRILL RICKETS of Cincinnati, awakened an interesting discussion, which was followed by a clinical examination of a case presented by DR. A. J. Banker of Columbus, Ind., with supposed tuberculosis of the knee joint, involving the lower end of the femur. The child was anesthetized with chloroform, and brought before the Society for examination. The discussion of the case was opened by DR. A. M. OWEN of Evansville, Ind., who had been designated to assist DR. Banker in conducting the examination. DR. OWEN concluded inasmuch as the epiphyses had already been separated, no operation could so well readjust the parts, as to avoid a degree of shortening which would render the limb perfectly useless, wherefore he considered amputation the

best proceeding, in hope of securing a good stump for the adjustment of an artificial limb.

DR. JOSEPH L. BAYER of St. Louis, considered the question of tuberculosis by no means settled in this case, and inclined to the belief that the disease resulted from mechanical injury. He thought the parts should be laid open, and all necrosed portions of the bone chiseled away, and, if found desirable, the medullary canal might be curetted; all these proceedings being conducted aseptically as far as possible, he would hope to preserve a useful limb; this failing, we might still fall back upon DR. OWEN's plan of amputation.

He regards tuberculosis of the long bones and joints a comparatively rare affection, believing that a very large percentage of them arise from mechanical injuries.

DR. OWEN did not wish to be understood as admitting the tuberculous nature of the affection without further analysis, but as the subject under discussion was tuberculous disease of bones and joints, he felt that if this were really a tuberculous affection, amputation in this particular case offers the very best hope of restoring the health of this particular child.

DR. E. P. EASLEY of New Albany, Ind., read an interesting report of "Intestinal Disease," in which a mistaken diagnosis had been concurred in by a council of able surgeons. The paper will be published.

A brief but classical essay on "Surgery of the Tendons," by DR. JOHN B. HAMILTON of Chicago, was referred to a special committee, consisting of DR. A. M. OWEN of Evansville, with instructions to direct the publication and furnish copies to all the members.

"Indications for Operation in Laceration of the Cervix," by DR. T. S. GALBRAITH of Seymour, Ind., proved very entertaining, and awakened considerable discussion by DR. RUFUS B. HALL of Cincinnati, who did not think anything like so much importance should be given to this slight injury, for it often proved to be of little consequence, and he thought rarely demanded operative interference, he would say never, excepting where other complications exist.

DR. L. H. DENNING of Indianapolis, and DR. A. M. OWEN of Evansville, thought the fashion of operating in such cases had brought a legitimate procedure into some unmerited disfavor. The experience of others was such as to lead them to the belief the profession at present exercised a closer discrimination of suitable cases for operation, hence operations rendered necessary by complicating pyosalpinx or ovarian disease, leave out of account the more easily discovered lacerations to which formerly had been attributed all the symptoms of the real disease within the pelvis, which, menacing life itself, finally demanded attention.

DR. SEXTON felt sure the cases of lacerated cervix in which operative interference seemed necessary were perhaps more common in some sections than in others. He was not prepared to take either extreme as a rule in practice; he felt that each case was a law unto itself.

DR. RUFUS B. HALL of Cincinnati, read an entertaining account of ten cases of "Ectopic Gestation." As it was directed that the paper should be published, your reporter feels that it would be an injustice to speak of any point in the discussion, except the remarkable fact that DR. HALL had seen his first case in 1891, and a half dozen of the series occurred within a radius of 600 feet from the central one of the group.

DR. DENNING of Indianapolis, whose experience is very large had never encountered a case, and had therefore, no experience to offer. DR. OWEN of Evansville, practiced nearly twenty-five years without seeing a single case, and then had three within a few weeks of each other. Others

expressed similar views; and it became clearly proven, as Dr. Larrabee of Louisville, pointed out, that the distance to which one's experience must go, to lead him to a case of ectopic gestation, and the rapidly succeeding cases following the first one, make it very clear that, although the spermatic cell in this case has an abnormal distance to travel, it multiplies with great rapidity when it reaches its destination.

Dr. SEXTON of Rushville, Ind., presented an essay on the "Clinical Features and Therapeutical Indications of Pelvic Inflammation, including Peritonitis," which was pronounced by Hall, Dunning, Owen, and others the most graphic picture ever read in their hearing. The classical style of the author, with his vivid portrayal of his subject must be read to be appreciated properly; it will soon appear in print.

Dr. M. F. COOMES of Louisville, reported two cases of acute "Catarrhal Laryngitis in Children;" in both cases membranous croup was suspected, and the doctor was summoned to perform intubation, which, upon examination he thought should be delayed, and in a few hours, exudation coming on, relief to the embarrassed respiration followed, without the necessity of instrumental interference. He pointed out some of the dangers from the use of cocaine thrown into the air passages, and reported an almost fatal case of cocaine poisoning from a simple instillation into the eyes of a few drops of a 4 per cent. solution.

Dr. S. G. DABNEY of Louisville, reported two cases of "Retinitis Albuminurica," in which disease of the kidneys had not been suspected until after examination with the ophthalmoscope.

Dr. LARRABEE of Louisville, thought the question of blood pressure had received too little consideration in such cases, and felt the failure to recognize the real disease until such advanced stage of atheroma as that described by Dr. Dabney should not have been permitted to occur and shows the general evidences of this state have been recklessly overlooked to wait until organic disease of the retina, either in the form of fatty degeneration or hemorrhage, before recognizing the dangerous arterial condition which must precede that state. It is about as reckless as the failure to discover the presence of rickets until the deformity of the bones has already appeared. To be brief, he wished to say the disease of the eye in the so-called albuminuric retinitis was just one of the results of the general disease, and should not be counted a part of the disease itself. The fact that similar appearances occur in the kidneys, either before or after the local lesion in the eye, should simply be recognized like the eye affection, as the result of the general disease. And so with the altered osseous structure following rickets; the bone affection being the result of rickets, and not a necessary part of the disease.

Dr. A. J. BANKER in the course of his report on surgery, mentioned the case of a child born with atresia ani in which he was able, by an operation, to make an artificial anus which performed all the functions of the natural organ.

Dr. A. M. OWEN of Evansville, in presenting the subject of skin grafting, warmly endorsed the Thiersch method. He recited numerous experiences in his own practice which showed the importance of a very large, thin graft, and of the absolute necessity of constantly keeping the graft moistened in a solution of chloride of sodium, for the first four or five days. He considered the largest graft which may be cut so as not to include any sub-cutaneous tissue, the most desirable.

Dr. E. G. STERNE of Indianapolis, read an essay on "Structural Changes in Syphilitic Neuritis," which he illustrated with a very handsome series of microscopic sections; altogether making a very valuable demonstration.

The "Treatment of Fibroid Tumors of the Uterus" was ably presented by Dr. L. H. DEXTER of Indianapolis, & your reporter fears any attempt at reference to details, inasmuch as the paper will be published.

An essay on "Balneo-therapy" by Dr. C. C. CONNORS of Cincinnati, was directed to be published.

"Heroes of Peace," by Dr. JOSEPH CANNON of Bedford, Ind., formed one of the very entertaining popular essays, which was enjoyed by the public, as well as the profession, on Thursday evening. It is needless to say no selected a doctor of Medicine as the typical hero of peace.

Dr. JOS. L. BAUER of St. Louis, read a practical essay embracing a series of interrogatories concerning the "Nature of the Proper Treatment of Fractures of the Shaft of the Femur." The technical character of the subject, and its general importance, forbids your reporter's attempt to deal with the minute points in the essay; or the various aspects of the subject illustrated in the discussion, which was conducted, in the main, by Drs. A. M. OWEN, A. J. BANKER, and S. H. CHARLTON.

On Thursday evening, Dr. DUDLEY S. REYNOLDS of Louisville, President of the Society, delivered the annual address, in which he pointed out the importance of medical societies, and the permanent value of many of their deliberations.

He emphasized the fact that the profession of medicine is in the strictest sense, a learned profession, and in no possible relation a matter of business, or a means of earning a livelihood merely.

He described, in good English, the necessary features of a good education; which, according to his description, must begin in childhood and continue through life. He then explained the various stages of progression in the course of training for the boy who contemplates the study of medicine; and made it clear that those who indulge a love of study, and possess a tender sympathy for suffering humanity which dominates all other impulses and desires, are the only persons qualified to become members of this noblest of all professions or avocations in life.

He considered the medical society merely a post-graduate school of instruction; and alluded in glowing terms to the classical essay of Dr. Sexton, as a brilliant illustration of the fact that intellectual greatness dwells in the man, regardless of the locality of his residence. He showed how Dr. Sexton, living in a remote rural district, had measured lances most successfully with the great metropolitan surgeons, whose experience in a single day eclipsed his own for a whole year's time. Sexton, nevertheless, has the genius of professional aptitude, and made his observations with an unerring certainty of detail that, every point noted in a single case became a pivotal point in the law governing that period of the morbid process.

The medical society brings together geniuses, and great doctors, and small doctors, and doctors of the intermediate class. The great men learn a little more greatness, the small men learn a little more, and the intermediate men are elevated to a plane above mediocrity, as the necessary result of the interchange of opinion based upon observed facts. Humanity receives benefit from the improved methods of practice more widely disseminated through the discussions of medical questions; and so medical societies must be encouraged by all thoughtful people in every civilized nation as among the most valuable congresses of men.

Miss CHARY BAXTON, President of the Red Cross Association, on invitation described briefly the nature of that beneficent International Association of Philanthropists, which has already challenged the admiration of the intellectual world.

OFFICERS.—Dr. A. J. Banker of Columbus, Ind., was elected president; Dr. John A. Larrabee of Louisville, first vice-president; Dr. Rufus B. Hall of Cincinnati, second vice-president; Dr. G. W. Burton of Mitchell, Ind., secretary and treasurer; and Dr. Thomas Galbraith, chairman of the committee of arrangements for the mid-winter meeting at Seymour, Ind.

The Society adjourned on Friday at noon.

ASSOCIATION NEWS.

Another Report from the Pacific Coast.—The meeting at Milwaukee will, on the whole, be regarded as a success. The attendance was good, the number registering being 867. It was hoped that the presence of the Fair in Chicago would greatly increase the attendance, while at the same time the ninety odd miles separating the two cities would prevent the Fair proving too powerful a counter-attraction. This was only partly true, for while the proximity of the big show undoubtedly increased the number of visitors, it was very noticeable that there was a thinning out even on the first evening, a more marked diminution on the second, and on the third afternoon nearly half those in attendance had taken their departure.

Almost every State and Territory was represented by delegates, the attendance from California being larger than for many years. The general sessions were well attended, and a very lively interest was shown in all the proceedings. The work done in the sections as a whole was quite up to the average, and that of some was certainly on a par with any society in this country. Many excellent papers were read, and the discussions were always longer than time would permit. This latter fact was very regrettable, for the discussions were undeniably good, and many of the speakers were prominent either as teachers or authors. The general addresses on surgery and medicine, while excellent papers, seemed hardly to come fairly under the head of what one would expect as a general address on these important subjects. The same criticism can be made on this feature as a whole, and it would seem desirable that a new departure was inaugurated. The feature of the meeting was the address on cholera by Dr. Ernest Hart, the editor of the *British Medical Journal*, who was present as a delegate from the British Association. Mr. Hart is a very pleasing speaker, and at the same time his mastery of the subject, with the earnest manner of its presentation, held the unbroken attention of the largest audience present on any occasion during the meeting.

The news that the American Medical Association will meet in San Francisco next year will be a matter of sincere congratulation to the profession on this coast. It will then be twenty-three years since the Association has honored us with its presence; indeed, during all that long period a meeting has never been held in the great West, which seems a *bona vacante* to the majority of the Association. Various causes are ascribed for the comparatively slow growth of the National Association; but we have never heard mentioned one that has undoubtedly some weight in this retardation of progress. For years the Association has held its meetings in a comparatively circumscribed territory, which has consequently been well gone over. Occasionally this has been varied by excursions into new ground, and, we believe, with invariably good results. The argument is made that when meetings are held in places distant from the center of population the attendance will be small, and the revenue will decrease. As a general proposition this is certainly not true; a new locality means new members who

only attend because the Association is in their midst, and of this increment a fair proportion will be permanent. We believe that in the past a mistake has been made in ignoring the claims of distant localities. So far from the Association waiting for an invitation from such places it should, from time to time, move into these regions that the profession may realize it is a living entity. The ignorance displayed, even by prominent members of the profession, regarding the great West and its resources, would be amusing, were it not also deplorable. It was frequently stated that a meeting in San Francisco would be a dismal failure; that no one would attend, and that it would be impossible to fill the Sections. To this we have no hesitation in replying that if the officers be present there will be no difficulty in holding a good meeting, with an attendance almost entirely from the Pacific coast. This, however, will not occur. Conversion is rapid, and already many prominent members of the Association have signified their intention of attending. It is as yet too early to speak definitely, but we have no hesitation in prognosticating that the meeting of 1894 will prove, not only one of the most successful, but also one of the largest that has ever been held.

The preliminary arrangements at Milwaukee seem to have been carried out most carefully, and everything passed off in a very successful manner. Great credit is due to Dr. U. O. B. Wingate, the chairman of the committee, for this gratifying result of considerable hard work. There were no hitches of any kind, and fewer complaints than are usually found at such large gatherings. The citizens of the "Cream City" were unbanded in their hospitality, and everywhere the Association was most heartily welcomed. The selection of officers for the ensuing year seems to have given general satisfaction. Dr. Hibberd of Indiana, the President, as will be seen elsewhere, may be regarded as a California "pioneer." His election at this particular occasion is, therefore, particularly appropriate.—*Occidental Medical Times*.

To avoid duplication of payments or complication of accounts, members are respectfully informed that *membership dues* should be sent to the Association Treasurer, Dr. R. J. Dangleison, Lock box 1274, Philadelphia.

Subscription fees from gentlemen not members of the Association, should be sent to this office. Address JOURNAL AMERICAN MEDICAL ASSOCIATION, 68 Wabash Ave., Chicago.

SOCIETY NEWS.

Colorado State Medical Society.—The State Medical Society held its twenty-third annual session in Denver, June 20, 21 and 22. In attendance, and in the interest manifested, it was the best meeting that has been yet held. The profession of Colorado is earnest, progressive and untiring in the advancement of medical science. The scientific element of the meeting was most marked.

The officers for the ensuing year are as follows: President, Edmund J. A. Rogers; first vice-president, A. M. Bucknunn; second vice-president, M. Harrison; third vice-president, Kate E. Lubingier; treasurer, W. F. McClelland; corresponding secretary, A. S. Lubingier; recording secretary, E. R. Axell.

The election of Dr. Rogers was a most proper recognition of his interest in and work for the society in the past, and as well a fitting rebuke to the method resorted to in the effort to accomplish his defeat. The honors of the society properly belong to those who take such interest in its success that they are willing to give time and money to that end, and who sacrifice personal convenience to their interest in the welfare of the organization.

The most important work of the society, from an ethical standpoint, was the adoption, by a unanimous vote, of the following resolution:

Resolved, That the Colorado State Medical Society is opposed to any change in the Code of Ethics of the American Medical Association, deeming any such action at this time to be unwise and unequalled.

Whether this resolution is in accord with the sentiments that have been imputed to the profession in Colorado is the committee on revision, we neither know nor care. The unanimity of its adoption is an emphatic declaration that in Colorado the vast majority of scientific medical men still regard the practice of medicine as a profession and not a trade, and that they especially oppose those innovators who desire to make the patenting of instruments ethical, and to erase the landmarks that lie between honorable and dishonorable methods in practice.—*Denver Medical Times*.

Mississippi Valley Medical Association.—The nineteenth annual meeting of the Mississippi Valley Medical Association will take place in Indianapolis, Wednesday, Thursday and Friday, October 4, 5 and 6, 1893. A general session will be held each morning, and the afternoons will be devoted to section work. There will be three Sections at this meeting, viz.: one on General Medicine, one on General Surgery, and one on Obstetrics and Gynecology, the last-mentioned having been added since the last meeting. An unusually large attendance is expected, in this the World's Fair year. Reduced railroad rates will be provided, further notice of which will be given. Frederick C. Woodburn, No. 399 College avenue, Indianapolis, is secretary.

Ohio State Medical Society.—At the last meeting of the Ohio State Medical Society, the following officers were elected: President, Dr. N. P. Dandridge, Cincinnati, O.; first vice-president, Dr. F. C. Larrimore, Mt. Vernon; second vice-president, Dr. W. Caldwell, Fremont; third vice-president, Dr. W. T. Corlett, Cleveland; fourth vice-president, Dr. McCurdy, Dennison; secretary, Dr. Thomas Hubbard, Toledo; assistant secretary, Dr. Graefe, Sandusky; treasurer, Dr. J. A. Duncan, Toledo. Very respectfully,

GEORGE E. MALSHARY.

Cincinnati, O., July 13, 1893.

National Association of Dental Examiners.—The twelfth annual meeting of this association will be held at the Columbian Dental Club, Chicago, commencing Friday, August 11, at 10 o'clock A. M. The committee on the dental colleges of the National board will meet at the same place August 10, at 10 A. M. Dr. E. Magill of Erie, Pa., is president, and Dr. Louis Jack of Philadelphia is chairman of committee on colleges.

DOMESTIC CORRESPONDENCE.

World's Fair.

Dr. J. J. KINROSS, of the Marine Hospital Service, in response to our request, sends us the following statement of the medical exhibit of the Marine Hospital Service at the World's Columbian Exposition:

The U. S. Marine Hospital Service exhibit is divided into three classes, viz.: The Marine Hospital Service proper, the Quarantine Service, and the Laboratory of Hygiene. In the hospital exhibit are displayed the statistics of the service since its reorganization in 1871, the number of patients treated annually, the statistics of the medical examinations of the Immigration Service, and of the Life Saving Service, and of applicants for pilot's license. The blanks and books, hospital furniture, surgical appliances are shown, such as are now furnished to the twenty-six Marine hospitals and nine National quarantine stations.

The workings of the National Quarantine and Public Health Service are represented by models and the various apparatus in full operation.

A model of a maritime quarantine station is shown, which

embodies the latest ideas and improvements in the care of persons who have been exposed to, or are suffering from, an infectious disease.

A model of a bath house to illustrate the best methods of bathing persons who have been exposed to the infection of cholera.

Working models full size of steam disinfecting apparatus, both stationary and portable, embodying all the latest improvements, and are designed for use at the quarantine station, for hospitals and municipalities.

Apparatus for generating and applying sulphur dioxide gas is illustrated by a full size sulphur furnace, by which an 18.65 per cent. per volume of the gas can be generated from the sulphur.

Another apparatus, portable, designed for applying liquid sulphur dioxide to cabins, holds of vessels and rooms, in any required strength.

The internal and inter-state quarantine work is illustrated by a model of a probation camp for the treatment of yellow fever or cholera, and by a model of a disinfecting railway car equipped with all the apparatus and appliances required for such work.

The statistical portion of the quarantine service is shown by consular reports of the vital statistics of foreign cities and seaports and domestic reports, and the "Weekly Sanitary Abstract."

The Laboratory of Hygiene consists of a complete bacteriological laboratory fully equipped with all the latest improved apparatus for investigating subjects pertaining to sanitary science.

In this laboratory, investigations are being carried on, and instruction in any of the several branches can be given to those interested in such work. Aside from this, museum specimens of the different bacteria are shown, together with the various materials, appliances and apparatus required, bacteriological investigations and chemical analyses, etc.

SELECTIONS.

Abortive Treatment of Erysipelas of the Face.—A 1 per cent. ethereal solution of sublimate should be used, applied with a small hand atomizer, throwing a forcible spray.

The more forcibly the spray is applied so much quicker will be the recovery, depending of course on the thickness of the skin and the severity of the case.

The small blisters or vesications which the sublimate may cause should not be the cause of its withdrawal, for in the smaller erysipelatous eruptions they should be encouraged rather than otherwise, on account of their beneficial effect.

In applying the spray, the central parts of the inflammatory areas should be only lightly sprayed, but much more thoroughly along the line of demarcation, as well as one to two cm. into the healthy skin. The eyelids should be only slightly moistened. Then apply compresses. One or two such applications of the sublimate should be sufficient. Those towards the last must be shorter, and parts which have been gone over once should be only lightly touched a second time. Only the boundaries and suspected places on the skin require the more energetic spraying.

Before commencing the treatment the patient should be informed that after every application of the spray he will feel a rather sharp burning pain, but which will not be any more severe than the discomfort caused by the tension of the skin from the erysipelas; also that his face will swell and small blisters or vesicles will form, which might likewise be caused by an erysipelatous inflammation. The crusts should not be removed, but allowed to drop off spon-

taneously, which process will be hastened by the compresses. By following these foregoing rules, to be sure not all cases can be aborted in a day, but even if a failure, the patient has been benefited, in that the extent, duration and severity of the disease has been materially lessened. The average duration of erysipelas attacks treated by Teichmann was from four to five days.—From the *Centralblatt für Chirurgie*, July, 1893.

The Sterilization of Ophthalmic Instruments.—According to the *Memoires et Archives* for M. Nucl of Liège, France, has reported on the above subject, giving the results of his personal researches. He has found that the use of boiling water has served him as the surest and readiest method in regard to the major part of his instruments. The antiseptic efficacy of thus plunging the articles into boiling water is enhanced if to the water is added some potash or soda, or even common salt. The recommendation of Schimmelbusch is referred to, namely, to use a solution of carbonate of soda in a strength of 1½ to 2 per cent., and this solution is suitable to be used in the cleansing of instruments. The period of immersion may be three or four seconds in the case of cutting instruments, while it should be prolonged to thirty seconds for needles, forceps and the like. The reporter has used a variety of other recommended measures of sterilization, but has given the preference to the boiling water method.

MISCELLANY.

Camp Poplar River.—The abandonment of this military post, which has been in existence for some years at the Fort Peck Indian Agency, was ordered on July 3. The post is situated on a small stream from which its name is derived, about two miles north of the Missouri river, in northwestern Montana. The troops were kept there to look after the Assiniboine and Yankton Sioux. The garrison was always healthy, but presumably none of its members will regret the order carrying them elsewhere, for the surrounding country is bare and uninviting, presenting only a few cottonwood trees in the river bottoms; the buildings unsustained and open by many leaks to the intense cold of the Montana winters. In February last the thermometer dropped to —54° F., and the soldiers slept in their buffalo overcoats or passed the night, if particularly cold, in sitting around the barrack room stoves. Dr. J. T. Clarke is the medical officer on duty at the post.

Calling the Doctor in a Military Way.—The *New York Herald* states that when medical attendance is required at Fort Wood, Bedloe's Island, a gun is fired and one of the doctors at Governor's Island goes over. In its issue of the 6th inst. it reports that: Two extra guns boomed out from Fort Wood last evening just as the one from Fort William had told of sunset, and the island's inhabitants shook off the air of confident expectation they had worn for some days and assumed instead a knowing look which spoke volumes. Two children had been born beneath Liberty's torch.

Dr. G. I. Cullen, managing editor of the *Chicaguito Medical Journal*, has been appointed Asst. Surgeon of the First Regiment O. N. G.

Dr. Clark Gapen of Chicago, has been appointed medical superintendent of the Illinois Insane Asylum at Kankakee, vice Dr. S. V. Cheyenger, resigned.

The Kansas Way.—The following appears at the foot of a bill-
 "I, Kansas physician. It is unique, original and pointed, and we presume effective: "A prompt settlement of this bill is requested. If bills are paid monthly, a discount of 10 per cent is given. Bills not paid promptly will be passed to my attorney for collection. If you pay your physician promptly he will attend you promptly, night or day, rain or shine, and your own neighbor suffers and waits, as I do

made the doctor wait, and while he is waiting the angels gather him in!"—*Kansas Medical Journal*.

Max von Pettenkofer's Jubilee.—A jubilee celebration was given Prof. Max von Pettenkofer, July 1, in Munich, on the occasion of the fiftieth anniversary of his graduation in medicine.

Prof. Christian Fenger, formerly professor of surgery at the College of Physicians and Surgeons, has been elected to and has accepted a chair of surgery and clinical surgery at the Northwestern University Medical School. (Chicago Medical College.)

LETTERS RECEIVED.

(A) Atkinson, W. B., Philadelphia; Ayer, N. W. & Son, Philadelphia, Pa.; (B) Burford, Wm. B., Indianapolis; Battle & Co., St. Louis; Boylan, H. E., Cincinnati; Bovee, J. Wesley, Washington, D. C.; (C) Caldwell, W. S., Paris, France; Chicago Branch, Warner, W. R., Chicago, Ill.; (D) Duhring, L. A., Philadelphia; Dubreuil, M., Bordeaux, France; Didama, H. D., Syracuse, N. Y.; Duncan, C. H., Bridgeport, Ohio; (E) Eastland, O., Wichita Falls, Texas; (F) Fowler, George R., Brooklyn, N. Y.; (H) Harriman, J. W., Iowa City, Iowa; Hamilton, Alice, Northwestern Hospital, Minneapolis; Hotz, F. C., Chicago; (I) Imperial Gram Co., New Haven; (J) Jones, Stanhope, New Orleans; (K) Kimball, H. H., Minneapolis; Kinyon, J. J., World's Columbian Exposition; Kinney, J. H., Brooklyn, N. Y.; Kellogg, J. H., Battle Creek, Mo.; (L) Lamphar, Emory, Kansas City, Mo.; (M) Mercer, Alfred, Syracuse, N. Y.; Malsbary, G. E., Cincinnati; Milbourne Advertising Bureau, Philadelphia, Pa.; McKesson and Robbins, New York, N. Y.; McMurtry, L. S., Louisville, Ky.; (N) New York Pharmaceutical Association; Niles Advertising Agency, Boston, Mass.; (P) Palmer, Edgar, Latrobe, Wis.; Patterson, R. S., Port Huron, Mich.; Parke, Davis & Co., Detroit; Phillips, Chas., Chemical Co., New York, N. Y.; Pusey, Wm. Allen, Chicago; (R) Reynolds, Dudley S., Louisville, Ky.; Reynburn, Robt., Washington, D. C.; Reed, R. Harvey, Mansfield, O.; Reynolds, H. T., Baltimore; (S) Stewart, F. E., Watkins, N. Y.; Stearns, Frederick & Co., Detroit, Mich.; Shidder, G. W., Cincinnati; (T) Taylor, J. M., Kirkwood, Ga.; Tuttle, A. H., Cambridgeport, Mass.; Tracy, Edward A., Boston, Mass.; The Trommex Extract of Malt Co., Fremont, Ohio; (W) Warner, W. R., Philadelphia, Pa.; Webster, Geo. W., Chicago; (Z) Ziegler, J. L., Lancaster, Pa.

THE PUBLIC SERVICE.

Army Changes.—Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from July 8, 1893, to July 14, 1893.

Capt. FREEMAN V. WALKER, Asst. Surgeon, the order assigning him to temporary duty at Ft. Trumbull, Conn., is so amended as to relieve him from further duty at Ft. D. A. Russell, Wyo., and to assign him to station at Ft. Trumbull, Conn., until further orders.

First Lieut. CHARLES F. MAXON, Asst. Surgeon, promoted to be Asst. Surgeon with the rank of Captain, July 2, 1893. Major JAMES P. KIMBALL, Surgeon, is relieved from duty at Ft. Clark, Tex., to take effect at the expiration of his present sick leave of absence, and ordered to Ft. Marcy, N. M., for duty.

Capt. WILLIAM H. CORNISTER, Asst. Surgeon, is relieved from duty at Ft. Wayne, Mich., and ordered to Ft. Supply, I. T., for duty, relieving Major PAUL R. BROWN, Surgeon. Major BROWN, on being relieved by Capt. CORNISTER, is ordered to Ft. Hamilton, N. Y., relieving Major EZRA WOODRUFF, Surgeon. Major WOODRUFF, on being relieved by Major BROWN, is ordered to Ft. Keogh, Mont., for duty, relieving Major WILLIAM H. GARDNER, Surgeon.

Major WILLIAM H. GARDNER, Surgeon, on being relieved by Major WOODRUFF, is ordered to duty as attending surgeon and examiner of recruits at Hdqrs. Dept. of Dakota, St. Paul, Minn., relieving Capt. WALTER REED, Asst. Surgeon. Capt. W. A. REED, upon being relieved by Major GARDNER, is ordered to report to the Surgeon General, at Washington, D. C., for duty as curator of the Army Medical Museum, and as professor of clinical and sanitary microscopy in the Army Medical School.

The Journal of the American Medical Association

VOL. XXI.

CHICAGO, JULY 29, 1893.

No. 5

ORIGINAL ARTICLES.

BRAIN SURGERY, WITH REPORT OF NINE CASES.

Read in the Section on Surgery and Anatomy, at the Forty-fourth
Annual Meeting of the American Medical Association.

BY F. C. SCHAEFER, M.D.

Prof. of Clinical Surgery, Northwestern University Medical School;
Prof. of Surgery, Woman's Medical College; Surgeon
to Wesley Hospital, Chicago.

My subject might perhaps have been named more appropriately cranial surgery, as I wish to report nine cases of injury to the head; all of them, however, interfered with the function of the brain, and in three of them there was actual destruction of brain tissue. Of these nine cases, four recovered completely, one improved so much, that we have reason to believe that he will in the course of time, recover sufficiently to be of some use to his family. Four died. As we have yet much to learn concerning the diagnosis and management of injuries to the head, and as all of them have their own peculiarities to a certain extent, it seems to me an accurate report of such cases will be of advantage to us; and undoubtedly we will have to depend largely upon clinical experience for the advancement of this work in the future. This, then, is my apology for occupying your valuable time:

Case 1.—Boy aged 10 years, fell during February, 1880, from a depot platform, striking his head against the corner of a fire-box of the wheel of a freight car. I saw him an hour later; he was in a comatose condition, motionless with a large, full, slow pulse, and stertorous breathing. There was an extensive contused and lacerated wound of the scalp, over the middle portion of the right parietal bone exposing the skull. After thoroughly cleansing the wound, having shaved the hair from the scalp, I enlarged the opening and found a depressed, stellate fracture. The skull was unusually thick for a boy of his age, 3-16 inch. The fracture presented five points at its center, all coming together, converging like the spokes of a wheel, at the center of an irregular circle two and a half inches in diameter. There were therefore five irregular triangular pieces of bone. Each triangular segment was attached at its base, but all of them had their outer table cracked where they joined the body of the bone. Their apices were depressed fully a third of an inch. In order to elevate the pieces I trephined through the base of one of them, then succeeded readily in replacing all. The dura mater was contused, cerebral pulsation absent before the operation. Restoration of the bone to position was followed by immediate return of functional action. The little fellow talked freely and told how he fell. The scalp was stitched with silk, dressed antiseptically; the patient was left in bed, in a quiet room for about ten days. The wound healed by first intention. The button of the bone was not replaced. The boy is well.

Case 2.—Boy 7 years old, October, 1889, fell from a loft in a livery stable, striking upon a heavy plank floor with the back of his head. Was carried home in an uncon-

scious condition; saw him an hour and a half later. His pulse was full and large, 68. Breathing stertorous; pupils dilated. There was a large swelling over the occipital bone, above the superior curved line, extending two inches to the right and one inch to the left of the occipital protuberance. The scalp was severely bruised and raised by a hematoma. Anesthesia was unnecessary. I cut through the scalp and periosteum making a curved incision two inches long with its convexity downwards. The blood immediately rushed out; the patient moved his limbs at once, gave a cry and waked up as from a dream. I quickly examined the skull and found a transverse crack two inches long, about half an inch above and running parallel with the deep curved line of the occipital bone, extending more to the right than left side of the median line. The thin bone had been depressed by the blood between it and the periosteum, and had sprung back into position when that pressure was removed.

Ten minutes after the operation the boy related how the accident occurred. Within a week he was again playing upon the street.

Case 3.—Wm. — aged 11 years, while visiting in the country a hundred miles from Chicago, July, 1887, fell from an apple tree a distance of twelve to fourteen feet. His father having been telegraphed for, came to have me accompany him to see his boy. Not finding me at home, he took another surgeon with him. The city surgeon arrived at the patient's bed-side ten hours after the accident occurred. In the meantime, the mother who was with the boy, called a local doctor who found a large oval swelling in the left temporal region, together with contusion of the scalp here. The boy was unconscious. The physician said he was suffering from concussion of the brain; did not think there was a fracture. The Chicago surgeon agreed with the attendant, concluded that there was nothing to do except to let him rest and applying a liniment to the wound, returned home. The patient remained unconscious for forty-eight hours, then becomes semi-conscious; at the end of a week he "woke up" as his mother said. During this week his bowels were constipated, and urine had to be drawn. After six weeks the child was brought home and I was called to treat him for a headache. At this time a ridge could be plainly felt in the middle of the fossa of the squamous division of the temporal bone, running parallel with the zygomatic process. What a chance the surgeon missed here of making a brilliant cure with one stroke of the knife! Undoubtedly the large swelling in the region was caused by a rupture of one of the deep temporal arteries or from the bone. The blood was boxed in by the unyielding temporal fascia and pressed the cracked bone against the dura mater and brain. The pressure symptoms disappeared with the absorption of the clot, the bone retaining sufficient elasticity to spring out. At the time of my visit, the child was afflicted with a slight frontal headache and enteritis; the parents imagined that the injury might have had some relation to this condition, which fortunately proved not to be the case, as he made a prompt recovery.

Case 4.—A gentleman aged 45 years, engineer, was

found lying on his back on the floor, in close apposition to the cube-shaped stone supporting a portion of a stationary engine, with a step ladder standing near. He was unconscious when a homeopathic physician came to see him. He was placed upon a stretcher, and examined by the doctor who found a scalp wound one and a half inches in length over the right half of the occipital bone, which he washed, stitched and dressed. The patient was taken home and looked after by this physician. It happened that this man carried an accident insurance policy, and in the natural course of events the insurance company sent their surgeon to look after the interests of the patient, or more properly stated, their interests. The company's surgeon called twenty-four hours after the man was sent home. Not knowing who or where the attending physician was at that time, he asked permission of the man's wife in behalf of the company to see the patient. The permission was granted. The doctor quickly examined the case. Found pulse 48 large, full, laborious. Pupils dilated widely. Stertorous breathing. The bladder filled to distention. He did not stop to open the bandages, but at once drew off a quart of urine from the bladder, and went in search of the doctor. Did not find him until the next day. On the fourth day the company's surgeon suggested a consultation be held with a regular surgeon, promising that the company would bear the expense. The attendant was willing to have a homeopathic surgeon. In order to pacify him the company's physician said, you may have your homeopath, but let me bring a "regular surgeon" and the company will pay both. He finally consented to let the company's doctor bring a surgeon to see the case with him. The doctor called me on the sixth day; I found a pin head opening in one end of the scalp wound, through which my probe entered readily, and I felt the rough outlines of a fracture. Gave it as my opinion that there was either a clot or depressed bone causing the symptoms. The homeopath's attention was called to it, but he claimed that there was no fracture and held a consultation with one of his guild, who agreed with him. The man's wife said she wanted her husband left alone with her homeopathic doctor and wanted no more physicians to trouble him. Of course I advised operation, but at the same time was guarded as to the prognosis, saying the clot might be absorbed, or possibly the bone might spring back into position and the patient make a recovery. If it was a clot there would be more hope, but it would take considerable time. In the meantime, however, I felt he was being permitted to take too great a chance. He that as it may, two weeks later Dr. J. R. Corbus (who represented the company) said that the patient seemed to be gradually improving, although his urine still had to be drawn. Six weeks later was able to sit up. His right eye was much weaker than the other. In fact he could not see clearly with it. Motion in one leg was somewhat impaired. After six months he began to walk about, toes of one foot dropped, causing a stumbling motion. The case came to court within a year, as the company refused to pay the homeopathic attendant, claiming that an operation would have resulted in a more rapid cure and that they had been compelled to assume a greater risk than was necessary by the refusal to have proper surgical aid. The attendant made his speech claiming to have cured the patient medically, while Surgeon Schaefer wanted to use the knife. Dr. J. R. Corbus being called to witness stand, was asked what he thought about the case. His reply was: "By the grace of God the patient got well, homeopathically without standing."

Case 3.—A Mr. T. aged 50 years, manager of railroad car shops at the city limits of Chicago, rode home in the baggage car of an express train, as was his wont, at six o'clock one day evening of 1899. The rails spread while the train

was in motion. The gentleman had been sitting in an arm chair, facing the corner of a safe, perhaps a yard distant. As the car left the track he was thrown forward from the chair and struck the corner of the safe with his forehead. The accident occurred about seven blocks from the man's home. He was momentarily stunned, but soon picked himself up and walked home unattended. I saw him an hour later in emergency. His left eyelid was black and swollen. It was seen that the frontal bone was fractured vertically in its left half, from near the inner end of the orbital arch upwards. The left side of the forehead was flattened. He had an unusually large frontal sinus, which made the wound look as if the anterior wall of the left sinus was pressed in. As the man was perfectly rational, showing no symptoms whatever of brain disturbance, it seemed altogether probable that the outer table only was broken. Still I was in favor of cutting down immediately to examine the bone and do what might be necessary. The family were opposed to such action. It was therefore deferred. The next morning a consultation of surgeons was held. The patient was still rational, clear headed, having use of all of his functions, with no indication of compression. Six days later I was invited by the surgeon in charge, my friend Dr. L. McArthur (by whose consent I report this case), to assist in elevating the bone. A change had occurred on this day. His speech was faltering, deglutition difficult, pulse weakening. He was somnolent. An incision revealed the following:

There was a vertical fracture towards the inner end of the left orbital arch extending towards the coronal suture. The external angle of the frontal bone was broken loose from the malar articulation, while this angle had been driven inwards two-thirds of an inch or more. With great difficulty Dr. McArthur pried the angle back into position. Of course this depression implied a fracture of the orbital plate of that side. Two days later I made the autopsy and found what the illustration shows. A transverse fracture extending from the external process of one side to the other, *across the base of the skull*, passing through the orbital plates near the lesser wings of the sphenoid and through the back part of the cribriform plate of the ethmoid. Connecting the ends of the fracture there was a complete fracture of the vertical portion of the frontal bone running parallel with the coronal suture. In addition to these, there were the vertical fracture alluded to connecting with the transverse fracture on the forehead; and three fractures through the left orbital plate, two extending from orbital arch to the transverse fracture within the skull, the other half way back. The triangular shell thus produced at the outer angle of the frontal bone was driven almost an inch into the left frontal lobe. Here the autopsy revealed a large cavity in the brain which had been occupied by the bone. There was a clot in the channel of the cavernous sinus. With this extensive traumatism there were no symptoms of brain injury present until the sixth day.

Case 4.—Boy, W. L., aged 17 months. While playing upon the porch at the back end of a flat, sixteen feet above the ground, suddenly fell down stairs, probably rolled two or three steps, fell seven feet striking the top of a fence with the crown of his head, and dropped from the fence to the ground below five feet which was covered with ice. There he was found a half minute later, lying flat upon his back and head. He was carried to his bed, and a messenger sent for me. A physician happened to be in the building at the time. He was at once called; after looking the child over concluded he was suffering from concussion of the brain. A half hour later I came to him. Examined the child critically. Found he could move his limbs. His pupils responded to the light slowly. For one instant only his left eye was thrown off of parallelism with the other. It quickly moved

into line, however. This at once made me suspicious of brain injury. I then ran my hand over the top and back of the head. The occiput was flattened, while in front of it there was a prominence. The child was drowsy, but could be easily awakened, and had control of its functions. I next walked out to the porch to see how far and where the boy fell. The extent of the fall was so great, that I felt convinced that the skull must be badly fractured. In the absence of grave pressure symptoms, it seemed unnecessary to operate at once. I therefore advised warm fomentations, and sedative treatment. I gave it as my opinion that the skull was extensively fractured and said that at the first instant when severe brain symptoms appeared, such as convulsions or paralysis, I would cut through the scalp and do what seemed best. Twenty-four hours later there occurred clonic spasms at the left angle of the mouth. I at once ordered a barber to shave off the hair preparatory to operation. Chloroformed patient; scrubbed head with soap and water; washed with bicarbonate and ether. Cut through the scalp at a point corresponding to the upper portion of right fissure of Rolando; found an irregular fracture extending to the right and left; followed it up in both directions. It extended to within one-half inch of the right ear, and to within one inch of the left ear running across the back part of both parietal bones. A peculiarity which interested me greatly was the fact that the borders of the broken bone were separated *one-eighth of an inch* when explained to my mind the absence of pressure symptoms from the beginning; the open seam of necessity increased the intracranial area. At the back part and middle the bone was considerably depressed for distance of two inches; at the right side in front of the location for the fissure of Rolando I trephined and found a tablespoonful of clotted blood beneath the dura mater, which membrane was lacerated here. The dura mater was torn in several places and at the middle of the wound, brain tissue lay loose on the seam of fracture. After thoroughly cleaning the entire wound I lifted up the depressed bone, stitched the dura mater, brought the edges together through the entire length of the wound, placed a small drainage tube in two places which were carried through small trephined openings of the skull. Dressed antiseptically. Boy's eyes brightened, responded quickly to light. Improved for twenty-four hours, when his pulse and temperature rapidly crept up and he died on the fourth day, of meningitis.

Case 7.—Wm. N., aged 22 months. Was called to treat this child for a headache in the evening of the fifteenth day. His parents said that he had been sick for about two weeks; the headache came every afternoon at about 2 o'clock, and left him towards midnight. The pulse was small and rapid, 120; temperature 100° F. Eyes responded to the light. The head ached all over the frontal region. Tongue heavily coated. Nothing was said about traumatism. Bowels were constipated. Prescribed bromides, cathartics and quinine. Called the next day at 7 o'clock p. m., found the patient feeling better, pulse a little stronger. Temperature 99° F. Continued bromide of potassium. Third visit, fourth day, 9 a. m. He was slumbering; every now and then he cried out in his sleep. The cry was shrill, as if caused by sharp pain. This set me to thinking. I at once asked the parents if their son had met with an accident recently. They thought not. I asked the question again, saying little ones frequently stumble and fall. The mother then spoke up saying that she remembered that he fell about two weeks ago, but there was no bruise upon him. My next question was who saw him fall? "Freddie, his 12-year old brother." The brother was called. In reply to my question he said that he played with the patient two weeks before, his brother clinging to his

neck and back while he sat on the edge of a lounge; he ducked his head, pretending to throw him over his head; did this once too often when the latter slid to the floor and first, striking heavily upon the occiput. This was sufficient. I examined the skull carefully, found a very slight unevenness over the coronal suture of the left side of the head, scarcely perceptible; pressure upon this point caused him to cry the same shrill cry as heard before. Pressed upon a corresponding point of the opposite side but elicited no response. There was no longer any doubt in my mind as to the cause of the origin of the headache.

I immediately informed the father that an incision through the scalp was indicated to explore the skull and possibly to lift a depressed bone. The father at once recalled the idea, claiming that the child had the headache nearly a week before the accident occurred. Having no time to waste, I advised him to call in another surgeon, and if the latter should agree with me I would go on with the operation; if there was a disagreement he could let the other surgeon take the case. Two surgeons were called, Dr. J. N. Danforth and Dr. McDonald. After hearing the full history of the case and having examined the head, they concurred with me. By this time the boy was very weak, pulse 130, temperature 101°. In the meantime the head had been shaved by a barber. I cleaned the scalp and cut down to the bone, making an oval flap. I found a slight fossa at coronal suture, an inch to the right of the median line; the teeth of the suture could be seen obliquely placed. Removed a 1-inch button. The cerebral pulse was absent. The dura mater looked black. Aspiration drew off a teaspoonful of serum. Opened the dura mater; a tablespoonful of cerebral fluid escaped, with considerable lymph and clotted blood; pulsation was now normal. There was a circumscribed leptomeningitis present. It was thought advisable by all of us to leave a small gauze drain in the wound. I stitched the dura mater and scalp with fine silk; applied usual antiseptic dressings. The headache was relieved; patient's eyes grew clearer, responded promptly to the light. After thirty-six hours his temperature ran up to 102° F.; two days later he died. There was no pus in the wound. He died of leptomeningitis.

Case 8.—Wesley Hospital Record.—Mr. K., aged 47 years. Father died of apoplexy. Mother lived to old age. Lost a sister aged 30 years from consumption. He enjoyed good health up to two years ago. During the fall of 1887 he was sand-bagged and robbed on the street while going home in the evening. Was struck on the head with some metallic instrument. The scalp was torn open to the extent of about an inch, over the upper and middle part of the right parietal bone, extending outwards from near the median line. He was stunned for a few minutes only. The wound was dressed by his wife; it healed in a few days. The patient went to work the morning after the accident and felt as well as usual, barring a little tenderness about the wound. He had forgotten all about this important incident until reminded of the presence of a scar upon the scalp. Two years ago his limbs swelled and a physician said he had Bright's disease. At the same time his head troubled him. Was afflicted with vertigo. There was a constant headache and tenderness on the right side of the skull. After a few weeks of suffering he was suddenly seized with "spasms" of the left side of his face and of the left arm and leg. These spasms began in the left fingers, extended up the arm to his shoulder, next over the entire left leg. His head turned to the left side, and there was a constant twitching at the left angle of the mouth. Lost the use of his limbs for several days after the attack. Could not talk well afterwards; his memory became impaired and sensations were dull on the entire left side from that time on. The convulsions came five times—several months apart—within two

years. Each successive paroxysm was longer and more severe than the preceding one. Had the last attack of the five before entering the hospital a few days before Thanksgiving, 1892, at which time he was almost comatose for thirty-six hours. Since coming here, December 21, 1892, the convulsive seizures have occurred on an average about once in twelve days.

Symptoms during the Seizure.—Clonic convulsions beginning in the second finger of the left hand. Immediately after the "initial" symptom appeared in the finger the convulsions extended to the other fingers, wrist, arm and shoulder in rapid succession, also to the muscles of the face and leg. Teeth came firmly together, causing a "gritting" movement; several times the tongue was bitten. These symptoms of irritation were followed by a period of unconsciousness and hemiplegia, the unconscious state lasting from a few hours to a day. The paralysis only partially disappeared. The limbs could be moved, although he had little use of them. The left hand was closed most of the time; with a little effort he could open it. Hand pressure was very weak compared with the right one. Upon waking he looked dazed. There was almost complete hemianesthesia, and a constant twitching at the left angle of the mouth; also ataxic and amnesic aphasia. Memory greatly impaired.

Status Praeens.—Before operation made the following notes: Is in fair flesh. Presents a "nervous look." Has partial hemiplegia of the left side. Drags the left leg while walking. Carries his left hand closed. Muscular power greatly diminished. Pressure with left hand very feeble. There is limited motion of the left arm. Can lift it to the horizontal with shoulder, slowly; left hand opens halfway slowly. There is almost complete loss of general and tactile sensation. Hemianesthesia may be said to be almost complete. Is unable to tell which finger or toe is being pricked with a pin. Does not feel it about the face. Our interne, Dr. Boomer, stuck a pin almost through the lobe of the left ear and the patient gave no evidence of having felt it. Touch any portion of the left half of the body and extremities with bottles of hot water, he takes no notice of the heat. A snowball was placed against his left arm, leg and face without his knowledge; he remained ignorant of its presence. Can not add a column of six simple numerals. Does not know the value of the figures. Does not know when he had the last convulsion. Can not remember when his wife called to see him last, although she was here yesterday. His vocabulary is limited. Is afflicted with both amnesic and ataxic aphasia. Speaks a word hesitatingly; seems too tired to speak another; shakes his head; evidently can not think the word. Can not write a connected sentence of five words. Drops one or two words in the effort. L. E.—fundus very much congested; V. 20-60. R. E.—V. 20-20.

On presenting this patient before the class I said the localization symptoms of irritation and of partial destruction are well-marked. There are the local headache, tenderness and pain; the "signal" symptoms as first noticed by his wife, in the left middle finger, followed by clonic convulsions of successive groups of muscles; the hemianesthesia; tremors at the left angle of the mouth; tetanic contracture of the left levator orbicularis and of the platysma muscles; also the hemiplegia of the left side pointing directly to the right side of the brain as the location of the *focus of origin* of the man's condition. Reading these symptoms in the light of modern pathological knowledge we may feel absolutely sure that there is a lesion about the cortex of the brain corresponding to the right motor area, as mapped out by Ferrier and Horsley.

The history of the case points to traumatism as the origin—causing inflammation, infection, or both, with their sequelae. There may have resulted thickening of the bone;

possibly a splinter was driven into the brain from the inner table and has led to the formation of a local abscess. There is the possibility of a blood clot alone, or as a complication of the conditions already mentioned.

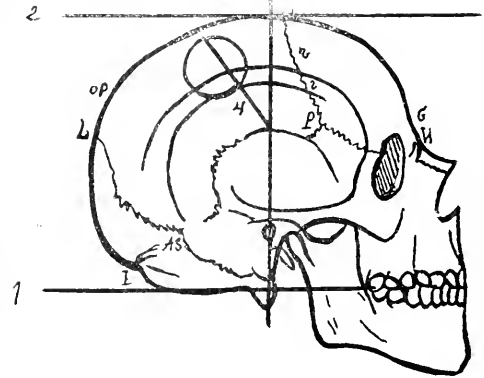


Fig. I.

- | | |
|--------------------------------------|----------------------------------|
| 1. Base line. | I. Infion. |
| 2. Parallel tangent line. | R. Rogna. |
| 3. Bi-auricular. | S. Stephanion Superior. |
| 4. Fissure of Rolando. | I. Inferior. |
| The circle represents trephine ring. | P. Pteryon. |
| dot within. | G. G. Occipito Parietal fissure. |
| S. Nasion. | L. Lambdoid suture. |
| G. Glabella. | |

The patient's head had been shaved and thoroughly scrubbed with soap and water and washed with a bichloride of mercury solution, 1 to 2000. I now took the measurements for locating the fissure of Rolando. My method is to project a base line from the crown of the teeth of the upper jaw backwards, which will cross below the mastoid process on a line with the condyles of the occipital bone. Next a vertical line was carried at right angles with the base line (see Illustration 1,) upwards through the middle of the auditory meatus to the top of the head and parallel with the base line. At a point 6 cm. above the middle of the auditory meatus made a dot with tincture of iodine;

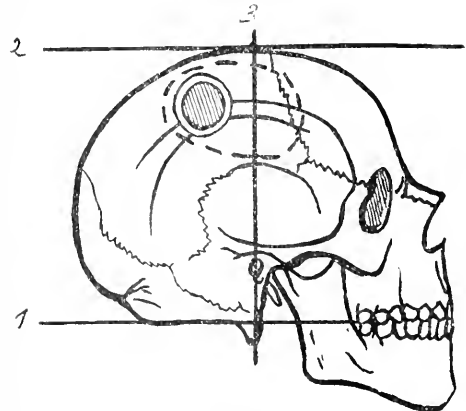


Fig. II.

- | | |
|---|---|
| 1. Base line. | Broken line of the oval indicates the area of adhesions, and bounds the space occupied by the blood clot, beneath the dura mater. |
| 2. Parallel tangent line. | |
| 3. Bi-auricular line. | |
| 4. Circle indicates opening into skull. | |

from this dot carried a line obliquely backwards and upwards at an angle of 33 degrees with the bi-auricular line

thus. Marked out, *approximately*, the course of the fissure of Rolando. Having mapped out the fissure we again washed the scalp thoroughly. Before cutting through the scalp I pierced it with a drill and marked the line for the central pivot of the trephine. To prevent hemorrhage the lock stitch devised by my friend, Dr. Frank, was used. With the stitch I cut off from the circulation an elliptical area measuring 12½ by 10 cm. (5 by 4 inches). Within the area I cut down through the scalp and periosteum, making an oval flap 6 cm. wide, and lifted it up from behind forward to the extent of 7 cm. (2½ inches), leaving the base of the flap in front; thus the opening in the scalp was placed at the most dependent portion. The flap was held back with warm sterilized gauze by Dr. Cullen, our interne. I now placed the trephine upon the skull so as to cover the fissure of Rolando, but had it extend further back of the fissure than forward, so as to get nearest the point in the skull covered by the scar in the scalp. The trephine was one and one-half inches in diameter. The bone was quite dense, five-sixteenths of an inch thick. The sclerosed condition of the bone was evidently due to osteitis. The dura mater was crossed by several large veins, and bled readily on being touched. After passing the needle through the dura mater, a half teaspoonful of blood entered the syringe. Finding nothing between the dura mater and calvarium to account for the man's condition I tied the veins and cut the dura mater one-fourth of an inch from the margin of the opening, and carried the incision around three-fifths of the circumference of the ring. The membrane was very thick and cut like leather, presented a yellowish appearance. A blood clot now came into view—it was semi-liquid.

By inclining the head to the right side, we caused the clot to glide out; the quantity was about two tablespoonfuls. There was considerable lymph in the arachnoid membrane all over the exposed surface. My index finger passed readily under the cranial vault and was swept about its circumference two inches forward and downward, an inch backward and half an inch inward to the longitudinal sinus. Around the entire area there were adhesions present showing that there had been at least a localized meningitis here and probably a leptomeningitis. The arachnoid could not be separated from the pia mater. Looking closely at the exposed surface the membranes were as one, thickened by lymph deposits. I tore the adhesions asunder between the arachnoid and dura mater by *very gently pressing* against them, the force of the pressure being directed towards the outer membrane. No hemorrhage worth mentioning followed this procedure in the present instance. My fingers were a little blood-stained. I explored the brain farther with the needle. It descended into the ascending frontal convolution towards Broca's speech center. Only a little brain substance entered it. Pierced the posterior portion of the ascending parietal convolution, behind the fissure of Rolando and above it. Noticed the patient's left leg jerk as the needle entered the cortex. The needle next entered directly behind (or as nearly as one could compute) the Rolandic fissure near the hand and finger centers. There was no evidence of abscess in any of these points; hardly felt justified in exploring farther in the presence of the pathological conditions already found. Washed the exposed parts with sterilized water, using very little pressure with the syringe, having first surrounded the tissues involved with sterilized gauze sponges to prevent the water from pouring into the subdural space beyond the limit of disease. There was a dark appearance of the deep membranes in spots, probably due to deep congestion of the pia mater, and the brain seemed to yield more readily to pressure here as if it was a little softer than in other parts.

As the vessels of the pia mater dip into the brain, the presence of softening of the brain would not be surprising. Leptomeningitis is said to be a cause of such a pathological condition. Had I been confident that the brain tissue had undergone degeneration it would not have seemed justifiable, in the face of what had already been done, to extirpate it. Removal of it would have produced permanent monoplegia. Not knowing what nature might accomplish by the regenerative process it seemed wise not to disturb it. I proceeded to close the wound, by first stitching the dura mater with catgut, in continuous suture, leaving a small opening at the lowest part for drain and insert a small drainage tube, having chiseled a groove in the margin of the button and taken out a few chips of the parietal bone directly opposite to prevent pressure on the tube. The button of bone was replaced. The scalp was stitched with silkworm gut, an opening being left at the lowest portion for the drainage tube. I now removed the lock stitch. Next dusted iodoform over the scalp wound, covered the head with two layers of iodoform gauze, four layers of sublimate gauze, placed a thick layer of cotton around the entire head and a Moorish bandage or cap over all.

NOTE.—Feb. 21. The patient lifts his left leg and bends the knee while walking. Before the operation he dragged the leg. The twitching at the left angle of the mouth ceased three weeks ago. General and tactile sense partially restored. Says he feels his left arm and leg, as if there was life in them; they seemed dead before. Can recognize which finger is touched with a point of a pin, without seeing it. The ear is sensitive to the touch. Headache has left him. Talks better, frequently speaks a sentence of a dozen words. Sometimes the words come smoothly and rapidly, at other times somewhat hesitatingly. Brain tires easily. An hour and a half after the operation was completed he said, "Doctor, can't you shut off that man's whistling?" referring to a patient in an adjoining room whose whistling annoyed him. The words were spoken distinctly and with little hesitation. Two weeks ago he could not open the left hand or lift the fingers. Now he opens the hand widely and extends the fingers. Has had no convulsions. Is improving daily. I omitted mentioning that our patient took iodid of potassium up to two weeks preceding the operation to make sure that no error should occur in operating. There was no indication of syphilis and the history of traumatism had not been ascertained. As already mentioned, the gentleman said nothing about the injury to the scalp until it was discovered by ocular and digital examination, and his attention was called to it.

Feb. 29. Had bone ache; bone was tender. There was evidence of necrosis. I opened the wound, removed the button, and chiseled away small bits of bone. March 31. Had a convulsion. Reopened the wound and removed a semicircle of dead bone about the cranial opening. There were adhesions behind the dura mater and arachnoid. For a time he seemed to improve again. April 6, while telling some of his friends that he felt better than he had for years, he was taken suddenly with epileptic seizures. They recurred daily. On the 11th of April I opened the wound once more, hoping to find a removable cause for the convulsions. Found adhesions to the dura mater and softened brain tissue, with two small abscesses of the size of pea. Died April 16.

Autopsy revealed extensive area of softened brain tissue, with two small abscess centers the size of a pea, and the dura mater re-attached. For at least one inch below and back of the trephine opening the bone was one-sixteenth of an inch thicker than that of the opposite side.

CASE 1.—729. Wesley Hospital Record. Admitted March 20, 1893. Mr. W., aged 52 years. Has always been well and hearty. A locomotive engineer by profession. Eighteen months ago was badly hurt in collision of electric cars. Struck the side of his head against a door jamb. Six hours later, in the night, while drinking a little water left to the floor unconscious and paralyzed. Next morning conscious.

ness returned, but he remained hemiplegic. Was aphasic four months. Remained in bed nine months. Has imperfect motion and loss of muscular sense in the entire left side. General sensation greatly impaired. Is troubled with insomnia. The right parietal bone feels somewhat flattened, as if it was stove in.

Notes taken before operation:

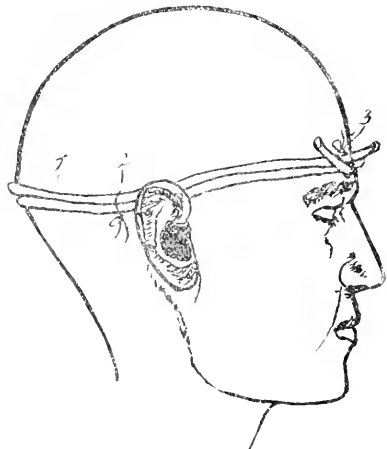
Left hand assumes silver fork position, with excessive extension of all the fingers. Can be about one-third way closed. Can not bring the ends of fingers within five inches of the palm of the hand. Raises the left arm to an angle of about 30° with the side of the chest. Forearm in extension forms an angle of 15° with the humerus. Rises from the chair slowly, with difficulty and trembling, using his right arm as a prop on the arm of the chair. Can not stand erect; body leans forward at the pelvis so as to form an angle of 15° with the thigh is. Left shoulder droops three and one-half inches. While sitting he can with the aid of the right arm carry the left leg over the right knee by making repeated efforts. Patellar reflex is exaggerated. On closing his eyes while standing his body oscillates and he fears falling. Can not walk a step without strong support, and never has done so since receiving the stroke. He moves his leg with great difficulty, leaning upon the shoulder of an attendant. Does not bend the knee, but drags the leg. Walks on the outer side of the foot. His knees jerk occasionally when he tries to walk. Left ankle is weak and turns easily. General muscular tremors noticed after standing five minutes; more noticeable on the left side. Has imperfect control of the urine; urinates three or four times at night. Micturition variable during the day time. Experiences difficulty in passing urine; may take two minutes to start it, and can not be controlled at will. Bowels move with difficulty. Tactile sense dull; can not distinguish between two points unless they are two inches apart, and then is not certain. Distinguishes heat and cold with difficulty on the entire left side of his body, face and limbs. Pin points applied to the left foot and leg cause reflex jerking, although he hardly knows what troubles him. No cremasteric or elbow reflex elicited. Left arm and leg are stiff; they bend with difficulty, especially the arm. Nearly all of the muscles are contracted, the extensors most severely. He cries easily and is very irritable.

On the 13th of April, after having the patient most thoroughly prepared, I cut through the scalp, making an oval flap as usual, so as to raise it from behind and below; lifted the periosteum with it. Found the parietal bone depressed near its center. With Roberts' trephine modified, one and one-half inch diameter, I sawed out a button. The dura mater was quickly exposed. The skull was only a trifle over one-eighth of an inch and quite elastic. It was not broken, but simply bent in like the side of a battered stove pipe. There was no cerebral pulse apparent. All around the border of the opening just made the bone could be seen curving in and pressing upon the dura mater. The latter at once raised up to the level of the external surface of the surrounding bone. The elevator could not bring the edges of the bone away from the dura mater sufficiently, so I deliberately enlarge the hole in all directions, perhaps one-eighth of an inch, and again pried the bone with elevator. Was now rewarded with restoration of pulsation, which the meninges of the glass noticed distinctly at the distance of eight feet. There was no bleeding during the operation.

My plan of constricting the head with a double circle of one-third of an inch solid rubber cord tied with stitches to the scalp, at two places worked admirably. There was, however, free hemorrhage after the constrictor was removed, largely from the bone. The wound was stitched with silkworm gut. It healed promptly. The day after operation he closed his left hand freely, and pressed mine with force. A few days after the operation left the hospital greatly improved. Our friend, Dr. Seymour, took the following notes May 27:

"The case is left hand completely and gives a strong grip again. Can move both ears and top of his head with the left hand. Can straighten out the left foot and extend it. While lying in bed can flex the left leg at the thigh and knee. Walked to the front door and back 100 feet without the assistance of even a cane; getting up and sitting down alone. Says a little when standing with eyes closed. Stands

nearly erect. Can raise arm at the shoulder to right angle with the body. General and tactile sense greatly improved, but not perfect. Talks more fluently; his words are uttered with more force. Is less emotional and has better control of his temper. Has control of sphincters. Discharged greatly improved May 27. Advised massage treatment and electricity for the muscles, which I believe will in time enable him to go to work.



"My method of controlling hemorrhage in operations about the head is here shown. A firm solid rubber cord, one-fourth to one-fifth of an inch wide, is wrapped tight about the head twice. The cord is not tied into a knot, but the ends are crossed in front and tied together with a heavy silk thread placed around them (3). The thread sinks into the cord sufficiently to keep the ends from slipping. The cord is held in position by means of two or more suture threads. These are placed in position by means of a curved needle, which is passed through the scalp under the cord. They are then tied around the cord as in illustration (2). Two or more of these loops may be used at different points.

Discussion.

Dr. McKee of Atlanta, Ga.—These injuries are so frequent that we all meet them, and it is our duty to operate in every case. I recently had two cases which exemplify this. One was an injury the result of a fall from a horse, which caused a triangular depression on the top of the head. I never saw such violent hemorrhage from a fracture of the skull as occurred in that case. I immediately ran my finger into the wound in the scalp, and shortly the hemorrhage ceased. I then prepared for operating, but as soon as I tried to make an opening in order to elevate the bone the hemorrhage commenced again violently. I packed with iodoform gauze, stitched up the scalp, put on an antiseptic dressing and sent the patient home. The man made an excellent and uninterrupted recovery.

Another case was that of a boy 14 years of age who was struck over the parietal eminence. I found the bone depressed, and quite a quantity of brain substance had escaped. I operated immediately and he made a good recovery.

A third case was that of a boy who fell from a horse, but as no immediate serious symptoms developed, the family did not call in a physician. He got along all right for a while, and then a persistent headache began to manifest itself, later a progressive paralysis, and now he is only able to sit up in bed. This demonstrates what the outcome is liable to be without operation.

Dr. Averitt of Pennsylvania—About four years ago I was called to see a child 3 years old who had been kicked by a horse. The superior portion of the frontal bone was fractured, with depression of the upper edge to the extent of about one-half or three-fourths of an inch, lacerating the meninges extensively as well as the brain tissue. I removed probably two or three ounces of brain substance, excised the lacerated meninges, brought together the soft tissues of the scalp, dressed antiseptically and obtained a very satisfactory recovery. There was never any febrile condition, little pain, and the recovery was complete in about five weeks.

Dr. Grunert of Kansas City—These reported cases are

very interesting to me. My idea is that we can not be too careful about the prognosis in these cases, and also about insisting on going into the scalp to ascertain whether or not the skull is injured; there is nothing dangerous about this procedure, and we can promise the family that no harm will result from it. I think the method mentioned for stopping hemorrhage of the scalp unique. In our place we do it by the pressure method, opening the scalp, running a loop stitch clear around a given area going down on to the skull proper, and in this way we get a complete closure of all the vessels in this area.

DR. REYBURN, Washington, D. C.—I am more inclined to operative interference in these cases than I was in the early years of my practice. I think that where there is any suspicion of a serious injury it is best to open the scalp and ascertain positively the condition existing. I will cite in support of this a couple of cases in my own experience: One case was that of a boy who had been struck over the head by an iron bar, and shortly afterward went into violent convulsions. I immediately, upon my arrival, opened the scalp and removed the depressed bone. The improvement was immediate and the case went on to recovery.

At about the same time another boy was similarly injured, but he did not come under my hands at once, nor did he receive the attention which he should have had. On the third day I removed a spicule of bone which extended into the brain; soon after symptoms of inflammation of the brain developed and death resulted. So I repeat that my advice is, where there is any doubt in the mind of the surgeon, to invariably open the scalp and clear away any such doubts. There is no danger whatever in such a proceeding except in a child of from 2 to 5 years of age, but when the individual is older than that, in waiting there is danger of the development of inflammation of the brain.

DR. SCHAEFER—In reply to Dr. Griffith's remarks about the loop stitch I will say that it was introduced by a Chicago surgeon, Dr. Frank, a few years ago. I followed this method in one of my cases and came to the conclusion that it was inferior to the plan described in this paper. It increases the danger of infection, as it is necessary to cover quite an area, and the needle will have to enter the tissues perhaps fifty times, while in the method illustrated only two or three, and occasionally four stitches, are required. I am pleased with the stand taken by Dr. Reymburn of Washington. I believe that more of these cases could be saved by timely operation. In all probability those who die after the operation would have died anyway.

A REPORT ON SOME CASES OF BRAIN SURGERY.

Read by title in the Section of Surgery, at the Forty-fourth Annual Meeting of the American Medical Association.

BY EMORY LANPHEAR, M.D., Phil.D.

KANSAS CITY, MO.

Surgeon to All Saints Hospital and to the German Hospital; Consulting Surgeon to the Good Samaritan Hospital; Professor of Operative and Clinical Surgery in the Kansas City Medical College.

Only too often reports of cases are published before sufficient time has elapsed to determine whether or not a cure has been effected. While a rule which I attempt to follow is, to report no cases until I am satisfied as to the outcome, a few case histories have been published regarding which I wish now to make a supplemental report:

(A.) *Removal of Gasserian Ganglion.*—Something more than a year ago I sent out a report of a case of removal of the Gasserian ganglion by the method of Mr. Rose. Inasmuch as this operation is still a debatable one, its opponents claiming that the disease for which the operation is made will return inside of a few months, we who are in favor of the operation are compelled to report from time to time as to the condition of patients. The case to which reference is made has progressed satisfactorily during the past year, and has had absolutely no return of the fearful neuralgia, so I feel constrained to repeat that which I said in making my report of the operation

namely, that a complete cure has been secured. While the operation is a most formidable one, there are many cases of intractable, neuritic trigeminal neuralgia which are of sufficient severity to justify the operation, and I believe it is worthy of further trial. The method of Rose is certainly the best yet devised, though possibly further experiment along the line proposed by Frank Hartley of New York, may show it to be better.

(B.) *Cerebral Hemorrhage.*—About two years ago I published a report of my first case of trephining for cerebral hemorrhage. This was a case of subcortical bleeding, and the record of it was printed only a few months after the operation. At that time a statement was made that the results were satisfactory. The subsequent history of the case is one of restoration to health with ability to work and to care for himself, although the use of the arm was not regained nor was his speech, owing to the great destruction of the cortical substance in the arm and speech centers.

Since that time I have operated upon two other cases of cerebral hemorrhage besides a number of cases of "apoplexy" due to meningeal hemorrhage. The second case of true cerebral hemorrhage was that of I. M., 54 years of age, who came under my care in June, 1892, suffering from hemiplegia and aphasia due to a hemorrhage. He was admitted to All Saints hospital and after due preparation a large flap was turned back and three one-inch buttons removed over the arm, leg and speech centers. These I joined by bone forceps. The dura was opened; no evidence of hemorrhage was to be seen except a white infiltrate over the speech and lower part of arm centers. This was opened and a considerable amount of broken-down brain removed; extending the cut upward toward the leg area, a clot a little more than one inch in length was found about half an inch below the surface pressing upon the connecting fibers of the leg and arm regions. This was removed, the cavity irrigated, and careful drainage established, with the usual closure of dura; the pieces of skull were replaced and the scalp carefully sutured to hold them in place; usual dressings.

Convalescence was speedy and uneventful. For three days there was a little fever (100° F.) and absolutely no improvement in paralysis; then motion began to return slowly to the affected side and in a few weeks patient was walking around with a cane with but little difficulty. Motor power has not returned in the hand, but the arm and forearm now have some motion, slowly improving. Speech remains wholly unaffected. The bladder irritation and obstinate constipation, so prominent before operation, have entirely disappeared, and patient regards himself as vastly improved.

The third case was that of J. P. E., male, age 42 years, patient of Dr. J. R. Kistler who saw him at 4 p.m. on March 31, 1893, and found left-sided hemiplegia which came on 32 hours before while straining at stool; for some hours previously he had complained of vertigo and had spoken of a "bad feeling" in the head with heaviness of head and foot two days before, at which time he went to bed with some vomiting. Temperature 100½; convulsion of paralyzed side occasionally; has been wildly delirious for some hours, and is becoming comatose. He was removed to the German hospital.

(J. Annals of Surgery, May, 1893.)

At 9 A. M. coma was complete; I opened scalp and removed piece of skull two by four inches over motor area. The dura very tense and pulseless. On cutting through the dura the brain bulged prominently through into the opening. With a knife I cut directly into the ventricle through the parietal convolutions and found clot filling the lateral ventricle with considerable fluid blood mixed with the cerebro-spinal fluid and broken-down tissue. I cleaned out the clots gently and irrigated with hot normal salt solution. As oozing seemed persistent a little iodoform gauze packing was introduced. Bulging was less, and after suturing dura around the packing, pulsation was found to have returned. Usual dressings and after-treatment.

April 1. Patient died at 10 A. M. Diagnosis, death from shock.

Owing to my absence from the city, no autopsy was held.

After the severer apoplecticiform symptoms have disappeared, embolism must be excluded as trephining would be wholly unreasonable in the latter disease. One must also carefully distinguish from hemiplegic forms of intracranial syphilis and tumors which may be suddenly manifested.

The following points will be found useful in determining whether or not trephining is justifiable when the diagnosis of a cerebral hemorrhage is clearly established:

1. When there has been a blow upon the head and hemiplegia, aphasia, or hemianopsia follows, there is nearly always a hemorrhage which may be cured by opening the cranium at the point indicated by cerebral localization.

2. Paralysis of the third, fourth, or sixth pairs of nerves indicates a lesion in the pons and contra indicates operation.

3. A slight premonitory attack, affecting speech temporarily, or producing a heaviness of hand or foot for a few minutes, if followed by hemiplegia may be taken as a good point in favor of operation, as the bleeding vessel is probably on the surface or very superficial.

4. Paralysis of a very limited extent, especially if complete, are not often due to hemorrhage—being local palsies rather than the peripheral indicative of cerebral disease.

5. A very severe headache followed by gradually but rapidly deepening coma and hemiplegia becoming more and more complete means a hemorrhage into the great basal ganglia—probably beyond surgical help.

6. When the case presents a history of moderate loss of power or complete hemiplegia without unconsciousness, followed in a few hours by sudden appearance of coma, marked fall of temperature succeeded by some fever, a hemorrhage has broken into the ventricles or beneath the membranes, is still progressing, and indicates immediate trephining; a day or two afterwards will be too late, so if done at all it should be performed within a few hours, if possible.

7. Very sudden and complete hemiplegia and coma (counting on as if the patient were struck with a hammer) usually means embolism; heart lesions, endocarditis and syphilis strengthen the probability.

8. Bilateral hemianopsia (blindness of corresponding sides of both eyes) appearing suddenly is apt to be due to a hemorrhage in the occipital lobe of the opposite side and justifies exploratory operation.

9. Profound coma and relaxation without any hemiplegia usually depend upon injury to the pons and decide against operation.

10. Vomiting, severe occipital headache and vertigo, with or without a distinct paralysis render a cerebellar hemorrhage probable; ocular symptoms, like nystagmus and strabismus are also apt to accompany these symptoms of cerebellar lesion; exploratory operation is justifiable.

11. According to Hughlings Jackson, convulsions, early rigidity and conjugate deviation of the eyes of a spastic form are conclusive evidence of hemorrhage. Convulsions always accompany hemorrhage in young persons.

(C.) *Idiocy*.—A year ago I presented the history of a little idiot from California operated upon by linear craniotomy. At that time the improvement had been quite remarkable. During the past year his progress has not been so rapid as was anticipated and yet has been quite satisfactory. The present condition, according to the report of the mother, is promising as to the future development of the child's mind, and physically he is in far better condition than before the operation.

During the last year I have made nearly a dozen craniotomies for idiocy, not only in the microcephalic variety, but also in cases of congenital idiocy, hydrocephalic, epileptic and traumatic. The most satisfactory of these cases is that of Henry B., of Cairo, Ill., patient of Dr. J. C. Sullivan, age 9 years, presented for operation September 22, 1892. Family history neurotic, epilepsy and insanity being present in near relatives. General health excellent; no history of illness except meningitis at his third year. He has presented all the signs of the genetous form of idiocy since his birth, and has suffered from convulsive epilepsy for several years, the seizures increasing in severity and number until they occur almost daily of late. *Status praesens*.—Child well developed physically, except in the lower extremities; has all the symptoms of congenital agenesis of gray matter, viz: idiotic expression, prominent and brutal lips, irregular and decayed teeth, and dribbling of saliva; he has the habit of sitting alone and swaying back and forth with a crooning noise, quite frequently throwing himself back on the pillow, screaming or moaning, tossing his head from side to side as if in pain; mental condition a perfect blank. The mother states that the child has never shown the slightest sign of intelligence, has never attempted to walk or to use his hands except automatically, has never tried to say a word, or appeared to notice anything that is said to him nor to pay attention to tones; at times she even thought him deaf because of his inattention to sounds. He has to have his food masticated and put far back in his mouth, as he has never learned to chew, and sometimes can scarcely swallow food, even liquids. He lies for hours, sometimes, simply whining to himself or moaning. He becomes fretful when hungry, but is generally good-natured when kept well-fed.

The mother was told that this was a case that presented absolutely no hope from operation, as it was a variety that had never been operated upon so far as can be learned, and operation might possibly prove fatal. It was explained to her that there was the barest possibility that the irritation set up by the operation might produce a trifle of improvement, and she decided to take the chance; consequently

the child was prepared in the usual manner for operation.

September 22.—Craniotomy made at All Saints hospital, on the left side of head; skull very thick; dura bulged strongly into opening, pulseless, but in enlarging trephine hole to the usual dimensions, pulsation was established. The opening through the dura showed a paleness of the brain, and shallow sulci were noticed. Dura and scalp closed and patient put to bed in good shape.

September 23.—Little shock noted. Patient slept well. Restless this morning, but food given him, after which his actions were the same as if no operation had been made. Temperature 99½.

September 24.—Doing nicely; no disturbance from operation; has a brighter appearance; does not moan nor act as if in pain so much as before operation, and symptoms less severe.

September 31.—Convalescence from operation has been uninterrupted. The mother notes the great change in the manner of conduct, and hopes for improvement.

October 5.—Operation made on right side of head. Bone greatly thickened, but soft; removed to the extent of two by four and one-half inches. Dura not opened; no blood lost; duration of operation, 25 minutes.

October 6.—No shock; resting quietly; temperature 99; in evening, doing well; sitting up as usual.

October 7.—No bad symptoms; restless manner entirely gone; has not cried since operation.

October 17.—Discharged from hospital.

December 26.—Mother writes that Henry is improving in general condition; spasms very infrequent and not severe, and he is beginning to pay attention to what is said to him, and particularly as to the tone of the voice. When spoken to crossly he cries as would a baby six or eight months of age. He is learning to play with toys, and seems to take an interest in some things that are going on about him.

March 22, 1893.—The mother writes: "Henry seems altogether different. He has lost the restless way he had before the operation. He seems contented and satisfied everywhere. His feet are filling out, and he is getting a little use of his legs. His flesh is firmer and more solid. When he is hungry, he hollers, 'Eat, eat, eat!' and, Doctor, his ways are all so much like a one-year-old baby's. He tries to climb up by chairs and stand on his feet, and I notice that if he happens to fall when climbing up, he is careful to hold his head up and try not to fall again. He does not put his hands to his ears and head as he did before the operation. He gets amused with playthings and seems to enjoy himself. He seems to grow stronger in every way, but does not improve about walking. Still, he wants to hold to anything that he can reach. He eats hearty and sleeps well. His arms and body seem to be very strong, and his lower limbs are improving also. The way I first noticed his flesh was getting more solid was when he would kiss me he would press his cheek against my face and it felt so much harder than before you ever saw him, so I felt of his arms and legs, and I know that he is gaining in flesh.

"Well, Doctor, I have been asked more questions about him since his operation; it seems to be a miracle the way he has improved, so everybody says who sees him. He blows his lips like a child just learning to talk. He can say four words right plainly,

and he often does what I tell him to do and seems to understand me. I can say God bless you, and hope that some day we can send you money."

This was a typical case of congenital idiocy, and as pronounced as any that has ever come under my observation; yet if the mother's report can be regarded as true, the amount of development since operation has been more phenomenal than that of any case that has ever been reported; which leads to the conclusion that operation is justifiable in such cases in the way of further experiment.

The second case I wish to report is that of Roy L., of Independence, Kan., age 12 years, patient of Dr. W. A. McCully. Well developed; general health, good, and in excellent bodily condition. As a baby he was excessively nervous, but otherwise well, and was fairly intelligent up to the age of three and one-half years, when he began to have "night terrors" and a few months later developed epilepsy. Since then his mental development has been very slow. November 29, examination shows patient to be suffering from epileptic idiocy (the idiocy being of high grade); his language is fairly good, though sharp and quick, and only the most infantile forms of expression are used. His right side is far less developed than his left, and the spasms are always on the right side of the body. He bolts his food, and has to be watched constantly because of a developing viciousness. He can intimate when he wants to micturate and defecate, but can not unbutton his clothes. He has absolutely no idea of right or wrong, the moral sense being totally absent. He plays with the usual toys, is passionately fond of music, and can readily learn to whistle a tune. Operation was strongly advised for the cure of epilepsy, with the advice to send the child to the Wilbur School for the Feeble-Minded at Kalamazoo, Mich., as soon as recovery from operation has occurred.

December 1.—Operation made at All Saints hospital with the usual flap on the left side; no bleeding of consequence. With a gouge a cut was made through the skull to the dura just at the margin of hair on forehead, then opened up over the frontal and motor regions about two inches wide and four inches long. Over the leg and a part of the arm center there was found an angioma measuring about one and one-half inches across. Inflammatory deposits were numerous, and after excision of the tumor the adhesions were broken up without hemorrhage, though the veins in the dura were almost varicose in size and had to be ligated with catgut. Dura sewed with catgut, iodoform put in, catgut sutures in the scalp, usual dressings. Duration of operation, one hour and ten minutes. In the evening he was resting well; temperature 99½, and no evidence of spasms.

December 2.—Slept four or five hours. No spasms during night; temperature 99 at 10 o'clock A. M. At 10 P. M. quite restless, so ordered two drams of elixir of bromid of potash, to be repeated if necessary.

December 3.—Slept nearly all night. In fine condition at 10 A. M. Temperature 98½. Sitting up in bed playing.

December 5.—Patient allowed to get up last evening. During the night had a few slight convulsions; otherwise doing first rate.

December 9.—Dressings removed. Wound found healed by primary union; general condition satisfactory.

December 21.—Patient discharged from hospital. No return of spasms. Crossness and viciousness very much improved.

May 10, 1893.—Reports from patient indicate marked improvement in his mental condition. Language is being acquired with great rapidity. Education already begun with gratifying success. No return of convulsions since discharge from the hospital.

This was a typical case of idiocy due to convulsive seizures, I believe, and may be taken as an illustrative case of what can be accomplished by operative procedures in cases of suitable character. Of course no man can make a diagnosis of angioma of the dura before operation, so that in a measure such cases are exploratory. Although too little time has elapsed since the operation to speak definitely as to the ultimate result, it seems to me that the amount of good already accomplished more than compensates for the outlay of time and money.

(D.) *Cerebral Softening*.—It was my good pleasure to report the first case of trephining that was ever made for softening of the brain. By the term "softening" I do not mean cerebral abscess; all surgeons would trephine for that disease; nor to the condition formerly called "red softening," which is in reality only the initial stage of a suppurative inflammation, which, if not arrested, leads to destruction of the nerve cells by pyogenic microorganisms—but to the condition which follows cerebral hemorrhage or embolism, in which, upon opening the skull, we find a softened mass semi-fluid in consistency, of purulent appearance, but in reality not pus. The case mentioned was one of cerebral hemorrhage involving the speech center and the motor area of many months' standing. The diagnosis was clear and unmistakable—the maddening sensations in the head and the temporary fits of irritability in which attempts had been made upon the life of his wife were undoubtedly due to a condition of true softening. The head was opened under the strictest antiseptic precautions, and a cavity containing nearly a pint of broken-down brain and other debris (but no pus) was carefully irrigated. This cavity was filled with normal salt solution, the dura replaced and stitched, the scalp sewed into place without drainage, with a firm compress of gauze. His recovery was uneventful as already recorded elsewhere; nor was the improvement merely temporary as was predicted by some who heard for the first time my proposition to relieve such cases by operation. To this day he has had no recurrence of the bad symptoms. He is enjoying life in traveling, and has sent me a number of other cases for trephining. He feels that his improvement has been decidedly great, and he is going about, spreading the good news that for such hitherto helpless cases there is a possibility of relief in surgical interference.

Thyroid Feeding in Myxedema.—Recent observations show that feeding of the thyroid gland is quite as efficient in the treatment of myxedematous conditions as the hypodermatic injection of the thyroid extract, while it is much less troublesome and is free from the grave risks attendant upon the injections.

Alexander (*Medical Chronicle*, No. 3, p. 175) reports the entire disappearance of a myxedema lasting two years in an insane woman. The mental condition was not improved. Half of a thyroid gland of a cow was employed, given twice weekly, finely divided and mixed with bread crumbs.

INTESTINAL ANASTOMOSIS—BY A NEW METHOD, WITHOUT PLATES AND WITH BUT TWO KNOTS—EITHER SILK OR CATGUT SUTURES MAY BE USED.

Read before the Section of Surgery and Anatomy at the Forty-fourth Annual Meeting of the American Medical Association.

BY M. E. CONNELL, M. D.

SUPERINTENDENT OF MILWAUKEE COUNTY HOSPITAL.

When through injury or disease it is found necessary to exclude or remove a portion of the intestinal canal, the question of restoration of its continuity which comes to the surgeon, and how or which is the best method to accomplish this desired result is one of great importance.

Many methods are now in the surgical field; but we cannot have one too many if all are good; and the surgeon must familiarize himself with one method or be equally proficient in all, in case of an emergency, such as gunshot wounds or strangulated hernia.

The universal interest which has been manifested in the plate operation and its modifications, indicate very clearly that any method which promises an improvement in the technique of intestinal surgery, whether in suturing or the saving of time, will be gladly welcomed by the profession.

It is now more than a year ago that I made a union, which seemed to me to promise a great deal; a method which I thought could be applied to the intestinal canal at almost any point, and wherein the number of knots would be reduced to two. I do not wish to be understood as claiming that a reduction in the number of knots would in itself be any improvement; while of course it would be a factor very acceptable to the surgeon if time could be saved in this manner, and there would be a coalescence of the other points in the technique, thus forming a desirable combination with the number of knots.

It is obvious in the method I will endeavor to describe to you, and I think you will agree with me, that more than two knots would be detrimental; one tie at each end of the incision or union is all that can be used advantageously, for the one great desideratum connected with this method is that every part of the suture be buried out of sight, as in the plate operation, and where the number of knots is increased to three, four, six or more, I do not see how this very important point could be achieved, for you will notice that if this suture is made properly, knots at any point other than the end could not be securely buried.

The idea herein involved is probably a modification of the plate operation, that is, the same in principle but without plates.

I felt certain that if I could penetrate or transfix both bowel walls when the serous surfaces were in apposition, and after being transfixed could keep them so, that is, with the serous surfaces in constant contact I should accomplish by means of this suture what had been gained by the plate union.

With this object in view I tried a series of experiments on dogs. I placed the serous surfaces of the walls to be sutured in apposition, and secured them so by a continuous and for or serpentine suture. I then drew these two walls apart, loosening the suture, so to speak, and turning the intestine over

brought the serous surfaces of the other two walls together, and transfixed them with a similar suture, the full length of incision was then secured, and

The results have indeed been remarkable. This idea I have modified so as to apply it to all parts of the intestine, to the stomach and gall bladder as well.

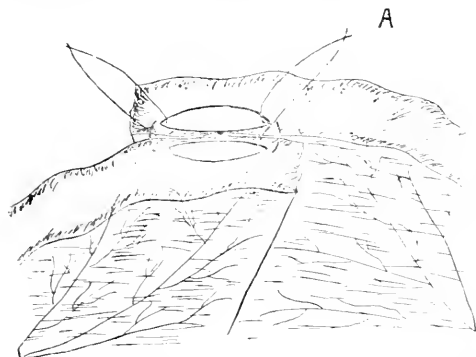
It would only consume your valuable time to detail the many attempts and failures which led up to this method of suturing, which I do not doubt will recommend itself to you as eminently fitting for the work that I claim it will do.

My first application of this suture was in oblique enterorrhaphy; the intestine being divided obliquely *a la* Robert Morris of New York; but my effort at this session will be to briefly describe to you this method of suturing as applied in anastomosis, wherein the initial steps are the same as in the plate operation.

The bowel is severed or a portion resected; the cut ends of which are then invaginated and closed with catgut or silk sutures.

The closed ends are passed by each other, and an opening (I prefer one slightly diamond, or oval shaped), of any length desired is then made in the convex border of both the proximal and distal portion of intestine.

The opposing walls are then placed side by side, so that the ends of incision are parallel with each other, and I found that it facilitates the work to have a suspending thread or loop run through the bowel at each end of the opening, and held by an assistant. To insert this thread for suspension, you pass your needle from within outwards through the walls of one portion of bowel, and over to the other, passing the needle from without inwards, then bring both ends up through the openings and tie, thus having the knots above. (See A.)



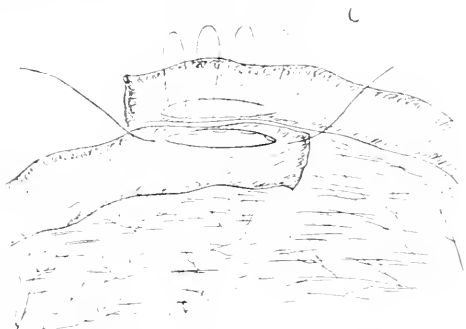
When there is a tendency to great eversion of the margins of the openings, or when you have made an unusually long incision, it will further greatly assist you to have a third suspending thread inserted midway between the other two.

As your assistant applies gentle tension or traction to these suspending loops, the opposing serous surfaces are brought into perfect contact, and you can very quickly insert the first suture, which is of looped stitches, by inserting your needle from without inwards through the bowel wall, at the right end of one opening, then passing it back and forth through all coats of both walls which are in apposition until

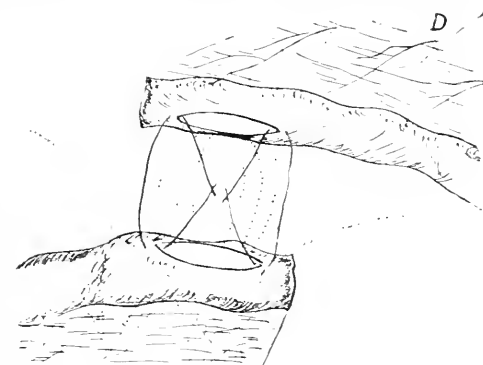
the full length of incision has been secured, and pass your needle from within outwards through the bowel wall at the opposite end of opening, a loop of



each stitch as a loop on the side where taken, (as in B) or each alternate stitch may be loose, thus having your loops all one side, (as shown in C).

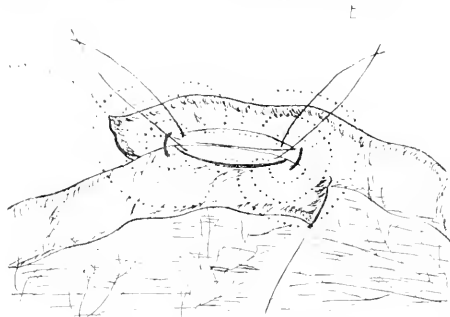


You next withdraw the middle suspending loop, if you have inserted one, and then separate these sutured walls as far as the looped stitches will allow; pass the knotted ends of suspending loops down



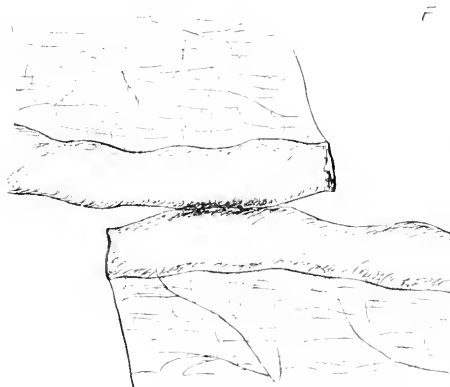
through the middle, (D) draw them up on the other side, and you will have the serous surfaces of the other two opposing walls in opposition. (See E.)

You can now put in a middle suspending thread if you wish, and then insert your second suture, in the same manner as the first, with the exception that no loops are made, all stitches being drawn tight.



You now withdraw all suspending threads and draw up the loops of your first suture, and pull the opposing ends of both sutures till taut, and tie; not cutting off the ends of sutures after making the first knot until you have made the second, as they are necessary in making traction.

After both knots are tied, cut off the ends close, so as to leave no dangling drains, and your union by anastomosis is complete. (See F.) It has never been found necessary to use any retaining sutures.



When using catgut for suturing, the knot must be secured with a silk ligature to prevent loosening, as it becomes softened by the intestinal and serous fluids.

This same result is achieved by making your first suture of tight stitches, in which case you will avoid the turning over of the intestine, which seems somewhat puzzling to not a few surgeons and then your second suture is inserted as shown in illustration G.

By inserting your needle from without inwards as before, and bring it out on the same side at about a distance of $\frac{1}{4}$ of an inch, then passing it over to the opposite wall and take a stitch through all coats about $\frac{1}{4}$ of an inch long, parallel with the margin of wound, and repeat until all has been secured and pass your needle out as before, when your sutures are drawn taut and tied and you have same result as at F.

In the series of experiments to which I have referred, many specimens were preserved, and from them I have selected these, which you will see are illustrative of the results obtained from the application of this suture in anastomosis.

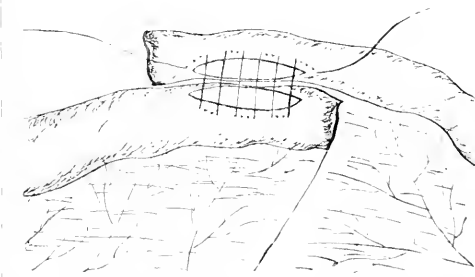
I have made no attempt to dissect or remove any of the stitches or suturing material, and as I am aware that time is a great factor in proving the value of a method, in some cases I have allowed quite a lengthened period to elapse between the experiment and the resection or death of the animal, the shortest time having been five days and the longest seven months and eight days; there is one still living of eight months duration.

In oblique enterorrhaphy the shortest time was fourteen days and the longest five months and twelve days; there is one still living of eleven months duration.

In circular union where I employed but one knot, the shortest time elapsing between experiment and resection, was twelve days, and there are three living, two of about eight and a half months duration and one where three circular unions were made at one time, which are now of six months and eighteen days duration.

The date of the experiment and time of resection or death of the animal is tagged with each specimen.

Although it may seem a little foreign to the subject of anastomosis, still I wish to mention and show you the specimen of No. 10 which operation was made on July 14th, 1892, when a union in two places at one sitting was made; both of these unions were of the oblique method and about one foot apart.



The subject was a large mastiff, the suture material very heavy catgut with darning needles. On August 29th, 1892, one (1) month and fifteen (15) days after the operation was made, I concluded to kill the animal and remove the specimen, so no effort was made toward asepsis or antisepsis and before resecting I also thought that I would practice on the intestine. An oblique enterorrhaphy was made between the two unions before mentioned. Then I resected that portion of intestine embracing these three unions and reunited the divided intestine by anastomosis, using the looped and tight stitch suture. Three suspending loops were used with perfect ease.

This anastomotic union was also made only for practice, but it looked so perfect that I concluded to close the abdomen and give the animal a chance to live, thus making experiment No. 17.

The first to which I wish to call your attention is that of experiment No. 12. It was on intestinal

*anastomosis, the experimental operation being made August 1st, 1892, in the presence of Dr. J. H. McBride of the Milwaukee Sanitarium, the subject being a small pug dog.

This was the first anastomosis made by this suture, my thought in previous work having been in the direction of an end to end union by the oblique incision *a la* "Morris."

In this instance the first suture was of tight stitches, and the second was loose or parallel, though not looped stitches.

The dog was killed August 16th, fifteen (15) days after the operation. There were no adhesions, the abdominal cavity being free from all signs of any inflammation, the internal organs lying free and in normal position. The intestinal union is perfect; there seems to be no cicatricial contraction worthy of mention.

I would next like to have you observe the specimen of No. 13.

In this case there was a double operation made on August 3rd, 1892. An anastomosis similar to that of No. 12, which we have just examined, and an oblique union.

This subject was a very large savage bulldog which was given to me as a sacrifice to science on account of his being so very troublesome. He escaped from our kennel fifteen days after the operation and when we went to his former home for him, his master would not give him up, stating that the operation had changed his disposition to that extent, that the family were willing to give him a new trial.

The dog's good behavior continued for several months, when he slid back into his old habits, and he was again turned over to us and was killed March 21st, 1893, seven (7) months and eighteen (18) days after the operation.

Silk sutures were used in both the anastomosis and the oblique enterorrhaphy.

The specimens will speak for themselves. No adhesions, or signs of any inflammatory action were found.

The next specimen of interest is that of No. 14, which in all probability can be considered under the head of anastomosis, it being that of a gastro-enterostomy, the union of the stomach at the convex surface with the duodenum at about its middle third.

The operation was made on August 10th, 1892, and the animal killed September 22nd, 1892, twelve days after the operation. Here also there was found no adhesions of abdominal contents. FF silk suture was used in making this union which seems perfect in every respect. (The communicating foramen being quite large.)

One month and eighteen days after the second operation was made, the animal was killed and we have here a very interesting specimen. It is extremely valuable in showing how nature will come to the surgeon's rescue, if given half a chance.

Here we have an anastomosis with what would be deemed an extraordinary length of incision, namely one and one-half inch, and following even this unusually long incision we still find the formation of an enterolith, with which as it increases in size from accumulations we find the incision or anastomotic opening and the bowel enlarging from day to day, so that in one month and eighteen days after the anastomosis was made we have the proximal end of the intestine distended to a distance of about ten

(10) inches from the point of operation. Yes, distended we might say to four times its normal size and the distal portion of the bowel is also enormously dilated.

This portion of intestine in its distended state, produced by the obstruction from the enterolith, resembles in point of capacity that of an ordinary dog's stomach. It may be of interest to note here that at the time of making the anastomosis, instead of placing the ends of divided bowel so that the peristaltic action would be downward, they were so placed that both closed ends were parallel, thus directing the peristaltic wave of the distal portion upward, which no doubt favored the formation of the enterolith considering the mixed diet which a dog selects.

The specimen of No. 18 is that of an intestinal anastomosis made in the presence of a "doubting Thomas," Dr. Mackie, after his return from his last visit to Europe. The operation was made September 6th, 1892, and the animal killed one month later, on October 6th, 1892. No adhesions were found and union is perfect.

In No. 21 the subject was a large white dog. On September 28th, 1892 a double anastomosis was made in the presence of Dr. Mackie of Milwaukee and Dr. Philler of Waukesha. The animal was killed October 6th, 1892, eight days after the operation; and at the site of the first union an immense enterolith was found. This specimen is of interest in showing, that while both unions were made at the same time, the concretion of bone had formed at the site of the proximal union only, while reparative adhesion takes place at both unions, the distal one being perfect; no enterolith or distention whatever.

In the next and last specimen to which I wish to call your attention, there is also the results of two experimental operations on the same subject, which was a small brown dog. An oblique enterorrhaphy, No. 25 was made October 31st, 1892, and two weeks later on November 14th, 1892, a cholecysto-enterorrhaphy, No. 26 was made, the gall bladder being united to the duodenum. Four months later on March 13th, 1893, this animal was killed and the specimens removed as you here see them; they have been examined frequently and the unions have stood the test of thorough manipulation. This I deem a very interesting specimen and I hope you will all examine it carefully. It is probably the first time in the annals of surgery that union of the gall bladder with any part of the intestine has been made, experimentally or otherwise, wherein but two knots were applied in the suture.

In conclusion, I wish to ask your consideration for the advantages which this suture offers in comparison with others:

As to the question of speed, the only operation with which this method can be compared is that of the anastomotic union by means of plates, rings or buttons; the plate method as first devised by me had six knots to tie, which was modified by Prof. Senn, he reducing the number to four; even then, in the hands of a skillful surgeon, I think this suture would compare favorably as to time.

Another point in favor of this suture, and a valuable one, is its applicability or adaptability to any part of the intestinal canal, and in whatever form you choose; you are not limited to an anastomosis, for you can make a terminal, circular or oblique

enterorrhaphy with as great rapidity. In its use you are not confined to intestinal unions alone, for you can unite the gall-bladder or stomach with the intestine at any point.

You are not restricted as to the length of the incision, and this being the case the suture is very applicable in pylorotomy, whereby you can remove any length of the pyloric end of the stomach, and unite it with the duodenum by making an incision in its convex surface of the desired length; or the pyloric end of the stomach and duodenum may be cut obliquely, and union then made by this suture.

An additional great advantage which this suture has above all others, is that no foreign substance is used. While the dog will not object to bone, rawhide or brass, the human subject might, and the surgeon has always in his pocket case the material to make a union such as I have described.

And last but not least, the result obtained in these experiments forced upon me the conclusion that Czerny and Lembert's teaching that but two coats of the intestine should be included in any one suture is so far as dogs are concerned not absolutely necessary, for you will observe that I have in every case penetrated the mesenteric coat, gone into the lumen of the bowel, brought the needle out again, from the lumen of the bowel through all coats of the intestine, thereby exposing the part penetrated by the needle point to infection, by the drawing of the suture material through the bowel walls. I am satisfied that this result could not have been obtained, were it not that the point through which the thread passes is buried in the tissues and surrounded by contact of serous surfaces.

That this suture is practical, and that the results are equally as satisfactory as any union heretofore advanced, has been fully shown by the specimens submitted for your examination.

DR. OVERT, Wisconsin—The ideal suture is one which does away with a foreign body of any kind and we have this in Dr. Connell's stitch. Another advantage it offers is that we always have the materials at hand—catgut and a darning needle will answer the purpose. I have used Connell's stitch twenty-five times on dogs with two deaths, both of which were due to accidental causes. I think the next serious criticism to be offered the use of plates and the button is the inability to get an opening of sufficient size. I have done Connell's operation in less than ten minutes.

DR. HENCK, Ohio—I wish to mention an interesting case of my own. A woman 48 years of age had evident symptoms of closure of the cystic duct. I performed an operation upon the gall bladder by bringing it up to the incision in the abdominal wall and holding it firmly against the abdominal walls to prevent the passage of bile into the abdominal cavity. I removed sixteen stones and washed the bladder out with warm water. I then found another accumulation in the cystic duct and removed them, closed the opening into the duct and closed together the openings in the bladder and in the abdominal wall. I secured immediate complete union and the patient was fully recovered in two weeks.

DR. MURPHY—I wish to thank the gentlemen for the interest they have taken in my subject. I wish to say a few words in regard to the foreign body element. The suture has been used an enormous length of time in all ways. I have not yet tried Connell's suture but am favorably impressed with it. It has been found that in the vast experience of the past the use of the suture method has resulted in a mortality of 47 per cent., while with foreign bodies the

death rate is 24 per cent. I don't care what it is, the approximation that will give that kind of a result is what we want.

E. W. ANDREWS, Chicago—I should like to ask Dr. Connell if this lateral anastomosis is preferred by him to the end to end anastomosis.

DR. CONNELL—In reply to Dr. Andrews I will say that I don't think this is the best, but it is the easiest to make. The other is nearest the ideal when the corners are satisfactorily turned in and the knot buried.

THE MURPHY BUTTON.

Dr. J. B. Murphy of Chicago, made a demonstration on a dog, of the method of making intestinal anastomosis by the use of the "button" bearing his name, after which he made a brief explanation of his method.

DR. H. O. WALKER, Michigan—I wish to speak particularly of Dr. Murphy's button, having used it three times on the human subject. The first case was a case of cholecysto-enterostomy. The conditions at the time of the operation were very unfavorable, and the patient died the following morning. It required fifteen minutes to perform the operation. My next case was that of a woman 38 years old who was brought to me on the 26th of last December. She was suffering from a fecal fistula in the right iliac region and was greatly emaciated. Her suffering was so intense that morphine had to be used liberally. Three attempts had been previously made to close the fistula. I made the incision, found the adhesions and completed the operation in seven minutes. The button was never seen again, probably on account of the negligence of the nurse, but the woman made a good recovery. The next one was a bad case of strangulated hernia which had gone unrecognized seven days when it was brought to me, and at that time general peritonitis existed. I did the operation this time in six minutes, and in operations on the dog have done it in four minutes. One element in particular claimed for the button by Dr. Murphy should be well considered, that is the short duration of time required when it is used.

DR. REIN, Iowa—I have for some time been considerably interested in intestinal work, and when Dr. Murphy's button first came out, I thought simply that it was another appliance to be tried, but upon second consideration of its claims I fell in love with the thing. I performed my first experiment on the 10th of last January and have done many since then, and in no case has there ever developed a fistula, and in no case did the dog die as an immediate result. One point about the button which I wish to especially recommend, is the fact that no foreign substance is left permanently in the abdominal cavity. To the question, will the button pass out, I can say that it will. But even if we have to make a secondary laparotomy occasionally to recover a retained button, it nevertheless has sufficient recommendations.

REPORT OF A CASE OF SUCCESSFUL END-TO-END SUTURING OF INTESTINE.

Read in the Section of Surgery and Anatomy, at the Forty fourth Annual Meeting of the American Medical Association.

BY ERNEST T. TAITEY, M.D.

DETROIT, MICH.

There is a decided division of opinion among surgeons on the subject of the methods employed in uniting different portions of intestine. Some are eager to try, if not to adopt, each new device in the way of plate, ring or button, as it makes its appearance; and others either cling to the older method of

suturing or go back to it after having had a trial of the newer methods. The latest device as far as I am aware, is the Murphy button. This, like all others of the class, labors under the disadvantage of remaining for some days as a foreign body of considerable size in the intestine, and at the same time possesses the undoubted advantage of rendering the operation of union much shorter than the older method of suturing.

Abbé has found that the older plates and rings that necessitate only a slit in the side of the intestine in the performance of an anastomosis, are defective in their later results. The opening contracts one-half to two-thirds and as the original opening is one inch and a half, it gradually becomes only three-quarters of an inch or half an inch. Abbé therefore has given up using his catgut rings and other contrivances of this kind, and depends upon the suture entirely, making the opening four inches long. This he considers a very important feature of the operation. (*Med. Record*, April 2, 1892.)

It is to add to the literature of the subject of suturing that I report the following case: Here the wound was one of the small intestine and I preferred to depend upon the suture rather than upon the Murphy button, though I was tempted to use the latter and was dissuaded only by the thought of the button in the intestinal canal after the operation should have been completed.

Alex. McDonald, a man about 40 years of age, remained in Port Huron, Mich., on his way home, and while there March 19, 1893, a left inguinal hernia became strangulated. He was allowed to remain in this condition five days. Then a surgeon cut down to liberate the gut, but found a knuckle gangrenous. The wound was not closed but the intestine was sewed to the skin and the patient was then sent to Harper Hospital in Detroit, where he came under my care. I found the whole sac black and gangrenous, and gangrenous tissue about the opening in the intestine, the contents of the bowel discharging through the wound entirely and none through the anus. The sac was amputated at once. I then waited a week until all necrosed tissue had sloughed away and healthy granulations covered the wound surfaces. April 4, chloroform was administered and I proceeded to repair the intestine, with the kind assistance of Drs. McGraw and Walker. The adhesions were broken up, about two inches of the gut excised, a V-shaped piece of the mesentery removed and the cut surfaces then brought together with silk sutures—first the mesentery then the mucous membrane and finally the peritoneal coat of the intestine: here two rows of continuous Lambert sutures were applied. The external wound was left open and packed with iodoform gauze. The patient took chloroform very badly: the action of the heart was so weak that chloroform was withheld and nitroglycerin was administered hypodermatically. The latter part of the operation was performed while the patient was conscious. There was comparatively little sensation, the patient lying still and not complaining while the sutures were being placed in the peritoneal coat. This was of considerable interest to me, for I had seen a short time before, a discussion in the *London Lancet* as to the sensitiveness of the peritoneum. Lawson Tait and others maintaining that it is extremely sensitive, and still others maintaining exactly the contrary.

The recovery was not interrupted by any complications. There was no leakage of the bowel, no rise of temperature above 100. Ten days after the repair of the bowel I excised the external granulating wound, pared the edges of the skin and sutured them together. This was done without an anæsthetic. There was union by primary intention except one-half inch at the lower angle. Patient was kept on fluid food for three weeks. He left the hospital at the end of five weeks.

DISCUSSION.

Dr. MURPHY of Chicago.—I have used the suture repeatedly and it has many advantages, but it has the disadvantage as to time required and as to leaving stilet holes behind inviting infection and if suppurative results from any method that method is not a success. The element of contraction always pertains to lateral approximations and in a lesser degree always to circular ones. If it is wished to make a lateral approximation, anywhere, this can be done an end to end approximation may be done, and where it can be made end to end the button can be used. The foreign body element has been brought up repeatedly in the consideration of the button and this is the very least thing that concerns it; if this is the strongest opposition it is to meet we welcome it because we feel positive that that objection amounts to nothing. I could conceive of a pathological condition which would prevent the free passage of the button but I hope that none of us will get the button into an intestine which is diseased from end to end. The element of time is an exceedingly important one and with the button an approximation can be made in the very shortest possible time. Recently in an operation for removal of a dermoid cyst, I began the incision at 11:34 o'clock, the cyst was removed at 11:39, it took until 11:43 to locate the intestinal obstruction and at 11:48 the resection and placing of the button was complete; the external wound was closed at 11:58, the whole operation having lasted nineteen minutes.

Dr. JERKS of Arkansas.—I should like to ask Dr. Murphy if the use of the button is applicable to gunshot wounds of the abdomen.

Dr. MURPHY.—It is a peculiar fact that in bullet wounds of the abdomen the perforations of the intestines are as a rule in close proximity so that ordinarily you can take out a single section one to three feet in length and the ends then buttoned together. It is known that a section of intestine three feet long can be taken from a dog and that animal survive, and it is believed that the same could be done with the human subject. It has already been demonstrated by Dr. Andrews that fifteen inches can be removed.

Dr. Gaston of Georgia.—This is an appropriate occasion to bring to the attention of the members of this Section an operation done in 1859 where I had occasion to reunite an intestine from which thirty inches had been removed in the case of a man who had attempted to commit suicide. We removed three pieces of gut each over ten inches long. This was when Simm's silver wire suture was first coming into use and we effected with wire as nearly an absolute end to end union as possible. Seven interrupted sutures were put into the circumference of the gut. We found that the ends adjusted themselves to each other accurately by the contraction of the circular fibers of the intestine. The man was kept under the influence of opium after the operation, five grains being given every three hours for forty-eight hours. The final result was favorable and in less than a month the man was up and going about his business. I had the dejecta watched for several weeks but no signs of the sutures were found. Some years after the man died

from other causes and on *post-mortem* we found that the sutures had entirely disappeared, and there were no signs present of any operation having been done on the intestines.

Dr. VERRY of Chicago.—This button of Dr. Murphy's is a good thing and its application a good one. If it should get jammed up in a constriction of the intestine another button can be put in to help it out.

Dr. TAPPEN of Michigan.—I feel that the Murphy button is of wonderful utility and I will be glad to use it in some cases. I would like to ask Dr. Murphy if he will say anything on the subject of the sensitiveness of the peritoneum.

Dr. MURPHY.—I could say nothing from my own experience as I have never operated on the peritoneum when an anæsthetic was not used.

Dr. BOFFLEER of Chicago.—The element which Dr. Tappan has brought out is the keynote to the situation—that is the element of time. I have made a few resections and even where you can get the intestine out it takes time. I don't believe a double row of stitches can be done properly in less than twenty minutes. In two cases it took me twenty minutes; one died because he was wounded a few hours previous and I lost time, and also lost the effect of handling the intestines as little as possible. Persistent handling of the peritoneum lessens its vitality and greatly increases the danger of infection. In consideration of that item, we should have some means of doing the operation in less than twenty minutes.

Another point—surgeons operating in this locality frequently forget their anatomy and fail to recall the manner of the attachment of the mesentery, therefore manipulating the intestines from one end to another. This would be entirely unnecessary if they would remember the obliquity of the attachment of the mesentery to the posterior abdominal wall. Every point that shortens the time of the manipulating of the intestines increases the recoveries. The Murphy button does this. I should not be very much afraid of its causing an obstruction, but would feel very comfortable that it had saved to the patient a fifteen minutes' manipulation of his intestines.

THREE CASES OF ACUTE INTESTINAL OBSTRUCTION TREATED BY ABDOMINAL SECTION.

1. *Intussusception*—2. *Volvulus of Sigmoid*—3. *Strangulation by Meckel's Diverticulum.*

BY A. J. OCHSNER, B. S., F. R. M. S.

CHICAGO, ILL.

In reporting these cases of acute intestinal obstruction, due to mechanical causes, I am aware that so small a number of cases cannot have any definite influence upon the plans of treatment which have been discussed with so much vigor in the medical societies in all parts of the world, especially since the general introduction of antiseptic surgery has made surgical treatment, theoretically at least, very attractive.

The fact that individualization is of especial importance in cases of intestinal obstruction makes each additional observation of some value.

I need not detain you by discussing the general subject of intestinal obstruction. This has been done so thoroughly by men of great experience in almost every civilized country, and especially well by our own Professor Semm, that I can certainly not improve upon it. I will consequently at once proceed to consider the cases which I have treated:

Case 1.—December 15, 1892, I was called to see Edwin N., a bright, healthy child, 3 years of age, at 741 N. Clark St. His physician, Dr. O. N. Huff, gave me the following history: A week ago the child fell a distance of a foot or two, and complained of a little pain in the region of the cæcum for a few moments, but almost immediately resumed his play. From that time he repeatedly had small twinges of pain in the same region but not severe enough to cause any anxiety on the part of his parents. Within the last six hours he began to suffer severely from pains in the abdomen and to complain of nausea.

The pain was very severe and spasmodic, and during the attacks the abdominal walls were tense and a hard sausage-like mass could be felt and seen to the right of and a little below the umbilicus. A rectal examination gave a negative result. The child had a constant inclination to evacuate the bowels, but the attempts remained fruitless, except there was a small amount of mucus passed once or twice.

Dr. Huff and Dr. R. G. Bogue, who had already examined the case, made the diagnosis of intussusception, which I readily confirmed. I immediately proceeded to perform an abdominal section. After the patient was anesthetized, the abdomen was washed and shaved, then washed again with soap and water and with strong alcohol. An incision four inches long was made in the median line below the umbilicus. The transverse colon was brought out of the wound and was found to contain an invagination of six to eight inches each of the ascending colon and the ileum. There were no adhesions and the serous surfaces were not inflamed; nevertheless it required a considerable amount of force applied alternately by pressure from below and by traction from above to reduce the intussusception. The vermiform appendix, which was five inches in length and almost without any mesentery, had formed a loop around the ileum at its point of entrance into the cæcum. I ligated the appendix at its origin, disinfected the stump with strong carbolic acid, inverted it into the lumen of the cæcum and covered it with a fold of the peritoneum from either side, by means of a few fine silk stitches threaded in ordinary cambric needles. The peritoneal cavity was then closed with silk stitches grasping all the layers of tissue of the abdominal wall.

A sufficient amount of morphia was administered during the first four days to control pain and to lessen peristalsis; on the fifth day a small glycerin and warm water enema was given which effected a slight evacuation of the bowels. A daily evacuation was obtained in the same manner after this for the first two weeks. The stitches were removed on the ninth day. The wound healed primarily throughout. Rubber adhesive straps were used to support the abdominal scar for six weeks after the operation.

There was scarcely any deviation from normal in pulse and temperature after the operation, and the child showed almost no shock. He was permitted to sit up three weeks after the operation and to walk about a week later. His diet consisted of milk and broth for four weeks, and of very simple and easily digested food for two months more.

The child is in perfect health at the present time, six months after the operation.

In this case it is probable that at the time of the original fall the vermiform appendix was thrown around the ileum, causing a slight constriction, and that this in turn gave rise to the intussusception; consequently the removal of the appendix would be likely to prevent a recurrence. This peculiarity in this case seems to me to be of especial interest.

It was deemed wiser not to attempt to reduce the intussusception by means of large enemata, because

we could not be certain as to the condition of the intestine nor the anatomical cause, which evidently must have been connected with the fall. Moreover, the intestine has been ruptured upon applying as low as five feet of hydrostatic pressure and it seemed apparent to all who examined the case that it would require much more force to reduce the intussusception with the conditions present; for the same reason insufflation with air was omitted. The conditions we found upon opening the abdomen fully confirmed our previous conclusions.

Case 2.—Isaac Libin, a German laborer 32 years of age, who had formerly always enjoyed good health, came under my care January 29, 1893, giving the following history: Five days before, while walking in the dark, he stumbled and fell into a ditch two or three feet deep. He experienced a slight amount of pain in the left inguinal region but paid no attention to it. Two days later he began to suffer throughout the abdomen, the pain becoming very severe about twelve hours before I saw him. The patient's abdomen had become tympanitic and he had suffered from nausea. There had been no evacuation of the bowels for five days and no passage of gas. The patient had the appearance of a strong healthy man suffering from a very severe acute disease, giving him an anxious look.

There was a globular enlargement in the lower part of the abdomen, a little to the left of the median line. The patient suffered severe colicky pains and requested that something be done at once. Cathartics and enemata had been administered for two days with great persistence but without effect.

My diagnosis in this case was volvulus, probably of the sigmoid. Two hours, and one hour, previous to my seeing the patient, my assistant had given him hypodermic injections of morphia, one-fourth of a grain each time to control the pain.

The skin covering the abdomen was at once cleansed, disinfected and shaved.

An incision was made in the median line, at first three inches long and enlarged to twelve inches after the preliminary examination. A volvulus of the sigmoid flexure was easily discovered. The intestines above this volvulus, both large and small, were considerably distended, but the portion of the colon composing the volvulus which was apparently two feet in length, was enormously distended having the appearance of an inflated stomach, its diameter being nearly twelve inches. It was impossible to reduce this volvulus within the abdominal cavity; it was therefore permitted to protrude through the incision, when it was reduced by making a half turn. It was again impossible to return the largely dilated intestine into the abdominal cavity; consequently an assistant carefully dilated the sphincter-ani muscles and introduced a large soft rubber tube, similar to a stomach tube, into the rectum and up into the dilated colon. This permitted the gas to escape, which at once reduced the size of the intestine sufficiently to allow its replacement in the abdominal cavity. The intestines had in the meantime been protected by the use of towels wrung out of warm sterilized water.

The abdominal wound was closed with silk sutures grasping all the layers of tissue of the abdominal walls. The rubber tube was left in place in order to secure the continued escape of gas. The operation was completed in fifty minutes.

No food was administered for forty-eight hours; at the end of this time the patient was given small quantities of milk and lime water every two hours. The temperature rose to 101.4 F. during the first twenty-four hours after the

operation. The pulse never exceeded 110 beats per minute. After the second day the temperature remained normal, and the pulse varied from sixty to ninety beats per minute. After the fifth day the bowels moved daily under the use of enemata. The patient was limited to liquid diet and was advised to be careful about his food for several months after leaving the hospital. The wound healed primarily and the patient was discharged from the hospital in an excellent condition March 1, 1893, just thirty days after the operation.

This case illustrates the principle laid down several years ago¹ by von Wahl, and explained experimentally by his assistant, that the presence of an abdominal dilatation and fixation, of an intestine, perceptible by inspection or palpation, indicates the presence of strangulation. It is plain that relief can be obtained only by means of an operation in patients suffering from a strangulated intestine. It is claimed that in very rare cases the patient has been relieved by the formation of adhesions followed by ulceration, causing an anastomosis; but this seems so unlikely to occur that the surgeon can not hope for such an issue in any given case. In this case peritonitis had not occurred from the introduction of microorganisms into the peritoneal cavity through the walls of the intestine; a serious condition which would undoubtedly have followed had the operation been postponed for several hours.

The advantage derived from stretching the sphincter-ani muscle and the introduction of the rubber tube into the enormously distended colon in this case should not be under-estimated. It not only enabled me to replace the intestine with greater ease and less strain upon the patient, but it prevented the further accumulation of gas in the colon after the operation.

The contractile power of the circular muscles of the colon had been much lessened by the over-distention; notwithstanding this, gas passed freely through and along the sides of the rubber tube which was left in place for four days, being moved slightly several times a day to prevent harm from pressure.

When emptied of gas and replaced, it did not seem necessary to fix the sigmoid to prevent a recurrence, because the intestine maintained its position without any support. In this case this could not have been improved by forming folds of meso-colon parallel with the gut as this would have caused a bunch-like arrangement which in turn might have interfered with the fecal circulation. Suturing the meso-colon to the parietal peritoneum or stitching the colon itself in the same way with a few sutures² was contra-indicated by the condition of the intestine resulting from the enormous dilatation. It seemed to me that the least possible amount of disturbance of the intestine or its mesentery would be of especial importance in preserving the organ.

No further attempts at irrigation or insufflation were made before proceeding to operate, because this method appears to be of very doubtful value, except very early in the treatment of volvulus, for the reason that one cannot determine the power of resistance of the diseased intestinal wall.³

Notwithstanding the fact that it has been demonstrated upon the cadaver long ago⁴ that volvulus can be reduced by insufflation of air, the conditions are so different that experiments on the cadaver are of very little value.

The use of massage⁵ seems too dangerous and too

little promising to be considered under the condition in which I found the patient. Moreover, large enemata had been employed patiently and persistently before the patient came under my care.

Case 3.—In the night of February 27th, 1893, a neighboring physician requested me to see Mr. Daniel B. of 326 Mohawk St., in consultation with him. The patient was 81 years old; had always been well and was at the time in fair general condition, with the exception of showing symptoms of acute shock.

Four days previously he had suddenly experienced a severe abdominal pain at a point a little above and to the right of the umbilicus. The severity and the location of the pain suggested biliary colic to the attending physician. An anodyne was prescribed and the pain disappeared. The patient remained quiet and suffered but slightly during the following two days, but on the next day the pain became more severe, and during the day of my visit had increased in violence notwithstanding the use of morphia. The patient had been nauseated all day, and had vomited repeatedly for six hours. During the past two hours he had vomited stercoraceous matter.

I found the abdomen distended uniformly, and there was no point of dullness upon percussion. The patient was perfectly rational; his temperature was 99° F., his pulse, 120 beats a minute.

The diagnosis of intestinal obstruction in the region of the small intestine was made, but there was nothing in the history or the conditions present to suggest an anatomical diagnosis.

Preparation for laparotomy were made at once because the shock had increased very markedly during the last two hours. The patient did not take ether or chloroform kindly; his pulse increased and his breathing was very irregular; the abdominal muscles did not relax at any time during the operation. An incision six inches in length was made in the median line, extending downwards from a little above the umbilicus. A reddish fluid similar to that contained in a hernial sac of an old strangulation, escaped upon opening the peritoneal cavity. The intestines were severely distended, and several loops showed marked congestion and roughness of the peritoneal covering.

Introducing the hand into the peritoneal cavity I at once found a hard mass in the left iliac region. Opening the wound over this point by means of blunt retractors, I found a loop of small intestine about one foot in length, which had slipped through beneath a Meckel's diverticulum, originating from a fold of the ileum, and being attached by its apex composed of a fibrous band, to the mesentery. The adhesions were very firm, and had evidently existed for years. It was impossible to reduce the intestine which had become strangulated, consequently I ligated the adhesions double with strong fine silk, and cut between the two ligatures.

On account of the patient's age and his depressed condition I did not deem it wise to prolong the operation by removing the diverticulum. The loop of intestine did not appear sufficiently injured to demand a resection; I therefore completed the operation by sponging out the abdominal cavity and closing it in the usual way.

The operation was completed at one o'clock in the morning, having occupied forty minutes. The patient died thirteen hours after the operation without recovering from the shock, although he was rational to the end. He had several evacuations of the bowels through the day, but the vomiting continued. This might possibly have been avoided, had the patient's stomach been emptied and irrigated through a stomach tube previous to the operation. This should

never be neglected if the patient has vomited freely; and particularly if there has been vomiting of stercoraceous matter.

It is likely that the loop of intestine slipped through the opening on the first day, but that it did not become strangulated until about twenty-four hours before the operation, the cause being an increase in the oedema of the band and the intestine. In a younger patient the prognosis would have been very much better.

It is questionable whether an earlier diagnosis might not have been possible. It was, of course, obstructed by the fact that the pain was referred to the region of the gall bladder at first, and the cessation of pain after the use of morphia. The absolute obstruction to the passage of feces and of gas might have sufficed in completing the diagnosis. It is possible that careful auscultation¹¹ might have determined the seat of obstruction.

There was no congenital deformity¹² in any other part of the patient's body, which occasionally makes it possible to form a probable diagnosis of obstruction due to a Meckel's diverticulum. Besides the classical signs and symptoms of acute intestinal obstruction viz: (complete constipation; vomiting, first the contents of the stomach, then bile, then intestinal contents; if the obstruction was high, or if peritonitis had occurred; periodical pains; localized tympanitis early, general tympanitis later; violent peristalsis above the seat of obstruction); I noticed in each of these cases an absolute abhorrence of any form of food, and a constant desire for water.

The important points regarding this subject, seem to lie in securing as accurate a history as possible regarding previous sickness and especially previous attacks of a similar character; also the habitual condition of the patient's bowels. The history of an injury or of an over exertion is important. The apertures at which herniæ occur should be carefully examined and also a rectal examination should be made. The abdomen must be inspected for the recognition of violent peristalsis, which may determine the point of obstruction because peristalsis is entirely above that point. Irregularities in contour should be observed. The abdomen should be palpated in order to determine the presence of any point of resistance. Auscultation should be practiced patiently because there is no peristaltic murmur at the point of obstruction.

The abdomen should be percussed because a metallic sound can sometimes be elicited from a point above the obstruction, and a tympanitic sound over the strangulated intestine.

If a loop of intestine is strangulated, the patient has the general appearance so familiar to us in strangulated hernia. If the abdominal walls are tense, infection of the peritoneum has already occurred.

As soon as the diagnosis has been made these patients should be operated upon, first having tried carefully the use of injections, insuflation and massage to a safe extent, and that only at an early stage of the disease. Strangulation is sure to follow, which will permit the transmission of microorganisms into the peritoneal cavity. The intestine will become paralyzed by over distention and some portions may become gangrenous.

It is well to operate during the first twenty-four hours¹³ after the occurrence of an acute intestinal obstruction.

DR. HENRY O. MARCY, Boston.—I wish to put emphasis on the matter of washing out the stomach prior to operation. I have lost two patients on account of the severe vomiting; there is a constant pouring out of liquids embarrassing respiration; it is astonishing how much fluid is poured out of the stomach, and I am glad the writer gave prominence to this practice of preliminary washing out.

DR. DAVIS, of Birmingham, Ala.—Washing out of the stomach is perhaps too much emphasized. If it is done there is again filling in a short time, and we find that not as much relief has been afforded as we had expected. I regard obstruction of the bowels as not so frequent an occurrence as we have been led to believe by the teachings of the older authors. I believe many of them are cases of peritonitis, although I have no intention of questioning the diagnosis reported by the authors. It is my experience in operating on many so called cases of obstruction that the majority of them are cases of peritonitis due to appendicitis. Obstructions from mechanical causes are, I think, rare.

- ¹ Dr. J. D. Mortimer, *Lancet*, May 23, 1893.
- ² V. Wahl, *Centralblatt für Chirurgie*, 1892, No. 39.
- ³ V. Wahl, *Langenbeck's Archiv für Klinische Chirurgie*, Vol. 38.
- ⁴ K. Kader, *Langenbeck's Archiv für Klinische Chirurgie*, Vol. 42.
- ⁵ Paul Reibel, *Deutsche Zeitschrift für Chirurgie*, Vol. 35.
- ⁶ *Scout, Medical News*, 1890, and *Intestinal Surgery*, p. 101.
- ⁷ Roser, *Centralblatt für Chirurgie*, 1889, No. 18.
- ⁸ *Nachschau, Deutsche Chirurgie*, 1880.
- ⁹ Braun, *Archiv für Klinische Chirurgie*, Vol. 43.
- ¹⁰ Frederick Treves, *British Medical Journal*, Aug. 29, 1885.
- ¹¹ J. Heiberg, *Virechow's Archiv für Pathol. Anat.*, Vol. 4, 1872.
- ¹² Johnathan Hutchinson, *Archives of Surgery*, London, Vol. 1, 1889.
- ¹³ L. Rehn, *Langenbeck's Archiv für Klinische Chirurgie*, Vol. 43.
- ¹⁴ Oberfeld, *Lancet*, Jan. 30, 1892.
- ¹⁵ Obalinski, *Archiv für Klinische Chirurgie*, Vol. 38.

710 Sedgwick St., Chicago.

THE RELATIVE MERITS OF THE PRESENT METHODS OF TREATING PYELO-NEPHRITIS.

Read before the Section on Surgery and Anatomy at the Forty-fourth Annual Meeting of the American Medical Association.

BY JOSEPH PRICE, M.D.

THE PRESTON RETREAT, PHILADELPHIA, PA.

The old application of "surgical kidney" to the affection I have taken as the theme of this paper is certainly one which in the light of its former fatality could not have been better chosen by the critics of surgical efficiency to proclaim their jest satirical upon a disease whose only termination was death.

It was a veritable *lucra a non lucendo*. Surgical kidney, as the title took its origin, came to be so designated from its frequent genesis from dirty sounds and careless irrigation of the bladder, and from this standpoint was certainly an opprobrium of surgery in another sense. Coming from strictly pathological causes within the economy, it could not always be attributed to faults of the surgeon, and it is the treatment of these lesions to which the surgery of the present day only should perforce be directed. No modern surgeon, deserving the name, should ever endanger the life of any patient by an approach to the dirty practices *in the dawn of surgery*. With the pathology of the affection I shall deal but briefly, asking you to remember that suppurative nephritis at times occurs without preceding implication of the ureter or pelvis of the kidney.

If, however, this is the case, it is easily understood how, unless careful attention be paid to the general symptomatology, the real nature of the disease may be overlooked, since the urine passed through the catheter from the pelvis of the kidney is acid and without odor of decomposition. The multifarious nature of the causes of this affection puts it

in the list of diseases especially interesting to the general practitioner, and makes it necessary for him to hold constantly in mind the *capitulum* nature of the affection, as treated by modern surgical methods. Many a fatal case of this disease is so only by neglect of this fact.

Incision and drainage of the kidney in the early stages of suppurative disease are not more dangerous than incision and drainage anywhere else in the economy, and it is only delay that makes the operation more extensive, and therefore, more dangerous, both on account of the suppurative process *per se*, and on account of the constantly increasing danger of the final total loss of the entire organ.

The disease is to be differentiated from simple disease of the bladder, from acute Bright's, pyemia and the like. It will be necessary for the surgeon and physician to hold in mind the affection where this condition may obtain coincidently, and the differentiation then is made generally by exclusion, though it not rarely happens that the disease is found under conditions that render its presence very obscure. The microscopic examination of the urine is never to be neglected, and the conditions of this taken together with the history and general symptomatology, is likely to be sufficient to establish the diagnosis.

Aspiration of the kidney is not to be lightly considered. It is something on the order of aspiration in appendicitis. The field is great and the question of exactly reaching a point that will decide the matter, is one of doubt. At any rate, if puncture is made and any other fluid than blood escapes, incision is at once to be insisted upon, for the reason that any escape of an irritating nature, either into the peritoneum or perineal structures, is fraught with danger.

The anatomical dangers apart from those indicated, are puncture of the intestine, which is generally in front and adherent to the tumor, and puncture of important blood vessels if the trocar is too long. The liver may also be wounded, and puncture near the ribs is to be avoided in order not to wound the pleura.

When the diagnosis of pus in the kidney is established, operation is as much indicated for abscess here, as for its opening elsewhere. It is to be urged in every case by every surgeon having the light of the present understanding of the nature of the disease, and comprehending the results of surgical interference. The nature of the operation selected should be that which will best insure the ultimate safety of the patient with the least risk. In a large pus sac where the whole kidney is involved, the condition of affairs is extreme, and the operation that will give present relief is the one generally to be chosen. Cases will get well with incision and drainage, that cannot possibly stand the shock of prolonged surgical operation. But another class of cases will present themselves—those in which the suppurative process has advanced to a less degree. Here the question of choice will in the minds of many be an open one.

Let us see what are the operations suggested: Complete extirpation, and simple nephrotomy, with drainage. Where complete extirpation is to be considered, the condition of the patient is never to be lost sight of. If the kidney can in any way be preserved, no matter if only a small portion of its whole is intact, it is by all means to be urged that this be done. This is especially to be remembered

in the occasional presence of a horse shoe kidney, whose removal will most surely be followed by death from uremia. Primary extirpation of the kidney is never a simple matter. In the first place the adhesions are vast, often dense and multiform, and the patient is in little condition to stand the shock of operation.

Now, if the sac be evacuated and drained, there is a distinct gain to the patient in several ways. First, the pus is gotten rid of, and second, there is a shrinkage of the tumorous mass, with a retraction of the adhesions. Again, constitutionally, there is prompt improvement, and secondary operation if necessary is better stood. The operation by reason of the prolonged anesthesia is dangerous to the remaining kidney, and hence the salvage of the remaining organ should not be unnecessarily risked when nothing is gained and much is to be lost, subjectively and objectively.

In the surgery of the kidney as in that of every other organ, the greatest simplicity should be sought. Simple nephrotomy in the presence of stone in the kidney, is not to be feared under ordinary circumstances, and so any other interference in which the adjacent structures are not involved is evidently of less risk than operations in which both ligation and eversion is required.

Surgical shock, of itself of the greatest importance here, owing to the generally bad condition of the patient, is enhanced by shock from hemorrhage, usually very great in large tumors of the kidney. In the weakened circulation and loss of power of resistance, heart clot from embolus is more apt to occur if the extreme operation is insisted upon in the weakened state of the patient. Heart clot it is to be remembered, is one of the urgent dangers in the removal of the kidney, and its complete ablation in greatly exhausted conditions is to be deprecated. Ideal surgery is not here logical, unless it be conceded that that surgery only is ideal which preserves life, as I have so often insisted.

The general logic then of the operation, as I have here endeavored to state it, is a constant effort to simplify every condition necessary both for success and the patient's safety. Primary drainage and packing, with subsequent removal if necessary, seems best to fulfill these indications. In order more vividly to impress the force of this argument let us look at the statistics of the mortality in kidney operations. Of seventy-two cases thirty-two recovered. The chief causes of death were collapse, five; peritonitis, four; peritonitis, complicated, three; exhaustion, three; hemorrhage, two; anuria, three; carbolic acid poisoning, one.—2d ed. *Times*, 1883.

Of 100 cases of nephrectomy collected by Prof. R. P. Harris, the causes of death were as follows:

Peritonitis, eight; septic peritonitis, four; pyemia, two; septicemia, one; hemorrhage, three; secondary hemorrhage, one; uremia, six; pulmonary embolus, two; shock, seven; collapse, four; exhaustion, two; excessive vomiting, two; not stated, three.

Analyzing the causes of death we find that the factors of shock, hemorrhage, embolus, collapse, and vomiting enter largely into the mortality. These, it will be seen are all consequences of total ablation in the presence of serious general and constitutional trouble. If now we add to these the cases of peritonitis amounting in all to nineteen cases in 172, we

have by this factor alone a showing of nearly an increase of 11 per cent. over what might be expected, aside from other causes in cases in which the peritonium is not interfered with. The cases of hemorrhage amount to eight, being a mortality of about 5 per cent. again from causes avoidable in the extraperitoneal operation. The same logic is applicable to the cases of shock and exhaustion, which alone amount to sixteen, nearly 10 per cent. of all the mortality.

I have not cited cases in the body of the paper, reserving these for illustration and discussion.

WEST AFRICAN NATIVE FOODS.

BY ROBERT HAMILL NASSAN, M.D., D.D.

GABOON, AFRICA.

The vegetable foods of the natives of western equatorial Africa are various, but their principal carbohydrates, their two staves of life, so to speak, are the tuber of the cassava or manioc, (*Jatropha manihot*) and the fruit of the plantain (*Musa sapientum*).

They grow also maize, yams, sweet potato, arum, gourds, squash, pumpkin, okra, beans, tomato, ground-nuts, eschalots, cayenne pepper.

Their agriculture in that part of Africa requires no general upturning of the soil. A spot having been selected in the forest adjacent to the village, the women first go through with long knives or machetes, and cut down all the underbrush and saplings. Then the men follow, felling the trees. These with their branches and dense foliage interlocked by a superabundance of vines and lianos, impenetrably cover the acres of the chosen space and lie dying for some two weeks. This is done during that season that is without rain; so that, when on a chosen day, the dying mass is fired the billow of flame from twigs and smaller branches sweeping over the fallen trees, burns up all except the tree trunks and larger branches. The wood-ash is recognized as an aid to fertility, though its action is not at all understood.

Women then, with a small tool somewhat like a small trowel, hollow out holes at distances irregularly, of some six feet apart, about ten inches in depth and eight in diameter, and drop into each cavity a variety of the above mentioned plants and seeds, so that there shall be *succession* in growth. (This planting is made just before the rainy season begins.)

In that succession there is the plantain sprout. Its growth is slow. It will produce in from twelve to eighteen months; while young it needs the shade. This is afforded by the manioc shrub cutting which will produce in from four, six to eight months. But the manioc also needs shade at first. This is promptly provided by the maize and other broad-leaved vegetables, like the pumpkin, which grow rapidly and give to the ground, denuded of forest, the shade necessary to prevent its fertility being "burned out" by the sun's direct rays. The maize and other vegetables give the villagers something to live on during the interval of six months before the manioc is ripe; or, of six months more until the plantains have produced their fruit. These smaller vegetables having been eaten off, the garden finally contains little else than plantains and the second growth of cassava.

The manioc is the poisonous variety. As the

woman, in gathering pulls up the shrub and plucks off the tubers, she immediately thrusts into the loosened earth a cutting of the stalk for another growth. The basket containing the tubers is set in a stream of water for three days that their poisonous quality may be washed out. On the third day the basket is carried to the village, the thick rind of the tubers is peeled off, and they thrown into a large wooden mortar. They smell quite offensively sour, having partly fermented. They are beaten with a wooden pestle into a white homogeneous dough-like mass, consisting of the starch grains, and the broken woody parts of the root. This dough is fashioned into rolls some sixteen inches long and two inches in diameter, which are then carefully tied up in plantain leaves. A large iron or brass kettle is set over a fire, a small quantity of water in the kettle, and the rolls are then arranged closely in it and covered over tightly with a package of plantain leaves to prevent the escape of steam. The effect of the steam permeating all parts of the rolls is to burst the starch grains. The manioc is now ready to be eaten. It is of the consistency of cheese; smells very sour; is practically the same as a thick, dark, coarse mass of tapioca pudding mixed with finely broken pieces of woody fiber. It is eaten by the natives with salt, native cayenne pepper ("chillies"), and a gravy of oily nuts. It will keep good for a week in a dry place; or on the drying-rack over their fires for a much longer time, becoming too hard to be cut. When spoiled by mold, it can be made again fit for use by re-boiling.

When these same rolls are sliced and roasted in ashes they taste somewhat like bread, and can be eaten as such with butter; or they can be fried in any oil, as toast. The soaked tubers, when first peeled of their rinds, instead of being cooked at all may be placed in the sun to dry, and then are preserved for many days over the drying shelves, and are then boiled for use as occasion may require, without beating them into dough. Or the tubers, without being first placed in running water, having been peeled, may be boiled, sliced into "chips" (called *ngwese*), soaked for one night in water and eaten without further cooking with salt and pepper. Another method is to have the tuber, just as it is taken from the earth, without any other preparation than peeling, grated, the pulp washed and dried in the sun, making a coarse "farina," which is used for convenience on journeys. This meal needs no other preparation than to have scalding hot water poured over it, and it then swells into a thick pudding-like mass. These several ways of preparing the manioc tuber make an agreeable variety for taste and convenience.

The plantain stalk produces but one bunch of fruit. There is therefore no need to carefully cut off the hanging bunch, which contains from twenty to forty "fingers." (A banana bunch—the *musa paradisiaca*—has from 50 to 200.) The mother-stalk is then cut down. But around its base are springing up several shoots, like "suckers" of corn, varying from one foot to four feet in height. The tallest of these "children" immediately takes its mother's place, and in six months will bear its one bunch, to in turn have its place taken by the next larger of the suckers. This process goes on indefinitely, and if proper care were taken of the garden no new plantation would need to be cut; the same garden

would last forever. The fruit of the plantain is rarely allowed by natives to ripen. It is cut unripe, and is boiled. It contains much starch, though less than the manioc, but is more healthful than the latter. It may also be eaten roasted.

If allowed to become over-ripe, the plantain is rarely eaten by natives. But by foreigners it is liked, being sliced and fried.

With these two articles of food to depend on, and varied by modes of preparation, the natives obtain a still more comfortable variety by boiling or roasting maize ears, eating the grains from the cob, boiling or roasting tubers of the yam and of the calladium (*Arum esculentum*), our so-called "elephant" ear, called by the natives "koko," and "eddo," the common vegetable of the South Sea Islands.

Almost the only two modes of our native cookery are boiling and roasting in ashes.

Greens of various leaves are used, especially the leaves of manioc and the unexpanded leaf of the calladium; care, however, being taken to pour off the first water in which this arum is boiled, as, like our Indian turnip, it is acridly poisonous; as also is the case with the tuber of the eddo (*calladium*). A rich pudding is made from the kernel of the seeds of a gourd. The hard rind of the ripened gourd itself is also used, being carved into cups and bowls and spoons. The kernels of the seeds, free from the shells, are beaten into a paste. This paste, seasoned with red pepper and laid in strata with slices of dried fish, is broiled in a bag of plantain leaves. It is quite oleaginous; foreigners can digest but little of it, though its taste is agreeable.

The palm nut (*Elaeis guineensis*) yields a rich, oily pulp that yields the palm oil of commerce, enormous quantities being exported for the making of soap and lubricating oil. The pulp is eaten by all the natives. When prepared in a cleanly manner it is relished by most foreigners, eaten with rice and an abundance of currie or of "chillies" (cayenne pepper), a fowl or some other meat, fresh or dried, being stewed with it. It is quite fattening, the natives promptly becoming plump under its use. The fresh nuts are also eaten, roasted in hot ashes.

A hard cake made from the oily kernels of a fruit called *odika* (the wild mango) is universally used by the natives for making a rich gravy. I like it but most foreigners do not.

In their meat diet the natives are variable. They are capable of eating a very great deal of meat, but are satisfied with even a little. But that little *must* be had, or they often will refuse to eat a meal of only vegetables. For inhabitants of a warm country, their longing for meat is remarkable. Their language has synonyms for our words for "famine" and "hunger;" it has also a third word, meaning *meat hunger*.

They have domestic animals—fowls, sheep and goats, dogs and a few cats. The sheep have no wool; only short straight hair. All these animals are kept for only special occasions—feasts, payment of fines, marriage dowries, sacrifices to evil spirits in times of great danger (when only the blood is offered, the flesh being eaten by the village). For daily meat, the hunt is depended on. But when the hunt has been successively fruitless, a cat or dog must be utilized to supply the "meat hunger." There is therefore no over-production of these domestic animals.

Elephants, hippopotami, wild oxen, wild pigs, antelopes, gazelles, gorillas, chimpanzees, monkeys, crocodiles, alligators, etc., are all hunted. All these wild animals are eaten by the interior tribes, and with them not a pound of even the skin being thrown away. Literally, *every* part of the animal is eaten, except hoofs, horns and bones. But the coast tribes hesitate and do not care to eat the rat, snake, gorilla, chimpanzee and mandril.

The natives in their untaught state never fry meat. It is boiled or broiled. A third and very appetizing way is as follows: While a wood fire is being reduced to a bed of hot coals, there are prepared several thicknesses of large pieces of plantain leaf. Into these, curved as a bowl, is poured a cup of water. The meat, cut into small lumps, is laid in successive strata with salt, red pepper and crushed oily nuts or preferably, *adika*. The edges of the leaves are then gathered up and tied together tightly as a bundle. This bundle is set on the coals. There is no flame. Before the several layers of thick fleshy leaves can be charred through, the water is partly turned into steam, which permeates the whole mass of flesh, cooking each fiber without burning or scorching, and carrying to the center of each piece of meat the aroma of the seasoning. With the juices of the meat, the residuum of the water and the oil of the melted nut is produced a most tasty sauce. I have nowhere, even in civilization, eaten any preparation of meat that is so clean, so rapid and so attractive to a hungry traveler as this native way of steaming meat. It is used for any meat; but I have found it especially suited to coarser varieties, and is a most agreeable way of preparing fish.

PNEUMONIC FEVER—ITS SYMPTOMATOLOGY.

BY EDWARD F. WELLS, M.D.
CHICAGO.

Cough is present in almost every case of pneumonic fever,¹ usually beginning with the very inception of the disease and continuing, with more or less frequency and severity, until the inflammatory exudate has been completely removed from the lungs.

This symptom was present in all of seventy cases analyzed by Chomel²; in all of Dietl's ³750 cases; in 90 per cent. of Grisolle's cases and in 95.8 per cent. of my series of cases.

It occasionally precedes other symptoms by a few hours, or even several days.⁴ In such instances there is usually a premonitory bronchial catarrh. In a few cases the cough may be so slight and insignificant as to escape the notice of the patient and his attendants unless their attention has been particularly directed to it. In rare instances it may be quite absent throughout the attack.⁵

A Swede, aged 49, had a chill, followed by fever and sweating, every third day for three weeks. For a week he had been "feeling bad all over," with anorexia, sleeplessness and a somewhat severe constant pain in the right side and under the sternum. On May 17, 1886, he had a chill, followed by high fever, rapid and irregular pulse, great thirst, pain under the sternum, cephalalgia, mental dullness—answering questions hesitatingly and often irrelevantly, some dullness over the right lung, crepitant râles diffused throughout this lung, dyspnoea, but no cough or expectoration. He died suddenly at 7 p. m., May 20, and at the autopsy the right pleural cavity was found obliterated and the

upper and middle lobes of the right lung hepatized. The lower lobe was emphysematous, congested and oedematous.⁶

Cough was absent in twenty-one of my cases, as shown in the accompanying table.

Cough is less constantly a symptom in the aged,^{7a} cachectic and insane than in healthy adults. In such patients a previously existing bronchitic cough may become diminished or entirely suppressed upon the advent of pneumonic fever. This is also true of the paroxysmal cough of pertussis, which is replaced by that characteristic of pneumonic fever, to again resume its original character when the pneumonic inflammation shall have undergone resolution.⁸

A female child, aged 3 years, in the second week of an attack of whooping cough, took to vomiting, had a profuse diarrhoea, became stupid and comatose, and greatly prostrated. The pulse was accelerated, the breathing hurried and the temperature considerably elevated. Sighing was a prominent symptom. When examined on the sixth day there was dullness on percussion and bronchial respiration at the base of both lungs. The symptoms continued for nine days when they became abruptly ameliorated. During this period there was no cough, although it had been very severe, and resumed its former characteristics after the subsidence of the pulmonary symptoms. Complete recovery ensued.

Cough may be delayed in its appearance, in the presence of definite physical signs and pronounced symptoms, for several days—as many as twelve in a case reported by Ray.⁹

With the profound prostration not infrequently attending this malady the cough often diminishes in frequency and power, or ceases altogether. Such cases very seldom recover.¹⁰

The character of the cough varies somewhat with the age, condition and temperament of the patient and in different epidemics,¹¹ but, contrary to the opinion held by some,¹² it is usually peculiar and quite distinctive of the malady in question. At the beginning of the attack it is dry, frequent, short, restrained and painful. In some cases it is so frequent as to accompany almost every expiration, especially if the inspirations are at all deep. The length of the cough varies with the depth of the inspiration, but the impression produced upon the listener is that it is short and hacking.¹³ In children it is often slight and insignificant during the incremental stage of the disease,¹⁴ although many are made very restless and irritable by the constantly recurring and teasing cough.¹⁵ After a few hours the cough becomes moist and is usually accompanied by expectoration. It is however, still short, restrained and painful. Later when the disease is at its height it is less frequent, more open, less painful and the patient does not so persistently attempt its restraint. It can not, however, be, as yet, called "free," inasmuch as the inflamed lung is not susceptible of being fully inflated, and sufficient air is not expelled from behind the immovable obstruction to cause a forcible explosion. If the cough is very painful and accompanied by only a scanty expectoration it is apt to be more frequent, less paroxysmal, drier, more restrained, shorter, less severe and in a higher key than when there is a free bronchial flux and but little pain.¹⁶

In the latter stages of the attack the cough is, usually, very powerful, paroxysmal and distressing. In children it may even cause vomiting,¹⁷ and sometimes resemble whooping cough.¹⁸ The severity of the cough,

however, is no measure of the gravity of the case, for there are many dangerous cases with but little cough, and *vice versa*. A severe or paroxysmal cough, coming on at the end of the exudative stage is, although an element of danger,²¹ of good import, whilst the same kind of a cough during the height of the fever is of evil augury.

The cough has been known to be so powerful as to cause separation of the sternal epiphyses from the ribs in children²² and fracture of the ribs and sternum in older persons.²³ Heister,²⁴ who was probably a little credulous, tells us of a clergyman's wife who coughed her perineum open.²⁵

One of my patients, a fragile little girl of 5 years, who had already suffered three fractures of the long bones—the clavicle when a year old, the fibula at three years and the femur six months later—developed a very powerful cough during convalescence from a very severe attack of pneumonic fever, locally affecting the entire left lung. After this had continued for four days my attention was called to a prominence of the sixth rib on the right side in the axillary line. There was evidently a partial fracture of the rib at this point. The bulging was not easily reducible and remained permanent.

cesses, although my experience or reading has never included such a case.²⁶ The breaking down of softened lung tissue so as to form an abscess is a contingency by no means remote.²⁷ Other effects may follow violent coughing, e.g., subconjunctival hemorrhage, detachment of the retina,²⁸ hernia or the strangulation of an existing one,²⁹ rupture of the diaphragm, aneurism or the rupture of an existing one, etc.; but such accidents are exceedingly rare.

A merchant, aged 69, was taken, Oct. 10, 1877, with a chill, followed by cough, fever, pain in the right side, rusty expectoration, etc. There was dullness over the lower half of the right lung, and in this region the respiratory sounds were feeble, but distinctly tubular in character. They were rendered louder by forced inspiration and expiration. His cough was very violent and came on in sudden explosions, in one of which he suddenly expired on the sixth day and at a time when there were no alarming symptoms whatever. An autopsy was not allowed, but there can be but little doubt that the sudden death was due to cerebral apoplexy, caused by the violent cough.

The cough is never hollow or cavernous, as in phthisis, unless cavities are actually present. A

TABLE 1.—SHOWING CASES OF PNEUMONIC FEVER WITH ABSENCE OF COUGH.

Number.	Age.	Sex.	Previous Condition.	Character of Attack.	Range.			Sput.	Duration.	Result.	Remarks.
					Pulse.	Res-p.	Temp.				
1	46	M.	Good	Latent	80-110	20-25	99-101	L. base.	9	R.	
2	12	"	"	Masked	120-160	35-48	102-105	Duplex	5	D.	Red hepatization. Meninges congested.
3	21	"	Dissipated	Typhoid	120-140	26-40	101-105.5	R. base	17	R.	
4	46	"	Typhoid fever	Latent	100-132	26-32	101-106.5	L. base	15	R.	
5	84	F.	Senility	"	80-90	18-22	98-100	L. entire	3	D.	Lung dis-organized.
6	64	M.	"	"	60-92	24-30	101-103	R. base.	22	D.	
7	13	"	Good	Acute	100-120	26-32	102-104.5	L. apex	6	R.	Coughed twice during convalescence. Menstruating for first time.
8	81	"	Senility	Latent	80-110	22-26	101-103	R. apex	7	R.	Same patient as case 5.
9	82	"	"	"	100-112	24-26	99-100.5	Duplex	5	R.	
10	21	M.	Good	Acute	100-140	25-40	102-105	R. entire	10	D.	
11	13	"	Insane	"	120-140	26-32	100-101	L. base	1	R.	
12	27	"	Good	Mild	60-92	16-22	99-101	L. base	4	R.	Mania. Pericarditis.
13	3	F.	Pertussis	Latent	100-140	26-48	102-105	Duplex	9	R.	Cough of pertussis ceased suddenly with advent of pneumonic inflammation, to return on ninth day. Diarrhea. Coma.
14	69	M.	Senility	"	80-108	18-24	101-103.5	L. base	7	R.	
15	77	"	"	Low	100-116	26-28	100-101	L. base	5	R.	
16	4	F.	Diphtheria	Mild	100-120	28-30	99-101	Duplex	5	R.	Following tracheotomy.
17	57	"	Cachectic	Latent	120-160	30-40	101-104	R. base	2	D.	Cancer of uterus.
18	69	M.	Senility	"	"	"	"	Duplex	1	D.	Sudden death.
19	97	"	"	"	70-95	20-26	102-102.5	R. base	10	R.	
20	22	"	Idiocy	"	100-120	28-34	100-102.5	L. base	7	R.	Following an epileptic fit.
21	37	"	Typhoid	"	90-112	27-30	101-103	L. base	6	R.	

In rare cases emphysema of the cellular tissue or mediastinum³⁰ may follow a severe fit of coughing.³¹ A soft, crepitating swelling forms on either side of the neck, extends gradually under the skin and becomes general. This accident is most frequent in childhood, adds considerably to the danger, and in case recovery ensues two or three weeks' time is required for the reabsorption of the diffused air.

A male child, three years of age, was taken with the ordinary symptoms of pneumonic fever, June 1, 1889. The malady pursued a comparatively mild course, and convalescence was declared on the fifth day. The cough, which had all the time been very severe, now became exceptionally severe and explosive. On the eighth day an emphysematous swelling appeared in the right side (the one affected) of the neck, which spread over this side of the chest. It disappeared in a week, and the child fully recovered.

Chamneys³² has experimentally investigated this subject and found that when the lung is over-distended air first makes its way beneath the pulmonary pleura, stripping it up, and passes along to the root of the lung, to the mediastinum and along the cervical fascia to the subcutaneous cellular tissue in the neck.³³

Rupture of the lung, with pneumothorax, is a possible result in non-destructive local pneumonic pro-

cough of ordinary characteristics, which becomes loose and rattling, and afterwards cavernous, is almost pathognomonic of abscess.³⁴

The characteristics of the cough in this disease had, with the older clinicians, a semiotic value which the discovery and cultivation of the modern methods of physical diagnosis has, unfortunately I believe, sadly depreciated. Nevertheless the clinical importance of this symptom is very great, and its features are deserving of the most careful consideration.

Cough is a modified respiratory act in which a deep inspiration is followed by a forcible expiration, with, for a time, closure of the glottis, so that any substance, solid or liquid, may be expelled from the glottis by the rapid rush of air upon the sudden opening of the glottis toward the latter end of the act. It is caused by irritation of branches of the vagus distributed to the nose,³⁵ pharynx, larynx, trachea, bronchi,³⁶ pleura, oesophagus,³⁷ stomach, diaphragm,³⁸ liver,³⁹ spleen,⁴⁰ ear,⁴¹ etc. In pneumonic fever the cough is due to the irritation from the inflammatory products effused upon the surfaces of the pleura and the respiratory tract.⁴² It is aggravated by irritation of the neighboring organs⁴³ and movements of the lungs, and is allayed by rest.

A little girl of 4 years gradually developed a short, incessant and annoying cough. It was so frequent that not five waking minutes passed without her coughing one or more times. When 8 years old she sustained an attack of pneumonic fever, locally affecting the apex of the right lung, which ran an ordinary course and terminated by crisis on the fourth day. During this time her habitual cough was replaced by that characteristic of pneumonic fever, but with the advent of convalescence it again returned. Investigation showed the chronic cough to be due to a large mass of inspissated cerumen in the right auditory meatus, the removal of which instantly and permanently relieved it.

I have long shared the opinion of Juergensen³⁸ that the very frequent, dry, painful and teasing cough of the early stages of pneumonic fever is very seldom, or never, beneficial, is always disagreeable and frequently detrimental to the patient. It is clear that when fluids accumulate in the bronchi, cough of frequency and force sufficient to expel them is necessary, but when the bronchial secretions are scanty or absent it would be difficult to indicate in what manner a frequent and harassing cough can possibly benefit the sufferer. Not only is such a cough painful and disturbing, but from the insufficient rest which it entails, and the pulmonary excitement occasioned, I am convinced that it is decidedly injurious to the patient.

EXPECTORATION.

Expectoration, like cough, is a symptom which is usually present³⁹ to a greater or less extent in pneumonic fever, although it is sometimes altogether absent.⁴⁰ It is necessarily absent in those cases in which there is no cough, and in those persons, children mainly, who are unable to expectorate.⁴¹ It is also frequently absent in those cases in which the cough is very weak, or infrequent, and in the senile,⁴² latent,⁴³ rheumatic⁴⁴ and some other forms of the disease.⁴⁵

It was absent in 5 per cent. of Chomel's;⁴⁶ 11 per cent. of Briquet's;⁴⁷ in 7.3 per cent. of Dietl's 750 cases;⁴⁸ in 16 per cent. of Wunderlich's 50 cases;⁴⁹ and 6 per cent. of my cases. In my own cases I have excluded young children.

Buhl⁵⁰ thinks that absence of expectoration is due to the fact that the exudation matter is confined to the air cells and that the finest bronchial tubes remain free from inflammatory implication.⁵¹ In every one of my cases, however, the apparent cause was weakness or absence of cough. It has been asserted that expectoration is absent in a larger proportion of cases when the apex is the part of the lung locally affected than when the base is inflamed.⁵² It is probable, however, that if such be indeed the fact, other reasons, such as weakness, etc., might be brought forward to account for the phenomenon without attributing it to the local seat of the disease.

Gairdner⁵³ has advanced the theory that the bronchial tubes act in a manner similar to the bowels and eject their contents by peristalsis. Accepting this theory, which is unsupported by proof, one might readily suppose that expectoration of bronchial fluids would be more difficult from some parts of the lung than from others.

Absence of expectoration has always been thought to be an unfavorable circumstance in pneumonic fever.

Galen⁵⁴ says that the most hopeless cases are those rare ones in which expectoration is absent. Avicenna⁵⁵ views this occurrence with alarm. Van Swieten⁵⁶ thought the

inflamed lung was relieved and cured by the expectoration, and that its absence was one of the most unfortunate symptoms which could occur. Cullen⁵⁷ was of the opinion that recovery rarely occurred without expectoration. Absence of expectoration is thought by Jacobi⁵⁸ to be an almost inevitably fatal sign.⁵⁹

If the absence of expectoration is due to blunted perception or lack of power to bring up matters in the bronchi it is a symptom of evil import, but if there is no material in the bronchi to be ejected the sign is not unfavorable, but rather the contrary.⁶⁰

Chomel⁶¹ thought that diarrhoea often took the place of the bronchial secretion in the cases with no expectoration. In none of these cases in my collection was diarrhoea a prominent symptom.⁶²

In a considerable number of cases expectoration, although not absent, is present so scantily as to pass unrecognized unless special attention is directed toward it.⁶³

In general, expectoration appears a short time after the beginning of the cough, but in some instances it is very late in appearing,⁶⁴ perhaps not until resolution has begun.⁶⁵ Again, it may be free enough in the beginning of the attack and so continue for a period, to be gradually or suddenly suppressed.⁶⁶ This is a very unfavorable symptom, inasmuch as it indicates a dangerous failure of the respiratory reflexes or of muscular power. This is especially the case if the other signs and symptoms indicate the presence of fluids in the air passages, extension of hepatization or increased severity of the general disease. Under such circumstances a speedy fatal termination may be safely predicted. I do not recollect ever having seen a patient recover under these conditions, and this appears to have been the experience of others.⁶⁷

Andral,⁶⁸ with others, attributes the fatal issue in these cases to the occurrence of asphyxia from the accumulated secretions, but this is plainly an error. The parts of the lung which furnish these secretions are already practically impermeable to air, and certainly no great harm can come, *per se*, from the blocking up of the bronchi of these parts. Again, when such cases come to the autopsical table, the result fails to support the proposition that the bronchi of the other parts are filled to any extraordinary degree with these matters. Death follows the cause of the suppression, and this cause is a failure of the vital forces of the entire system and not of the lungs alone.

It has been supposed that the expectoration might be diminished or suppressed by profuse purgation,⁶⁹ unreasonable bleedings⁷⁰ and other perturbing and depressing therapeutic measures.⁷¹

The expectoration of pneumonic fever in its physical characteristics is quite peculiar to the disease, and is practically pathognomonic.⁷² In the beginning it is white, frothy, viscid and often specked or streaked upon the surface with minute quantities of blood. The sputa are transparent or translucent, have no definite shape, float upon water and do not adhere to the sides of the vessel, although they adhere slowly to each other. As the attack progresses the color gradually changes to a rusty tinge, the admixture of air is less and it is not so frothy, it becomes more viscid and the blood, which is present in greater or less quantity and gives the expectoration its color, is very intimately mixed with the other elements present. The sputa are translucent or opaque, sink or float beneath the surface in water,

run together and are so viscid that they not only blend intimately together, but they also adhere so tenaciously to the sides and bottom of the vessel that it may be inverted without the mass flowing out. They also cling closely to the sides of the mouth, teeth and lips, so that the patient is compelled to remove them with a cloth. This is the ordinary and typical expectoration of pneumonic fever after the disease has been fully developed.¹⁷ It usually attains these characteristics in the first days of the disease and retains them until resolution begins. With the decline of the disease the sanguineous elements disappear from the expectoration and it becomes yellowish, creamy, less viscid and heavier than before. The sputa are large, numular, sink in water and adhere together, but they no longer cling to the sides of the cup. The amount of the expectorate is at first small, increasing to a total of from one to six ounces¹⁸ in twenty-four hours at the height of the disease, gradually diminishing afterwards¹⁹ and disappearing entirely before convalescence is completed. It forms only a small part of the exudate to be removed from the air cells. This statement will be more fully appreciated when it is considered that only a small portion of the expectoration comes from the air cells, the major portion being bronchial secretion.²⁰

The basis of the pneumonic expectoration is water, albumin, mucus, fat and salts, with which the other more or less adventitious elements are mixed. Water forms from 87.3 per cent. to 97.1 per cent. of the total quantity.

The percentage of water in four analyses made by Biermer²¹ was 94.5, 87.3, 96.1 and 89.0 respectively. In three analyses made by Renket²² it was 90.9, 97.1 and 97.1 respectively.

The percentage of water to the solids in pneumonic sputa bears a very close relation to the amount of water in the blood.²³ Albumin forms about 3 per cent. of the sputa.²⁴ It is derived from the alveolar exudation and is met with only after hepatization has begun. The viscosity depends upon the mucus, which is present in about 1 per cent.²⁵ It is supplied by the inflamed bronchial mucous membrane.²⁶ The salts constitute about 0.8 per cent. of the expectoration,²⁷ and of these the chlorides form about one-half.²⁸

According to Bamberger²⁹ pneumonic sputa contains no alkaline phosphates, while 10 to 14 per cent. of the salts of catarrhal expectoration belong to this class. In catarrhal sputa the soda is to the potash as 31:26, but in that of pneumonic fever it is 15:41. Sulphuric acid is present in the two forms of expectoration in the proportion of 3 to 8 respectively. The amount of nitrogen present is absolutely and relatively less than in phthisis.³⁰

The expectoration is usually neutral or slightly alkaline,³¹ although in rare cases I have found it acid.³² The acidity, when present, is probably due to the presence of pneumonic acid, which is increased in pneumonic inflammation.³³

Sugar³⁴ sometimes exists in the sputa in considerable quantities, due, probably to the same causes which account for the saccharine elements in diabetic urine.

Tyrosin has been found in the sputa of at least one pneumonic patient, unaccompanied by jaundice.³⁵

Pneumonic expectoration usually has an insipid taste,³⁶ although it may be sweet from the presence of sugar, bitter from admixture of bile, salty from the

presence of the chloride of sodium, especially during resolution, or so acrid as to cause soreness of the pharynx³⁷ and other mucous surfaces.

The amount of blood contained in the expectoration varies infinitely. Some cases pursue their course with simply a mucous expectoration and unmixed with blood, whilst in others the sputa are so bloody as to be hemoptysical, with every imaginable grade between these extremes. Oxidation of the blood gives to the sputa the various shades of red, brown, yellow, orange, green, etc., through which it passes. The sanguineous element generally appears during the first two days of the attack, although it may be longer delayed, or even remain absent.³⁸

Grisolle³⁹ found that, in 131 cases, blood first made its appearance on the first day in forty-five cases, on the second day in fifty-six cases, and on the third and fourth days in fourteen cases each. Chomel⁴⁰ found blood absent in three of 125 cases. An uncolored sputa belongs to the history of certain epidemics, e. g., the French epidemic of 1837.⁴¹

I have not met with any facts implying that the sanguineous elements are found in greater or less abundance in different states of the system, as to the amount and character of the circulating medium present, as in plethora, anemia, chlorosis, etc.

Juergensen,⁴² however, is of the opinion that the expectoration is often hemorrhagic in the case of drunkards. Others consider the sanguineous element present in less quantity in the aged than in the adult.⁴³ In children, also, the expectoration is less bloody than at a later period of life.⁴⁴ It is true that in the case of young children we do not see the sputa, except sometimes as it is vomited, yet in almost every case it may be seen in this manner.

Actual hemoptysis in pneumonic fever⁴⁵ is rare,⁴⁶ although cases of great severity, even to fatality, have been observed.⁴⁷

Peteaux⁴⁸ records the case of a robust man, aged 45, who was attacked with pneumonic fever and expectorated on the fourth or fifth day, at one time, a pint of bright blood.⁴⁹ At the autopsy, some days later, the ordinary appearances of inflammation of the entire right lung was found, but the point from whence the hemorrhage proceeded eluded discovery.

Hemoptysis may indicate the presence of coëxistent tuberculosis⁵⁰ or organic cardiac disease.⁵¹ The ancients considered hemorrhagic expectoration as being especially dangerous.⁵²

Rusty sputa occasionally continue for a long time. Walsh⁵³ says that it may persist for a fortnight. Fox⁵⁴ gives nine days as the limit. Stokes⁵⁵ saw a patient in whom it continued for several weeks after the physical signs had disappeared. Andral⁵⁶ noticed it continue for nineteen days—nine days after the disappearance of the physical signs.⁵⁷ I have seen it continue for a long period in several cases—in one for forty days.

The blood in the pneumonic expectoration is derived from the dilated capillaries ramifying upon the surface of the air cells and the smaller bronchi.

It is the changes by oxidation and disintegration, of the sanguineous elements that causes the peculiar and curious colorings sometimes met with in pneumonic sputa.

Of these chromatic changes the green⁵⁸ has attracted the greatest curiosity. In the presence of an alkali the coloring matter of the blood splits up into albuminoid and hematin, with a green color result-

ing.¹¹⁷ The majority of instances of green sputa are due to this cause, although true biliary expectoration certainly does sometimes occur, as evidenced by the presence of the coloring matter of the bile.¹¹⁸ It is the presence of this greenish expectoration in some cases which has given "bilious pneumonia"¹¹⁹ a place in the nosological scale with so many physicians. I am, however, inclined to think, with Auer-gensen¹²⁰ and others, that the term should be abolished from use.

In one of my cases, during convalescence, the expectoration assumed, upon standing for a prolonged period, a fine and peculiar grass-green color. It was only by accident that my attention was called to this point in the case, and the phenomena may have been present in others without my cognizance. The patient, a young man of intemperate habits, had a very severe attack of pneumonic fever, with consolidation of the greater part of the right lung. From the beginning the expectoration was very free and so sanguineous as to well merit the appellation "bloody." Crisis, with colligative sweating and slight collapse, occurred on the seventh day, whilst the expectoration was still quite profuse, although it had assumed a dark gray color and was expelled in masses of considerable size and consistence. Two days later a specimen of the expectoration, which had been standing in the cup for thirty-six hours, was brought to me for inspection. The messenger was very much astonished when he removed the covering from the specimen, which was of a greenish gray color, for, he assured me, it was of a pure green color when he had started from home. I placed the glass at rest and after a few hours the contents presented a very remarkable appearance. A thick grayish precipitate had fallen to the bottom, whilst the supernatant fluid was grass-green in color and presented a most beautiful appearance by transmitted light. On the following day I observed a small quantity of the sputa in a basin, and on the surface of this there was a thin stratum of a similar greenish fluid.

At the time I attributed the green color to a coloring of the serous portion of the expectorate by the oxidized coloring matter of the escaped blood and therefore did not give it that careful examination which it deserved. I have been able to find notices of but two similar cases,¹²¹ and in these the coloring matter was proven to be vegetable spores. When potash was added the green color became intensified, whilst acids, ether and alcohol produced no effect. A few drops of the colored fluid was added to milk and a greenish crust was developed after a few hours' standing. Under the microscope there were to be seen numerous active vibrios, greenish spores and minute glistening granules which were evidently stumps of the greenish spore. The same appearance was found in the crust developed upon the inoculated milk.¹²²

Even blue expectoration has been noticed¹²³ in at least one case. Sometimes the expectoration is of such color, odor or consistence as to resemble pure, gangrenous matter, the juice of prunes, currant jelly, the lees of wine, the juice of licorice, mucilage, glue, etc. These dark sputa are usually expectorated with greater ease and facility than the lighter colored. They have always been considered as being of great import.¹²⁴

A very peculiar sputa, resembling a thick mucilage¹²⁵ or glue¹²⁶, colored a brownish red and which escapes in a single sheet when the vessel is inclined, always indicates a dangerous case.

That the various shades of color which the pneumonic expectoration assumes is due to oxidation of the sanguineous elements, and not from any varia-

tion in its original composition, seems proven by the fact that no matter in whatever proportion the blood is mixed with a mucilaginous fluid the pneumonic shades can not be produced.¹²⁶

Under the microscope the blood corpuscles are not closely approximated, but are separated from each other, or are in contact only at their edges.¹²⁷ The epithelial cells are often colored¹²⁸ the shade of the expectoration, but they may remain unaltered in size and shape, although this is unusual.¹²⁹ Black pigment is found not infrequently in some geographical localities.¹³⁰ There is also seen minute or larger masses of fibrine, derived from the finer ramifications of the bronchial tree, infundibula and air cells. They are firm coagula, enveloped in the mucus of the sputa, are of a whitish-yellow color, lightly tinged with red, and adhere closely to the sides of the vessel. They become more easily recognizable when washed, although washing decolorizes them. They are composed entirely of fibrine, and may be dichotomously branched, forming more or less perfect casts of the finer bronchi. During the height of the disease they may be expelled in masses of considerable size,¹³¹ but during its decline they are smaller, more or less disintegrated and are not so easily recognized as being parts of casts of a branched tree. They are met with in the vast majority of cases,¹³² but are most abundant in those having a powerful cough as considerable force is required to dislodge them. They were noticed by Tulpins,¹³³ Reynaud,¹³⁴ and others, but Remak¹³⁵ first pointed out their true nature.¹³⁶ Casts such as those described are found only in pneumonic fever,¹³⁷ although in another form they are seen in fibrinous bronchitis.¹³⁸

Spiral and central fibers have also been observed in some cases. When these are accompanied by Leyden's crystals the sputum is said to be characteristic of asthma,¹³⁹ but they are observed in other diseases also.¹⁴⁰ The pneumococcus may be demonstrated in some instances by careful manipulation.¹⁴¹

Place the twenty-four hours' sputa in a conical glass and let it stand in a temperature of from 92 to 102 degrees for twenty-four hours. The thicker portion of the sputa will settle to the bottom and a portion of this is to be examined, as it is easier manipulated and more apt to contain the germs. The proper reagents are to be used for staining.¹⁴²

Various other microscopic appearances may be observed¹⁴³ and will well repay careful study.

PAIN.

Pain, like cough and expectoration, is almost always present in pneumonic fever.¹⁴⁴

It was present in all of Gerhard's¹⁴⁵ cases; in 98 per cent. of Chomel's¹⁴⁶ cases; in 92 per cent. of Doubleday's¹⁴⁷ cases; in 90 per cent. of Grisolle's¹⁴⁸ cases and in 98 per cent. of my own cases, excluding young children who were unable to make known the fact.

It generally comes on very early in the attack¹⁴⁹ and rapidly attains its maximum intensity. In rare cases it may precede by a few hours, or even several days,¹⁵⁰ the appearance of other symptoms.¹⁵¹ In other cases, also rare, pain may be more or less delayed in its appearance,¹⁵² or remain absent.¹⁵³

After attaining its maximum intensity it continues unabated for a few days to gradually decline in severity and cease on the third or fourth day, or at least some time before the end of the attack.¹⁵⁴ This subsidence of the pain is a part of the natural his-

solle, *Traité de la Pneumonie*, Paris, 1861.—Gubler, *Soc. de Biologie*, T. II, 1867.—Lapine, *Op. cit.*, 8, 163.—Renon, *Thèse de Paris*, 1872.—Reynolds, *London Lancet*, 1880, Vol. II, p. 1957.—Wiedmann, *Thèse de Strasbourg*, 1881.—Wilks, *London Lancet*, N. Y., 1887, Vol. II, p. 18.—Wyse, *London Med. Gaz.*, 1847.—*et al.*

¹⁹ See also Babcock, *Jour. Am. Med. Ass.*, 1887.—Davis, *Ibid.*, 1887.—Engelmann, *Soc. Sci. Rec.*, 1887.—Madigan, *Med. Standard*, 1887.—Renon, *Thèse de Paris*, 1872.—Träger, *Med. Wochenchr.*, 1887.—Whittaker, *Ann. Med. Sci. Phila.*, 1888.—*et al.*—*harloux*, *La Normandie Méd.*, 1887.—*et al.*

²⁰ Churchman, *Centrall.*, f. k. Med., 20. Mar., 1887.—Pell, *Therap. Gaz.*, 1886, p. 103.—Vierordt, *J. prakt. Zeitf. f. k. Med.*, Bd. IX, Nr. 17.—*et al.*

²¹ See N. Y. Med. Rec., Oct. 24, 1887, p. 48.

²² De Esquière, N. Y. Med. Rec., Sept. 15, 1887, p. 375.

²³ See Phila. Edinb. Med. J., Nov., 1886.—*et al.*

²⁴ See Amberg, quoted by Whittaker, *Cincinnati Clin.*, June 16, 1877, p. 278.—Bühmann, *Inaug. Diss.*, Bonn, 1847.—Heinrich, *Hasser's Arch.*, Bd. VI, 1841, n. Heine's u. Pfeuffer's *Zeitschr.*, Bd. IV, 1845.—Kosch, *De Microscop. Nisi in Diag.*, Gott., 1847.—Vogel, *Mikroskop.*, 1843.

²⁵ See Zehntner, *Archiv. f. k. W. u. A. Z.*, 1887.—*et al.*

²⁶ See Alexander Traillanus, *Opera*, Lib. V, cap. 13.—Celsus, *De Morbis, Lib. II, cap. XXV*—Hippocrates, *Opera Omnia*—*et al.*

²⁷ *Ann. Jour. Med. Sci.*, Vol. XIV, p. 328.

²⁸ *Pneumonie*, Leipzig, 1841, S. 123.

²⁹ N. Y. Med. Rec., March 28, 1885, p. 343.

³⁰ *Traité de la Pneumonie*, Paris, 1861.—*et al.*

³¹ Andral, *Med. Clin. Phila.*, 1843, Vol. II, p. 163.—Doubleday, *Op. cit.*—*Laragie*, *Gaz. des hôp.*, June 24, 1876.—*et al.*

³² See Andral, *Op. cit.*, p. 186.

³³ See Fox, *Repts. of the Comm.*, Oct. 24, 1887.—Boston *Med. and Surg. Jour.*, Jan. 23, 1879, p. 131.—Flurry, *Bull. de la Soc. Anat.*, T. XIII, p. 163.—Mussy, *Gaz. des hôp.*, Avr. 9, 1846.—Raven, *London Practitioner*, Vol. XXX, p. 34.—Stokes, *London Lancet*, N. Y., 1850, Vol. II, p. 121.—*Twidie*, *Ibid.*, 1880, Vol. II, p. 7.—Wilson, *on Fevers*, N. Y., 1881, p. 182.—*et al.*

³⁴ Heiss, *Op. cit.*, 8.—Huss, *Lungenentzündung*, Leipzig, 1861, S. 38.—Laragie, *Gaz. des hôp.*, June 24, 1876.—Lebert, *Op. cit.*—*et al.*

³⁵ This was also noticed by the ancients. See Arctæus, *De Caus. et sig. Acut. Morb.*, Lib. II, cap. 12.—Celsus, *De Medicina*, Lib. IV, cap. VIII.—*et al.*

³⁶ Fox, *Op. cit.*, p. 163.

³⁷ See Heine, *Archiv. f. Kinderk.*, 1849, Bd. XIII, S. 75.—Montz, N. Y. Med. Jour., Dec. 1, 1881, p. 602.—*et al.* It may be found in objection that children refer all pains to the abdomen.

³⁸ In one of my cases pressure over the stomach invariably caused cough.

³⁹ See also Chomel, *Op. cit.*, S. 124.—Gerhard, *Dis. Chest*, Phila., 1869, p. 90.—Huss, *Op. cit.*, and Deutsche *Arch. f. k. Med.*, Bd. IX, S. 242.—Jürgensen, *Ziemssen's Handb.*, Bd. V, S. 90.—Laennec, *Dis. Chest*, N. Y., 1826.—Swett, *Dis. Chest*, N. Y., 1856, p. 90.—Wittich, *Pneumonie*, Erlang., 1860, S. 15.

⁴⁰ See Chomel, *Op. cit.*, S. 124.

⁴¹ See also Chomel, *Op. cit.*, S. 124.—Heiss, *Inaug. Diss.*, München, 1857.—*et al.*

⁴² See Cleghorn, *Diseases of Minorities*, London, 1762, p. 261.

⁴³ See Alexander of Tralles, *Opera*, Lib. V, cap. I, et Lib. VI, cap. I.—Celsus, *Antiquarius, Acut. Morb.*, Lib. II, cap. XXV.—Huxham, *Epidem. Diseases*, London, 1748, Vol. II, p. 39.—*et al.*

⁴⁴ Arctæus, *De Caus. et sig. Acut. Morb.*

⁴⁵ See Heiss, *Op. cit.*, S. 8.

⁴⁶ *Op. cit.*, S. 15.

⁴⁷ See Dutcher, *Cin. Lancet and Observer*, Jan. 1861, p. 10.

⁴⁸ See also Diel, *Lungenentzündung*, Wien, 1818, S. 59.—*et al.*

⁴⁹ *Jour. Am. Med. Ass.*, Oct. 15, 1887, p. 415.

⁵⁰ See Keating, *Phila. Med. News*, April 11, 1882, p. 241.—*et al.*

⁵¹ See also Fox, *Op. cit.*, p. 163. There may be also muscular soreness due to rupture of some of the fibers of the muscles of the chest or abdomen. See Jürgensen, *Op. cit.*—Kottwitz, *Inaug. Dissert.*, Halle, 1882, S. 20.

⁵² Arctæus, *Op. cit.*—Andral, *Op. cit.*, p. 186.—Gerhard, *Op. cit.*, p. 97.—Green, *Quain's Dic. Med.*, N. Y., 1887, p. 576.—Jürgensen, *Op. cit.*, S. 90.—Loomis, *Pepper's Syst. Med.*, Phila., 1888, Vol. III, p. 202.—Satterthwaite, *Phila. Med. News*, Jan. 3, 1889, p. 3.—Swett, *Op. cit.*, p. 100.—Watson, *Præc. Phila.*, 1845, p. 579.—Fox, *Op. cit.*, p. 163.—*et al.*

⁵³ Chomel, *Op. cit.*, S. 253.—Laennec, *Op. cit.*, p. 220.—Williams, *London Lancet*, N. Y., 1862, Vol. II.—*et al.*

⁵⁴ See also Heiss, *Op. cit.*, S. 6.

PHILADELPHIA NEWS.

The fact that Pennsylvania has now a law creating a State Examining and Licensing Board has already been noticed in the *JOURNAL*, but a slight correction should be made in the text of the Act (page 62 *ante*). The legislature did not appropriate the sum of two hundred thousand dollars for the purposes of the board, but simply "two thousand dollars" for the first two years' expenses. The last legislature, however, was very liberal in other ways and proved its high appreciation of Philadelphia medical interests by grants of \$115,000 to the hospital of the University of Pennsylvania, (the \$15,000 being for a maternity department), \$110,000 to the hospital of the Jefferson Medical College, \$100,000 to the hospital of the Medico-Chirurgical College and \$70,000 to the Polyclinic Hospital, besides other grants, all of which will tend directly or indirectly to increase the clinical and teaching facilities of our medical schools.

The Pennsylvania Hospital is building a handsome three-story wing on the north side, which will be devoted entirely to surgical cases and will nearly double the capacity of this venerable institution.

Under the auspices of the American Society for the Extension of University Teaching, vacation studies in history, literature and science directed by university specialists have been successfully instituted; the first summer meeting being held in Philadelphia from July 5 to August 2. Of general interest to physicians is the special course of instruction in sanitation and hygiene by Dr. John S. Billings, U. S. A., and A. C. Abbott, consisting of twelve lectures and demonstrations. The University of Pennsylvania has generously placed at the disposal of the summer meeting its college buildings, libraries and laboratories so far as these may be needed for the instruction to be given, so that the first annual meeting is held under very favorable auspices.

The College of Physicians has called the attention of the authorities to the injury to the public health likely to result from the wholesale tearing up of the streets incident upon the substitution of the electric trolley system for horse power on nearly all the city railways, now being done by the Philadelphia Traction Company. In addition to this, the Edison Light Corporation is laying mains and will dig up over a hundred miles of streets during the present season. In the meantime the drainage is obstructed, and street cleaning in many places is out of the question. This is one way of getting ready for an epidemic of cholera, yellow fever, or almost anything. In fact, the death rate of last week was considerably higher than that of a year ago, the increase being mainly in the number of infectious diseases.

On July 10, the brig "Odorilla," Capt. Holland, returned to this port after sixteen months' voyage to Santos, Brazil, where the entire crew and officers (eight men in all) died of yellow fever, the captain alone surviving, as published at the time in *THE JOURNAL*. The vessel is detained and will be thoroughly disinfected at the new station at the Breakwater and Reedy Island, which have been recently established by the United States government. The former is situated on the Breakwater at Delaware Bay near Cape Henlopen, and the latter in the river near the entrance to the harbor. Farther up the river is the quarantine station at Little Tinicum Island, now entirely under the jurisdiction of the State authorities, which are fully in harmony with the National quarantine service. Since the first of this month, the city of Philadelphia, through its board of health, also cooperates with the State officials, but no longer has any direction or control of the quarantine station. As an additional safeguard against the importation of cholera or yellow fever, it may be stated that the U. S. Marine Hospital service has authorized the organization of a corps of examiners to inspect the immigrant trains from the seacoast, these acting under the immediate direction of Dr. George Purviance, M. H. S. This plan contemplates placing a medical inspector upon each immigrant train, to remain with it to the place of destination, when ever the immigrants have been exposed to cholera, even though the period of incubation be passed. The railroads will be requested to furnish hospital cars, so as to permit prompt isolation of cases, the cars to be furnished with earth closets and means of thorough disinfection.

Poisoning by carbolic acid is not very rare, but two cases recently came to the coroner's notice which might be mentioned: The first was a woman 21 years of age, who quarreled with her husband and drank a quantity of the acid with suicidal intent. Contrary to the usual effects, she suffered great agony, and calling for assistance was taken to the Jefferson College Hospital, where she died shortly afterwards. The second case was a child four years of age, which found in a closet a bottle of carbolic acid and drank a small quantity and promptly died. The parents stated that there had been a case of typhoid fever in the house and an official of the Board of Health had left the bottle of

carbolic acid for disinfecting purposes. This appears to show carelessness on the part of the health board and neglect or ignorance on the part of the parents. It recalls the case of another child five years of age, who drank some carbolic acid from a saucer which had been placed under a sofa, in order to drive away moths or other insects, with the same result. Another child, three years old, ate some yellow substance which he found on a lot and mistook for mustard, of which he was said to be very fond (!); the child was almost immediately seized with convulsions and died within a few hours. The powder was believed to be chrome yellow.

The coroner recently investigated a case of a girl of 11 years, who died of diphtheria. She had been given a number of powders during her illness, purchased of a woman who said that "she had cured thousands" through the use of the powders which were prepared from a secret formula by herself. The father of the child asked for an investigation, as it was thought possible that her death might have been hastened by the medicine. The jury decided that the fatal result was "due to exhaustion from the disease," but added that death was "superinduced by the drug," and censured the woman "for selling the article when she would not make known its ingredients." The amateur doctress escaped very easily, but it is quite surprising how lenient the law is in dealing with proprietary medicinal interests. Perhaps the new medical council will correct this after January first of next year.

Among recent changes of appointments we observe at the University that Dr. Chas. E. Petrosé has been appointed the successor of Prof. Goodell as Clinical Professor of Gynecology. At the Medico-Chirurgical College, Dr. L. Webster Ford was made Professor of Ophthalmology and J. Madison Taylor, Professor of the Diseases of Children. Dr. Wm. F. Waugh's name appears in the new announcement as Honorary Professor.

The annual competitive examinations for the post of resident physician at the Philadelphia Hospital attracts considerable attention on account of the rivalry of the schools and because it is taken as a public test of ability and attainments of the students. At the recent examination there were 119 candidates. Of these seventy were from the University of Pennsylvania Medical Department, nineteen from Jefferson, twelve from the Medico-Chirurgical, twelve from the Woman's College, and the rest were from schools outside of Philadelphia. Nearly all of these attained the required average of seventy, but the rule is that the first sixteen are at once elected, and the rest are called to serve in the order of their standing, as vacancies occur. During last term not less than twenty-four residents were thus appointed. The honors of the examination were pretty even; Jefferson got number one, the University got the largest number of appointments, and the Medico-Chirurgical claims the highest scholarship average of those sent up; the ratio of appointments to applicants is as follows: University, seventy applicants, ten successful, ratio one in seven; Jefferson, nineteen applicants, two successful, ratio one in nine and one-half; Medico-Chirurgical, twelve applicants, two successful, ratio one in six; Woman's Medical, twelve applicants, two successful, ratio one in six. It rarely happens that the results of a competitive examination meet with such approval; cause such general satisfaction.

BOOK NOTICES.

We have received a copy of the second edition of Dr. W. W. KEEN'S operation blank, published by W. B. Saunders, Philadelphia. These blanks are extremely useful to all operating surgeons.

A Medical Handbook for the Use of Practitioners and Students. By R. S. A. REMSON, M.B., C.M., F.R.C.P.E. Illustrated 16mo. Flexible covers, Morocco. London: Chas. Griffin and Co.; Philadelphia: J. B. Lippincott and Co. 1893.

This book, as is stated in the preface, is intended to be a companion to Caird and Cathcart's Surgical Handbook. Particular attention has been given to the practical diagnosis and to the clinical classification of disease. In treatment of disease the author has recommended the use of only such remedies as are known to be beneficial. Medical

handbooks are not to be encouraged in the place of the more thorough works on the subject, and should not be used by students except as a means of rapid reference, yet this book is one of the most complete of its kind that has come to our notice; and that much talked of individual, the busy practitioner, will often turn to its pages for a ready peg on which to hang his diagnosis and theory in a case where his library is not immediately accessible.

Stricture of the Urethra. By G. FRANK LYDSTON, M.D. Cloth, pp. 334, price \$3. Chicago: The W. T. Keener Co. 1893.

Naturally the book opens with a chapter on the anatomy of the part involved, next on instrumentation, a very important chapter; then follow definition, location, morbid anatomy, causes, symptoms, diagnosis, prognosis and treatment. Chapters eight to thirteen are devoted to treatment, which necessarily includes a discussion of different methods. The author prefers Otis' dilating urethrotome to other instruments of the kind, and in regard to electrolysis he takes a very moderate ground. While relating a case, and stating that there are some cases favorably influenced by this method, he regards the extravagant claims as disproved, and in fact the whole matter as *sub judice*. The illustrations are excellent, and barring the italics, and a constant desire to grind some imaginary antagonist into powder, the author has produced an excellent book, one which gives the latest views on the subject and well represents the approved methods of treatment. We hope it may have an excellent sale.

Hypnotism, Mesmerism and the New Witchcraft. By ERNEST HART. 8vo, cloth, pp. 182. New York: D. Appleton and Co.; Chicago: A. C. McClurg and Co.

In this little book Mr. Hart has brought together in his entertaining style his own papers on the subject which have appeared in the *Nineteenth Century* and the *British Medical Journal*. He dissipates many popular errors, and unmasks the impostors who played their part well at La Charité. His controversy with M. Luys at Hôpital Charité is skillfully managed, and the book is well worth reading. The simple methods by which the impostures of Jeannie and Mervil were exposed will be valuable when making similar investigations elsewhere.

The Health Resorts of Europe. A Medical Guide to the Mineral Springs, Climatic Mountain and Seaside Health Resorts, Milk, Whey, Grape, Earth, Mud, Sand and Air Cures of Europe. By THOMAS LUX, M.D. 8vo, cloth, pp. 330. New York: D. Appleton and Co.; Chicago: A. C. McClurg and Co.

This book, as its rather lengthy title page shows, is a guide book to the various health resorts of Europe, but it goes farther; it specifies particularly the therapeutic indications which should govern the choice of particular localities. These are necessarily based on the especial claims of the different resorts themselves, and are usually too emphatic to be true. The book is not equal in interest to the book of Dr. Thomas Madden Moore on "Change of Climate," but as a directory is extremely valuable.

Immigrant Record for June.—During the month of June there arrived at the ports of the United States from the principal foreign countries, except the British North American possessions and Mexico, 67,726 immigrants, and in June, 1892, 73,120. During the twelve months ending June 30, 1893, the number of immigrants were 497,936, and during the corresponding period of the preceding year, 619,320. Of the number arrived during the twelve months ending June 30 last, 96,313 came from Germany, a decrease of 34,309; from Italy, 72,403 an increase of 11,459; from Sweden and Norway, 53,872, a decrease of 3,281; from Russia (except Poland), 43,657, a decrease of 40,631, and from the United Kingdom, 108,716, a decrease of 8,352.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:
PER ANNUM, IN ADVANCE, \$7.00
SINGLE COPIES, 10 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 68 WABASH AVE., CHICAGO, ILLINOIS.

All members of the Association should send their Annual Dues to the
Treasurer, RICHARD J. DUNGLISON, M.D., Lock Box 1271, Philadelphia, Pa.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or Local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Dunglison, Lock Box 1271, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues and subscription for THE JOURNAL. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

SATURDAY, JULY 29, 1893.

THE CLINICAL APPLICATIONS OF PANCREATIC
EXTRACT.

The most recent work on the subject of therapeutics, PROF. HAYEM's *Leçons de Thérapeutique* (Paris, 1893, Tome iv), refers to pancreatin as "a variable product still more poorly defined than pepsin," and directs attention to the fact that the diverse preparations found in the stores are often inert. In closing his consideration of the subject the author emphasizes his previous remark by stating that "all the practical difficulty consists in procuring a good preparation." Fortunately for the profession in this country, the manufacture of pancreatic extract (or so-called pancreatin), is in the hands of well known manufacturing pharmacists, whose reputation is a sufficient guarantee for the excellent quality of their goods. So that it is entirely within the power of prescribing physicians to obtain therapeutically active pancreatic preparations, if they desire to do so, just as it is in the parallel case of pepsin.

Before considering the clinical uses of pancreatic preparations, it may be well to very briefly review the physiological data which serve as a guide to their rational application. In its physical structure the pancreas is very similar to the parotid gland, and is sometimes referred to as the salivary gland of the abdomen. The analogy, however, does not extend to its secretion, which is considerably more complex than the saliva. Human pancreatic juice is limpid, according to HERTER, and contains 976 parts of water per thousand. The organic substances are contained in an alkaline medium, the alkalinity being due to phosphates and carbonates, especially of soda. The extract of pancreas, or pancreatin (precipitated from watery solution by alcohol, or extracted by ether), forms with water and an alkali, an active, digestive fluid, having the same properties as the pancreatic juice. HALLIBURTON states¹ that "the organic sub-

stances present in the pancreatic form of are: *a*, Ferments: These are the most important, both quantitatively and functionally, of all the constituents; they are four in number: 1. Trypsin—a proteolytic ferment. 2. Amylopsin or pancreatic diastase—an amylolytic ferment. 3. Steapsin—a fat-splitting ferment. 4. A milk-curdling ferment. *b*, A small amount of proteid which is coagulable by heat. *c*, A mucin or mucin-like substance. *d*, Traces of leucin, tyrosin, xanthin and of soaps, have been described."

The fact that pancreatic secretion dissolved coagulated white of egg was observed by BERNARD and later by CORVISART, but KUHNE first isolated the special ferment, to which he gave the name of trypsin. This is "a proteid, or a substance closely allied, or adherent, to a proteid" (HALLIBURTON). Amylopsin, which resembles the ptyalin of the saliva in its property of converting starch into maltose, was first described by VALENTINE. It is said to be absent from the pancreatic secretion of new-born children, which explains the intolerance for starchy foods often found at this period. Amylopsin acts better in the presence of bile than by itself. The steapsin or fat-splitting ferment has never been separated, its presence being simply inferred from the action of the pancreatic juice on fats, and the same is true of the fourth, or milk-curdling ferment, from its action upon fresh milk.

The analogy of trypsin to pepsin has already been noted; but certain differences are to be observed. For instance, trypsin acts in an alkaline, pepsin in an acid solution. Trypsin acts more rapidly than pepsin, but the same series of proteoses can be detected as intermediate products in the formation of peptone. An albuminate in the nature of alkali albumin is formed in tryptic digestion; on the contrary, one of the nature of acid albumin is formed in peptic digestion. Trypsin acts more powerfully than pepsin on certain of the albuminoids difficult of digestion, such as elastin, and wax or albuminoid substance. It digests nuclein, which is not attacked at all by gastric juice. Keratin and chitin are, however, indigestible by both ferments. Trypsin acts further than pepsin, decomposing the hemi-peptone into simpler products, of which the most important are leucin and tyrosin, asparaginic acid, ammonia and proteinchromogen. (HALLIBURTON, loc. cit.)

In regard to the conditions in which the therapeutic employment of pancreatic extract would prove advantageous, it would seem natural to place in the front rank those cases of digestive or nutritive disturbance arising from impairment or temporary suspension of the function of the pancreas. When this condition is present, the fatty matters fail to be emulsified or saponified, and appear unaltered in the feces. Claude Bernard found that the bile alone

¹ Text Book of Chemical Physiology and Pathology. By W. D. Halliburton, M.D., London, 1891.

only gave a light brown color to the feces, whereas when the pancreatic juice was also present the color was a distinct brown. Therefore, light colored discharges from the bowels are an indication of a failure in the pancreatic secretion. Since intestinal digestion of both proteids and carbohydrates depends upon the pancreatic juice, at least in great measure, we may regard intestinal dyspepsia also as one of the symptoms of pancreatic disorder. General emaciation may occur and this becomes most marked in malignant disease of the pancreas, which is usually accompanied by severe dyspeptic symptoms, with persistent nausea and vomiting and obstinate constipation. In acute affections of this organ, these symptoms may appear suddenly and be accompanied by great prostration or collapse. The so-called "celiac affection" of children, characterized by the passage of large, loose, white or grayish, frothy and intensely fetid motions, is, in the opinion of DAWSON WILLIAMS, "most probably due to a temporary suspension of the functions of the pancreas." It has also been observed that this organ is atrophied in cases of diabetes, but whether as cause or concomitant of the disease has not been finally settled; although LANCEREAUX endeavored to constitute a special variety of diabetes, in which "there is degenerative disease of the pancreas, accompanied by perhaps in all cases, diseases of the celiac plexus. This is said to be characterized by a rapid course, diarrhoea and greasy stools containing scraps of undigested, nitrogenous food."

In our clinical application of the above facts we find a physiological phenomenon unexpectedly limiting the usefulness of pancreatic preparations. It is that the activity of the ferments of the pancreatic secretion are destroyed by contact with the acid gastric juice, as in fact they are by any other acid medium. UNNA endeavored to overcome this by coating pancreatic pills with keratin; but unfortunately it was found that they not only escaped digestion in the stomach, but traversed the entire digestive tract with equal immunity. BOAS has suggested that pancreatic extract is particularly indicated in cases of suppression of the gastric secretion. This corresponds with the condition termed *apepsia*, where, as HAYEM points out, "apeptic patients empty their stomachs rapidly and the intestine has to bear the entire burden of digestion. If the pancreatic secretion and bile be normal and adequate, if the intestine functions well performed, there is no need to interfere; but should symptoms of intestinal indigestion supervene, pancreatic preparations may be prescribed with confident assurance of improvement." In some forms of entero-colitis it has also been used with advantage and particularly the entero-colitis of hot countries. In the latter case, it is very possible that the alkali which always should accompany the

dose of pancreatic extract, may render the contents of the intestine less irritating, while assisting the action of the pancreatine in digesting and removing food material which is keeping up the disturbance. In ordinary constipation or diarrhoea with light colored motions, the pancreatic extract may be given. If the dose be administered when the stomach is free from food and especially if a preliminary dose of bicarbonate of sodium be administered, it is quite probable that the ferments will reach the intestine without their activity being at all impaired. In regard to the cases of diabetes mellitus to which LANCEREAUX directs attention, *extractum pancreatis* merits a trial, more especially since good results have been reported from the administration of other ferments such as yeast and of diastase. In general, whenever there is reason to suspect fatty degeneration, cystic change, atrophy or occlusion of the duct of the pancreas, it appears rational to administer pancreatic preparations to supply the deficiency of the normal secretion.

Trypsin, which may be regarded as a purified pancreatic extract has been applied as a digestive agent to diphtheritic exudations and has been injected into the bladder for the purpose of dissolving blood clots. A good solution may be made of the strength of half a drachm each of trypsin and of bicarbonate of sodium with a drachm of glycerin to the ounce, of water of the temperature of the blood. In employing this solution in diphtheria, a small proportion of bichloride of mercury (gr. $\frac{1}{4}$ to the oz.) may be added as recommended by DR. SAMUEL JOHNSON; the application to be followed by free spraying of the affected part with peroxide of hydrogen, properly diluted. In some morbid growths the parenchymatous injection of trypsin, alone or in combination with other remedies, might prove advantageous.

DR. WILLIAM A. HAMMOND in a recent lecture upon the novel preparations known as "animal extracts," proposes to appropriate the term pancreatine to the product of the pancreas, prepared in a peculiar manner. If these remedies come into general use, the term "Pancreatine" can be reserved for DR. HAMMOND'S product, and the proper term of *extractum pancreatis* given to the mixed ferments of established therapeutic value, now before the profession.

ARMY MEDICAL EXAMINATIONS.

During the past week the Surgeon General issued a Circular of Information for candidates seeking appointment in the medical corps of the army. This gives an account first, of the advantages as to rank, pay, emoluments and privileges which the military service offers to eligible young men. The method of making application for permission to appear

before the board for examination is then described: "The candidate must be a citizen of the United States, between twenty-two and twenty-eight years old, of sound health and good character, and a graduate of some regular medical college, in evidence of which his diploma will be submitted to the board. The scope of the examination will include the morals, habits, physical and mental qualifications of the candidate, and his general aptitude for service; and the board will report unfavorably should it have a reasonable doubt of his efficiency in any of these particulars." The circular closes with a series of written questions illustrative of the general character of the examination which the candidate has to undergo. The sample questions are taken from the records of a board recently in session in New York city and cover the subjects of arithmetic, geography, history and literature, chemistry, physics, anatomy, physiology, surgery, hygiene, pathology and bacteriology, therapeutics, materia medica and toxicology, practice of medicine and obstetrics and diseases of women and children.

The circular refers to the establishment of the Army Medical School for the benefit of the passed candidate, and to the intention of the Surgeon General to recommend the assignment for duty as attending surgeons in the principal medical centers of the United States of the medical officers who have not yet passed their examinations for promotion to a majority. It also provides for a preliminary examination into the physique and general education of a candidate at the military post nearest his home, to save him in case of failure the needless expense of travel to the city in which the board is convened. At every session of the examining boards many candidates have been rejected for defective physique or elementary education. These men should indeed never have become candidates, and Surgeon General Sternberg now proposes that only those who need have no fear of being rejected on these preliminary, but essential grounds, shall be put to the expense of travel for examination by the board.

The examining board to be convened next autumn will probably meet in Washington, D. C., and be composed of the faculty of the Army Medical School.

CONCEALMENT OF EPIDEMICS.

If any lesson has been thoroughly learned by the sanitary authorities of the United States, it is that concealment of the first cases of contagious disease is a dangerous and costly practice. We observe that the authorities of Naples are now making denial of the existence of cholera. Marseilles and Toulon similarly denied its existence until the deaths from the disease became so numerous that it could no longer be concealed. The policy of concealment is always adopted under specious pleas of the damage to com-

merce, the carrying trade and travel. It induces false security on the part of the local inhabitants, and is cruel to those who unwittingly get caught in the trap. Worse, however, by encouraging free ingress to the stricken city, and having no inspection of those going out of it, the epidemic is made more violent in the place itself, and spreads to a greater number of places. Hamburg tried the concealment plan, as long as it would deceive anybody, and it was the knowledge of the European tendency to hide the ravages of contagious diseases that induced Congress to pass the law providing for foreign inspection service. It is only fair to the city of Naples to state that the probabilities of a great epidemic there at this time are at a minimum. The great improvements in the streets, the miles of new pavements, the opening up of new and broad thoroughfares through former squalid tenement house districts, have greatly improved the situation since the great epidemic of 1887-88. The drainage is excellent and the drinking water good, but meanwhile our own sanitary authorities will do well to place credence in the reports of our own government inspectors in preference to biased local reports.

MUNICIPAL AUTHORITY OVER ADULTERATIONS.

One of the chief functions of a municipal government, whether wisely exercised or not, is to protect the health of its subjects. With its constitutional authority physicians ought therefore to be somewhat familiar. In the case of the *State v. Fourcade*, recently decided, the Supreme Court of Louisiana says, in discussing the constitutionality and legality of an ordinance of the City of New Orleans concerning the adulteration of milk, that a legislature may delegate to municipal corporations power to adopt and enforce ordinances of special local importance, though general statutes exist, relating to the same subjects. An ordinance must be authorized, and must not be repugnant to a statute over the same territorial area, but if there be no other conflict between the provisions of the statute and ordinance, save that they deal with the same subject, both may be given effect. The resulting or correlative doctrine is now too firmly established to admit of serious question—that the same act may constitute two offenses, viz., a crime against the public law of the State, and also a petty offense against a municipal regulation. The public welfare, requiring the maintenance of peace and good order, as well as of careful sanitary regulations, in cities and towns, renders summary proceedings, in many cases a necessity; and such are commonly secured by municipal regulations. Violations of municipal ordinances constitute a class of offenses that are, in general, throughout the country proceeded against summarily, and the right of trial by jury in connection therewith, cannot be constitutionally de-

manded. An ordinance is not, in the constitutional sense, a public law. It is a mere local rule or by-law—a police or domestic regulation—devoid in many respects of the characteristics of the public or general laws. In this case a city ordinance was attacked as being unconstitutional, illegal, and violative of the laws of the State; the specific objection made being that the State having adopted a standard of adulteration, it was the duty of the municipality to have made its standard identical with that of the State, and that, the two standards not being identical—that of the city, by reason of that fact, was illegal. But, as already explained, the offense charged under the city ordinance would be a separate and distinct offense from that which would have been charged under the State law, while the State's standard would be applicable exclusively for and as descriptive of a State offense. Where the same act constitutes two offenses against separate jurisdictions, it is analogous to those cases where the same act is punishable under a congressional statute and also under a State law. The two offenses in such a case being different, each may be punished without violation of the constitutional inhibition against placing one twice in jeopardy for the same offense. These views are sustained by many authorities. And the general assembly of Louisiana in conferring upon the common council of New Orleans the powers it did in its charter, must have contemplated that it would adopt a standard of adulteration as to drinks; and that adopted by it not being shown to be unreasonable or arbitrary, or as passing beyond a fair measure of correction for the evil against which it seeks to guard, must be upheld.

DOMESTIC CORRESPONDENCE.

Report on Cheese Poisoning Cases at Mansfield, Ohio.

To the Editor.—In reply to your favor of July 14th, regarding a report of the so-called "cheese poisoning" in this city, I beg leave to say that the reports in the newspapers in reference to it were as usual very much exaggerated. It is true that we had some fifty or sixty persons who had eaten a certain make of cheese who were taken suddenly and violently sick, but with no fatal results. The cheese in question was made by Mr. Maboe who lives about five miles from this city and who has manufactured cheese for some thirty years and sold it in this city without any bad results, so far as we have any knowledge, until this occurrence which you refer to took place.

On investigation we learned that Mr. Maboe purchases milk from the farmers in his immediate vicinity, and as a rule, makes three cheese a day which weigh from twenty-four to twenty-five pounds each. The cheese of each day is numbered the same, and on this occasion the cheese, which were all made from the same curd, were numbered 53. One of the three was sold to a grocer by the name of J. P. Hering who retailed the entire cheese within twenty-four to thirty-six hours after he received it; on investigation we found that *everybody who was taken ill*

with the peculiar sickness had eaten cheese, but that everybody who had eaten cheese did not get sick; but the sickness all occurred among those who had bought and eaten of this particular cheese which was very spongy and moist: two pounds of which I obtained of those who had bought and eaten of the cheese, and were taken sick shortly after eating it. Those two pounds were sent to Secretary D. C. O. Probst of the State Board of Health who turned it over to the State Dairy and Food Commissioner, Dr. McNeal, who with an expert cheese maker, Mr. Hurd, visited this city and examined into the character of the symptoms of those who were taken sick, together with the process employed in the manufacture of the cheese.

The second cheese was sold to a grocer by the name of P. P. Ford with the same results as in the former case, except that he did not sell more than *half* his cheese before he learned of the poisonous results from the use of it, and stopped its sale immediately. It is only just to say that the first groceryman had sold all his cheese before he learned that it was making any one sick.

The third cheese was sold and has been taken to Columbus for chemical analysis, a report of which, together with an analysis of the samples sent previously, will be sent me later on.

In this investigation it was interesting to note that the two grocerymen who bought the cheese lived in widely different sections of the city and that the number of cases of sickness corresponded with the amount of cheese sold; in other words, there were more than twice as many cases of sickness occurred in the Hering district where the *entire cheese* was sold, than there were in the Ford district where only *half* the cheese was sold. It is also interesting to note that the degree of sickness depended on two particular factors. First: The amount of cheese eaten. Second: the physical strength of the person who ate it. In every instance where children, or old persons who were feeble, had eaten the cheese they were afflicted much more seriously and in some instances they were so prostrated, especially in the case of the aged, that their lives were despaired of; whilst another who was strong and hardy and ate of the same cheese in the same quantity was not nearly so sick, if sick at all, whilst others were more or less affected according to the amount of cheese they had eaten and the physical strength they had to counteract the effects of the alleged poison.

One very interesting case occurred in which the mother had been taken sick from eating the cheese and shortly afterward her nursing babe which had been nursing her, was taken sick with the same symptoms, although it had not eaten any of the cheese at all; showing that the poison which produced the sickness was not only a local irritant to the stomach, but also assumed a constitutional character and was eliminated through the lacteal glands. The symptoms were those of marked prostration in the more serious cases and modified according to the amount of cheese eaten and the strength of the person who ate it; consisting of a marked reduction of the cardiac force, showing a partial failure or paralysis of the heart; some of the cases being entirely pulseless with cold hands and feet and cold perspiration, followed by vomiting and later by purging and general prostration. These symptoms obtained in every case to a greater or less degree, so far as we were able to learn from the patients and their attending physicians.

As to whether the poisoning was the result of Vaughn's tyrotoxin remains to be determined by the chemical analysis which will be immediately instituted by Commissioner Dr. McNeal.

These cases of so-called "cheese poisoning," the result of eating certain cheese, have been of quite frequent occur-

rence in this vicinity. In 1888 and 1889 I sent samples of cheese to the State Board of Health from this city which were supposed to contain tyrotoxin, but on investigation by Professors Howard and Webber of Columbus, and Prof. Schweitz of the Bureau of Animal Industry of Washington, they were unable to find Vaughn's tyrotoxin in a single instance, notwithstanding they followed the directions given by him for its detection. Experiments were conducted by Prof. Webber at that time by feeding animals with the poisonous extracts of cheese, with no results. But these experiments on animals are very questionable, as we are all aware that animals can, as a rule, eat decomposed organic matter without any serious results; while on the other hand, if eaten by humans, it would produce sickness if not fatal terminations. The fact that tyrotoxin was not found in the cheese was no evidence that a poisonous compound, the result of fermentation, was not the cause of the sickness; and especially is this true, as Prof. Vaughn has found poisonous substances in cheese since his discovery of tyrotoxin, which he claims are sometimes, under certain circumstances, the cause of sickness.

In this same investigation which I have referred to, and which was conducted by the State Board of Health in 1888, bacteriological examinations were made by Prof. Detmers with negative results. Of course, we may have fermentative products of an alkaloidal character which could not be detected by bacteriological examinations. The bacteriologist would only be capable of determining a fungus or a microbic toxicant, if such existed, but with alkaloidal products his investigations would prove futile.

Since these investigations by our State Board of Health, all of which resulted negatively so far as Vaughn's tyrotoxin was concerned, the State Board of Health considered it useless to conduct any further investigations for that poison. Yet at the same time there is no question but what there is a "poison" of some character which occurs in the manufacture of certain kinds of cheese, which is evidently the result of fermentation, and while it may not always be tyrotoxin, it is possible that under certain circumstances it is; and under others it is certainly some compound analogous to tyrotoxin which as yet has not been discovered, and which will be sought for in the chemical analysis to be instituted by the State dairy and food commissioner, the result of which we will watch with great interest, as it is to be hoped that he will be able to discover the cause, origin and composition of the substance which produces these perplexing outbreaks of so-called "cheese poisoning" which usually occur in this section of the country in the summer and fall, so far as I have been able to observe, and usually occur in cheese that is made during the hot weather.

That this is the result of fermentative changes is certainly quite evident. First: for the reason that brands of cheese which are made from pure, sweet milk and are made without any fermentation except that particular ferment produced by the use of *rennet* for curdling the milk, does not produce "cheese poisoning." Second: that "cheese poisoning," so far as I have been able to ascertain, has occurred in those brands of cheese which are subjected in their manufacture to certain fermentative changes, either *purposefully* or *accidentally*. Very respectfully submitted,

R. HARVEY REED, *Health Officer*.

Advertise in the Journal.

SAGINAW, MICH., July 17, 1893.

To the Editor:—Will you kindly furnish me the address of the firm who handle the sterilizer that was on exhibition at Milwaukee?

Yours,

S. A. McLEAN.

Bay City, Mich.

State Board of Health of Pennsylvania.

PHILADELPHIA, July 1893.

Editor.—The recent session of the legislature of this State was marked by an unusual interest in all matters pertaining to the protection of the public health. A step of great importance was the passage of an act making the establishment of Boards of Health compulsory in all incorporated boroughs in the State. As these Boards are by the terms of the law required to report to the State Board of Health, we may hope that in the course of the next six months the sanitary organization of the State will be so complete that the State Board will have accurate and early information of all outbreaks of contagious disease. Although the legislature declared to increase the very meager appropriation to the State Board of Health, it granted the request of the Board to appropriate the sum of \$50,000 to be used in case of serious emergencies, with the approval of the Governor. In the event of the advent of cholera, this will enable the Board to take immediate and effective action to check its spread.

Another measure of considerable importance was the establishment of a State Quarantine Board, to which is assigned the control of maritime quarantine at the Port of Philadelphia, which includes all ports of entry on the Delaware river above the State line. This Board is constituted as follows:

The President of the College of Physicians of Philadelphia or a member of said college to be designated by the President.

The Secretary of the State Board of Health.

The President of the Philadelphia Maritime Exchange or a member of said Exchange to be designated by the President.

The Health Officer of Philadelphia appointed in pursuance of the Act to which this is a supplement.

The Quarantine Physician provided for in this Act.

A sixth member to be appointed by the Mayor of Philadelphia.

A seventh member to be appointed by the Governor of Pennsylvania.

The aim of the new Board is to act in harmony with the quarantine authorities established at the mouth of the Delaware Bay by the United States Marine Hospital Service. The protection to this port will be threefold: First, the United States Marine Hospital inspection and hospital service near the Delaware breakwater. Second, the United States Marine Hospital disinfecting plant at Ruddy Island, forty miles higher up the bay, and third, the State quarantine station, established at the old Lazaretto, a short distance below the city of Philadelphia.

The purpose is to have such intimate cooperation between the several stations, that absolute protection will be assured with the least possible interference with commerce and travel. With this triple cord of coast defense combined with the system of train inspection which our Board is arranging in connection with the United States Marine Hospital Service, and the appointment of a Supervising Inspector in each county for special service in the presence of cholera, our Board feels that it is quite ready for any emergency which may occur.

Another Act passed which promises valuable results in the future, was that establishing a State Board of Medical Examiners on which the State Board of Health is represented in the person of its president. A communication just received from Berlin informs me that large numbers of diplomas of the so-called American University of Philadelphia, bearing the signature of the infamous John Buchanan, and issued by one Charles Sager, in London, at the moderate price of \$100 apiece, are being obtained at the present time in Germany. As is well known, in this country, this fraudulent institution, together with others of a similar char-

acter, were stamped out by the courts in this city in 1880; and yet it is evident that they are still making the name, "American Graduate" a stench in the nostrils of the German public. It is sincerely to be hoped that medical examining boards will soon be the rule in every State in the Union, and that in this way we shall be able to blot out this shameful reproach.

Bills for preventing the adulteration of food and drugs, and for the regulation of the sale of milk and of meats were unfortunately either lost in the Assembly or vetoed by the governor. The health of school children was considered in an Act which became a law, compelling school boards to make proper sanitary arrangements in all schools under their jurisdiction.

On the whole, therefore, sanitarians have a right to congratulate themselves that this old commonwealth is slowly arousing from its lethargy in regard to this most important of all governmental questions, the protection of the public health.

Yours respectfully,

BENJAMIN LEE, Secretary.

State Board of Health of Pennsylvania.

The Woods are Full of Them.

LOUISVILLE, KY., July 21, 1893.

To the Editors:—Can you recommend a good and honest lady or gentleman to canvass subscriptions for two old, established magazines on a liberal commission?

Your early reply will oblige

Fraternally yours,

PAUL KRAVZ, Publisher.

NECROLOGY.

Edward Loomis Smith, M.D., of Seattle, Washington, was found dead in his bed on the morning of July 12, 1893. The end came quietly and peacefully as he had often expressed a wish that it might. He had been a sufferer from heart disease for many years so his sudden death was no surprise to his most intimate friends.

Dr. Smith was born at Pittsford, Monroe county, New York in 1840, and received his literary training at the Genesee Wesleyan Seminary, at Lima, N. Y. He took two courses at the Medical Department of the University of Buffalo, and afterwards received the degree of M.D. from the Cooper Medical College at San Francisco, California. He served as a medical officer with the Twelfth United States Infantry at Angel Island, California, during 1873 and 1874, after which he practiced in the towns of Quincy and Laport, California, coming to Seattle to locate in 1877.

His genial disposition and open generosity, together with his professional ability, soon won for him a host of friends and made him one of the best known surgeons in the Pacific northwest. He inspired confidence in his patients and was always kind to his brother practitioners. His surgical experience was very extensive, he having been chief surgeon at Providence Hospital for many years.

He was one of the organizers of the King County Medical Society and was the first president of the Washington State Medical Society; he was also a member of the Seattle Medical and Library Association, California State Medical Society and the American Medical Association.

Dr. Smith always took great interest in the State militia, having served as brigade surgeon and surgeon general on Governor Ferry's staff. He held the same position on Governor McGraw's staff at the time of his death and was buried with military honors.

J. R. E.

SOCIETY NEWS.

Official Delegates to the Pan-American Medical Congress.—Practically all of the governments have appointed official delegates to the Congress in response to the invitation by the President of the United States. The United States government will be represented by six delegates. The larger cities of all the Latin-American countries have appointed delegates to participate in the proceedings of the Sections on Hygiene, Climatology and Demography, and on Marine Hygiene and Quarantine, and similar appointments will be made by the cities of the United States. Seventy-six similar delegates have so far been appointed by the governors of States in the United States. A large number of delegates have been chosen by the medical colleges of the United States and other American countries to attend the Section on Medical Pedagogics, under the presidency of Professor J. Collins Warren of Boston.

Dr. Ernest Hart, editor of the *British Medical Journal*, and Prof. Dr. Czerny, of Heidelberg, will be among the distinguished guests. The latter is booked for the Pan-American excursion to Rome by the "Werra."

Section on Materia Medica and Pharmacology, Pan-American Medical Congress.—A Section on Materia Medica and Pharmacology has been organized under the executive presidency of Professor Joseph P. Remington of Longport, N. Y., with Professor F. G. Ryan, 3739 Brown St., Philadelphia, as English-speaking secretary. This Section promises to be one of the most important of the entire Congress. Delegates have been invited from all the pharmaceutical societies and colleges in all the Americas. Those contemplating attendance are invited to prepare papers on pharmaceutical topics. Titles should be sent at once to Professor Ryan, Secretary.

The Vermont State Medical Society will hold its Eighteenth Annual Meeting in Rutland, Oct. 12 and 13, 1893. The president is Dr. R. M. Wilder, Swanton; D. C. Hawley, Burlington, secretary; chairman committee of arrangements, Dr. C. S. Caverly, Rutland. The midsummer program can now be obtained from Dr. Hawley, and the regular program from that gentleman about October 1.

SELECTIONS.

Chloride of Sodium Infusion in the Fasting Insane.—That fatal termination frequently follows in the more severe melancholias notwithstanding the most careful artificial feeding is a fact within the experience of every alienist. It makes only a trifling difference in the progress of these cases, as to what efforts are put forth to vary the quality and quantity of food; the patient gradually emaciates, the secretions become foul, the bowels sluggish, and vomiting may occur after each use of the esophageal tube. The patient rapidly grows weaker, finally dies from exhaustion notwithstanding that ample food is being ingested. Reference is not intended here to the class of cases where refusal of food is based on delusion and in which there is no somatic disturbance; these cases may be fed artificially for months or years without causing any special disturbance of the health. The brilliant results that have been achieved in surgery, obstetrics and internal medicine by the use of subcutaneous and intra-venous infusions of salt solutions have encouraged Ilberg (*Zeitschrift für Psychiatrie*) and Lehmann (*Centralblatt für Nervenheilkunde und Psychiatrie*, June 1893) to try them in the severe melancholias accompanied by refusal of food. The latter writer reports four, in three of which results were achieved by the hypodermic injection of 600 cubic centimeters of saline solution. The injections were made at intervals of two or three days according to the condition of the patient. After each injection the general state of the patient was markedly improved,

the lips would become moist, the tongue would clear and in several cases the patient would begin to take food voluntarily. In one case that terminated fatally, death was found to be due to a perforating ulcer of the stomach, due to swallowing a fragment of glass with suicidal intent.

Unilateral Hypertrophy of the Face.—Dr. W. Montgomery (*Medical News*, July 15, 1893) adds another case to the few reported of this extremely rare affection. Additional interest is found in these cases owing to the fact that the sensitive and motor nerves of the affected part come from different roots, and if we ever solve the nature and seat of trophic nervous influence it will probably be from a study of the nerve supply of these parts.

Some idea of the enlargement may be gained by the statement that the distance from the philtrum to the tragus is six and one-eighth inches and only four and seven-eighths on the right or unaffected side. The bones as well as the skin and its appendages were hypertrophied, the hairs were coarse and heavy and the mouths of the sebaceous glands large and patulous giving the skin a "saddle leather" look. Portions of the skin removed for microscopic study showed an extremely friable condition of the chorion which was enormously increased in thickness, and round-celled infiltration along the vessels. The dilated sebaceous glands in many cases contained masses of concentrically arranged epithelial cells that had undergone hyaline degeneration. These masses produced tumor-like elevations of the surface, and seemed to act like foreign bodies as the surrounding connective tissue was richly infiltrated with small round cells.

Trapacocaine in Eye Practice.—Dr. Ferdinands has given in the *British Medical Journal* his favorable estimation of the Java leaf cocaine. The anesthesia produced by it in ophthalmic use has been more reliable than the older drug, the effect is more enduring and may be attained in parts that have become inflamed. There was no appearance over the corneal surface of that haze that has been so often a troublesome consequent on anesthesia by cocaine. A strength of two or three parts per hundred, in aqueous solution, has been efficient in the general run of cases, while a 5 per cent. strength was used safely for anesthetic applications to the deeper seated parts of the eye. The solutions should be made with distilled water. They keep well and continue efficient for months. In only one case were untoward results observed, and in that case the surgeon used a 10 per cent. solution. There is virtually no mydriasis nor hemostatic action.

Unilateral Tremor Associated with Tumor of the Cerebral Peduncle.—Blocc and Marinisco (*Le Moniteur Medical* No. 22, page 269) furnish an additional uncertainty as to the origin of the tremor of paralysis agitans in the report of a case of that disorder in which a tumor the size of an olive was found in the midst of the right crus cerebri. The fibers of the oculo motor nerve, superior cerebellar peduncle and crista alii escaped. The tremor which was confined to the left side was believed by the writers to be due to irritation of the pyramidal fibers. This explanation seems gratuitous as the patient died from tuberculosis of the lungs and it is quite possible that the tumor bore no relation to the tremor. A careful study of the recent literature of paralysis agitans shows that the disease probably has its origin in the motor nerve endings. In this case we may have had a paralysis agitans with tuberculosis and secondary tumor of the crus.

A Study of Losophan.—In a thesis by Felix Descottes presented to the Paris Faculty of Medicine, the author formulates the following conclusions: In the treatment of leg ulcers, losophan acted quite as well as any of the medica-

ments customarily employed in this condition. In ordinary lesions of a syphilitic character, losophan had a very beneficial action and determined a rapid concentration of elements, although employed to the exclusion of general constitutional treatment. The curative effects of losophan were especially manifested in simple chancres or soft chancres. Patients suffering from folliculitis and eczema, though not always completely cured under treatment by losophan experienced in all cases a great amelioration of the condition. In circumscript lichen simplex, losophan, successfully cured the disagreeable and often painful pruritus which almost always accompanies this malady. In prurigo with obstinate pruritus the same beneficial results were obtained. In the estimation of the author, these results are sufficient to enable us to classify losophan among the most efficient of our remedies for certain skin diseases. Dr. Descottes employed losophan in much stronger mixtures than those cited by other authors and never noted any irritation of the skin. He used 5 per cent., 10 per cent., and sometimes 20 per cent. ointments and occasionally the pure powder. Small-dosed but 1 to 2 per cent. ointments or solutions. Descottes was successful in some conditions which had not heretofore responded promptly to losophan.

MISCELLANY.

Cholera.—Cholera has appeared in Naples. There were four fatal cases on the 16th and 17th of July. The diagnosis was verified by bacteriological examination. Its origin has not yet been traced.

The British steamer *Blue Jacket* from Marseilles, arrived at Cardiff July 19. It had cholera on board and was ordered in quarantine. The *Blue Jacket* sailed from Kertch, in the Crimea, June 24. It called at Constantinople and proceeded thence to Marseilles, from which port it came direct to Cardiff.

There were two cases of cholera on the *Blue Jacket*. Both patients are recovering. The other members of the crew are in a healthy condition.

The cholera is raging among the poorer classes in Moscow. The Director of Prisons upon learning that there was cholera in the Moscow prison ordered a majority of the prisoners to be removed to four other cities thus increasing the danger of a spreading of the infection. There have been no cases so far in St. Petersburg. In Poland and other infected places the death rate has lessened.

Must be Examined.—The Iowa State Board of Medical Examiners, is now sending out the following circular: The Announcement and Catalogue of your — for the session — is before me. I regret to find that your requirements for graduation do not conform to our "Schedule of Minimum Requirements," a copy of which, together with the resolutions adopted by the Iowa State Board of Medical Examiners relating thereto, are sent herewith. I have underscored the particulars in which you lack conformity. I am directed to say in advance, that unless your requirements for graduation are amended so as to be in complete accord "by announcement and practice, in letter and in spirit" with our schedule, as shown herewith, your graduates cannot be admitted to practice in this State, except upon satisfactory examination before this Board.

Respectfully, J. F. KENNEDY, M.D., Secretary.

COLLEGE NOTES.

Northwestern University Medical School Chicago Medical College has just completed a new laboratory building that is one of the largest and best in this country, and at a cost of \$150,000. It is a five-story structure, 106 feet wide by 110 feet long.

It contains, besides the usual offices, lavatories, lockers for students' clothing, etc., two large lecture rooms and one quiz room, laboratories of physiology, pharmacy, botany, pharmacology, normal and pathological histology, bacteriology, chemistry, anatomy and operative surgery, together with smaller rooms for special class instruction and indi-

vidual work. The entire building is wired for electric lighting, and is heated by steam throughout. There is hot and cold water in all rooms, compressed air and live steam in the laboratory and lecture rooms, an ice machine for cooling the room in which the anatomical material is preserved, and in which any desired temperature may be easily maintained.

It is expected that these laboratories, with the possible exception of the laboratory of physiological research, will all be in operation at the beginning of the coming term.

The new college building, in course of erection on the same lot, will be completed by the opening of the college year. It has been designed especially for clinical teaching. There will be two floors devoted entirely to clinics which will be in operation both forenoon and afternoon. There are two large amphitheatres on the same level as the clinic rooms, to be used for college clinics, as well as for didactic teaching.

This building is 55 feet wide by 100 feet long, and, in architectural features, corresponds with the laboratory building.

Rush Medical College.—In consequence of the number of foreign visitors to the city of Chicago during the year of 1893, many of whom have made inquiries relating to this college, a limited edition of the Announcement for this year has been issued in the French language.

Appointment.—Dr. Emory Lanphear of Kansas City, has resigned from the University Medical College and accepted the chair of Operative Surgery and Clinical Surgery in the Kansas City Medical College.

LETTERS RECEIVED.

(A) Anderson, Wm., Indiana, Pa.; Atkinson, W. B., Philadelphia, Pa.; Ames, L. L., Onaga, Kan.; (B) Burford, Wm. B., Indianapolis; Bacon, C. G., Fulton, N. Y.; (C) Corson, Hiram, Plymouth Meeting, Pa.; Carpenter, J. G., Stanford, Ky.; Cornick, Boyd, Knickerbocker, Tex.; (D) Dunglison, R. J., Philadelphia (telegram); (E) Eagleson, J. B., Seattle, W. T.; (F) Fogg, John S., Biddleford, Me.; Flesher, Paul, Elkhorn, W. Va.; Florentine, F. B., Saginaw, Mich.; (G) Grant, H. H., Louisville, Ky.; (Gibson, Albert L., U. S. Navy; (H) Hamiell, E. K., Newark, N. J.; (Hinde, Alfred, Chicago; Heckard, M. O., Chicago; Holmes, Bayard, Chicago; (J) Jenkins, J. C., Everett's, N. C.; (K) Kratz, Paul, Louisville, Ky.; Kern, W. B., Hastings, Neb.; (L) Lee, Benjamin, Philadelphia; Lynk, M. A., Jackson, Tenn.; (M) Mansfield Book-binding and Index Co., McLean, S. A., Bay City, Mich.; Montezuma, Carlos, Barry, Washington; McDonald, Mrs. S. M., Washington, D. C.; Miller, J. E., Providence, R. I.; McIntyre, J. H., St. Louis, Mo.; Malted Milk Co., Racine, Wis.; (O) Orleans Parish Med. Soc., New Orleans, La.; Owens, T. B., Roxbury, Mass.; Owen, A. M., Evansville, Ind.; Ochsner, A. J., Chicago; (P) Patterson, R. S., Port Huron, Mich.; Park, J. Walter, Harrisburg, Pa.; Parke, Davis & Co., Detroit, Mich.; Parr, Thos. S., Indiana, Ia.; (R) Rush, Jas. D., Apalachicola, Fla.; Reed, R. Harvey, Mansfield, O.; Rosenberg, J. S., Chicago; (S) Seymour, W. W., Troy, N. Y.; Schaefelberger, J. F., Hastings, Neb.; Sajons, Chas. E., Paris, France; Schieffelin & Co., New York; Shober, W. A., Ligonier, Ind.; Small, E. H., Pittsburg; (T) Tabert, J. W., Amville, Pa.; Truax, J. G., New York; (V) Vauden, Geo., Caperton, W. Va.; (W) Waxham, F. E., Denver, Col.; Woodbury, Frank, Philadelphia; Wyman, Hal., Detroit; (Y) Young, Arthur, Prescott, Wis.

THE PUBLIC SERVICES.

Civil Practice by Army Medical Officers.—The following from a recent issue of a military journal shows that in France as in this country the civilian practitioner sometimes considers himself unjustly treated by his military colleague: "The French War Minister has decided not to permit French army medical officers to combine private practice with their military duty, except where they render medical service gratuitously, and as a rule they must confine their civil practice to assisting civil practitioners without competing with them. Hitherto medical officers, being duly qualified

practitioners, have been allowed to practice their profession outside the army and the present decision is due to the objections of civil practitioners."

The U. S. Army Regulations of 1814, in which the duties of medical officers were for the first time distinctly specified, prohibited civil practice in these terms: "No surgeon of the army shall be engaged in private practice;" but this regulation has never been enforced. One officer inquired of Surgeon General Lovell concerning it and was informed that it was intended only to prevent neglect of duty, which might be occasioned by entering exhaustively into practice. At one time the physicians of Sackett's Harbor, N. Y., protested against the practice of the Post Surgeon of Madison Barracks, alleging that he came into injurious competition with them. The reply was to the effect that if no breach of professional etiquette nor any improper means to obtain professional employment was charged the War Department could not with propriety interfere in the matter. Medical officers had a right to give their services to whomsoever they pleased, and they had always been permitted to do so. Indeed, at small posts it was desirable that they should do so to extend their sphere of action and experience. The present ruling is that medical officers must not establish an office nor solicit practice, but if requested to attend in any case they are at full liberty to do so, provided it can be done without interfering with their regular duties. It would be ungracious and indeed unjust to citizens to deprive them by War Department orders of any benefit they might derive from the care of a military surgeon.

Immigrant Inspection Service.—Surgeon P. H. Bailhache, United States Marine Hospital Service, stationed at Ellis Island, is organizing a corps of several hundred physicians, whose services may be needed in the event of cholera reaching this port. If cholera does reach New York it is proposed to send one of these physicians on each immigrant train that leaves here. This physician will accompany the immigrants to their destination and watch them carefully for symptoms of contagious or infectious diseases. Already a large number of applications from physicians who want to serve on this corps have been received. This is the immigrant inspection service recommended by the Sanitary Council of the Mississippi Valley, and similar to the one organized by the late National Board of Health.

The Sick-Bay on the Cruiser New York.—The Surgeon General of the navy has recently made a report to Secretary Herbert on the apparently poor arrangements for the care of the sick on the new cruiser, *New York*. He hopes to have some of the defects remedied before the vessel shall be sent out on a cruise. The adopted plans locate the sick-bay too far forward near the magazine and torpedo tubes. Surgeon General Tryon urges that the sick should be placed amidship, or in some other part where they can have more room, light and air.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from July 15, 1893, to July 21, 1893.

First Lieut. JAMES D. GLENNAN, Asst. Surgeon, ordered to report to the president of the examining board, for examination for promotion. Major PETER J. McLEARY, granted leave of absence for four months, on surgeon's certificate of disability.

First Lieut. A. E. BRADLEY, Asst. Surgeon, ordered to report to Lieut.-Col. DAVID B. HAYES, deputy Surgeon General, president of examining board at Omaha, Neb., for examination for promotion to grade of Captain.

First Lieut. J. T. CLARKE, Asst. Surgeon, will on the abandonment of Camp Poplar River, Mont., proceed to Ft. Sully, S. D., for temporary duty, and on return of First Lieut. BRADLEY, proceed to and take station at Ft. Omaha, Neb.

Major CALVIN D. WELLS, Surgeon, U. S. A., is granted leave of absence for one month, to take effect between the 15th and 30th inst. Par. 2, S. O. 28, Hqs. Dept. of Texas, July 10, 1893.

Navy Changes. Official list of changes in the Medical Corps of the U. S. Navy, for the week ending July 22, 1893.

P. A. Surgeon E. B. BAILEY, from Philadelphia Hospital, and to the U. S. S. "Meridian."

Medical Inspector W. M. JONES, from League Island Navy Yard, and with orders.

Medical Inspector G. H. COOK, to the Navy Yard, League Island, Surgeon, H. B. JACKSON, from Marine Barracks, and to the "Dolphin" temporarily.

Surgeon P. M. RILEY, from the "Dolphin," and granted temporary leave.

P. A. Surgeon J. D. GLEWORTH, temporary duty at Marine Barracks.

P. A. Surgeon W. R. WENFORTH, from the "Atlanta," and granted leave.

Surgeon W. G. FARWELL, to temporary duty on the "Franklin," Surgeon T. T. HEDGECOCK, from the "Franklin," and to the "Detroit,"

Asst. Surgeon C. W. HIGSON, ordered to receiving ship "St. Louis."

The Journal of the American Medical Association

VOL. XXI.

CHICAGO, AUGUST 5, 1893.

No. 6.

ORIGINAL ARTICLES.

THE FUNCTION OF THE KIDNEYS.

BY GEO. W. WEBSTER, M.D.

PROFESSOR OF PHYSIOLOGY, CHICAGO MEDICAL COLLEGE.

Origin of Urea and Uric Acid.—Some of the recent editorials on this subject would lead us to infer that the function of the kidneys is not well understood, or that there is a wide difference of opinion regarding it.

Mereck's *Bulletin*, Dec. 18, 1892, says editorially: "Through the agency of the epithelial cells lining the uriniferous tubules the urea, uric acid and creatine are normally *formed and discharged*," etc. Again: "The function of the glomeruli is *comparatively simple*, being entirely under the control of the vasomotor system."

Indeed, such statements as the foregoing are comparatively common, but ought not to go unchallenged. A knowledge of physiology should precede and serve as a basis for rational therapeutics, and the more thorough and more nearly correct the former, the more scientific and satisfactory will be the latter.

Instead of calling the kidneys secreting organs and the urine an excretion, it seems more rational to say that we know that an average constant composition of the blood as regards normal constituents, such as sugar, etc., and of waste products such as urea, must be maintained, in order to preserve health and life.

To the kidneys is assigned the duty of maintaining this invariable composition; of eliminating from the blood all those substances which do not belong to it normally, whether it be an abnormal constituent, or a normal one that has increased beyond the normal amount.

The parts concerned are the glomeruli with Bowman's capsule, and the epithelium of the convoluted tubules.

There are two principal theories in regard to the secretion and excretion of urine.

Ludwig's mechanical theory, promulgated in 1844, that the urine is simply filtered in a dilute form by the glomeruli; further additions are made by osmosis and diffusion through the tubular epithelium.

In favor of this theory we find such physical conditions existing as would make such a theory tenable; we find the conditions favorable for osmosis, etc., and we may explain the failure of the proteids to pass, by saying that they do not filter readily through animal membranes. Against such a theory is the evidence, first, of analogical reasoning from what we know of other glands; second, the positive evidence. The urine is unlike the blood in composition and reaction; after destruction of the tubular epithelium, the urea is not eliminated but accumulates in the blood. If benzoic acid be given it is

converted in the kidneys into hippuric acid, being formed synthetically in the kidney;—besides other evidence to be introduced.

The other theory, known as Bowman's vital theory, was introduced in 1842 and is as follows: filtration in the glomeruli; excretion of the specific constituents by the cells; the tubules; reabsorption of some water. But even this does not explain all the facts as shown by the following evidence:

First, then, as regards the filtration in the glomeruli and the statement in the paper referred to in which it is stated that it is a "comparatively simple process." In transudations elsewhere we find that they contain serum albumen. But serum albumen although a normal constituent of the blood, is not a normal constituent of the urine and is not allowed to filter through the capsule of Bowman under normal conditions. Egg albumen is allowed to pass, however. How does the capsule discriminate if it is only a filter?

Again, we find that sugar is a normal constituent of the blood, but not of the urine, although readily soluble in water. When, however, the percentage of sugar rises above the normal it is immediately allowed to pass, justifying the definition of the function of the kidney: "To maintain the average, normal, constant composition of the blood stream."

Furthermore, we find that in disease of the capsule, both sugar and serum albumen are allowed to pass freely. Blood pressure higher than the normal allows the albumen to appear in the urine. There is a limit therefore, to the extent to which the capsule can prevent the transudation of the normal constituents of the blood.

In the amphibian kidney, we find a double blood supply and we can introduce sugar and egg albumen into the circulation and they are at once eliminated.

If we cut off the blood supply to the glomeruli we find no sugar or peptones in the urine, although the blood supply to the tubular epithelium remains normal. We must, therefore, conclude that if they are not eliminated by the tubular epithelium they must be by the glomeruli.

In regard to high pressure in the glomeruli, we find that if the renal veins be tied, thus giving us a maximum pressure, there is no secretion. Therefore the conditions favoring glomerular filtration are, *a*, high blood pressure in the glomeruli; *b*, velocity of flow. The blood pressure is controlled and varied by the vasomotor nervous system.

And, lastly, urea and sugar are both soluble in the blood. The urea is eliminated because it is a waste product and no longer useful. The sugar is retained because it is of value in the production and maintenance of those chemical processes, the sum of which constitutes life itself. We recognize the purpose of the Divine plan without being able to explain the reason.

It seems too evident that the glomerular secretion instead of being a "comparatively simple" affair, is a complicated complex process, and that anything like a mechanical explanation is narrow, faulty, inadequate. Filtration and diffusion play their part but they are not masters of the situation.

Let us now consider the function of the tubular epithelium. In favor of the so-called vital theory we have the following evidence:

1. Indigo and bile pigment are eliminated by the cells of the convoluted tubes and Henle's loop.¹

2. Uric acid is eliminated by the tubular epithelium in birds. The purpose is manifest. If it were eliminated by the malpighian bodies concretions might form, but while eliminated by the tubular epithelium it is constantly washed down by the urine.

3. If, in the amphibian kidney, we shut off the circulation from the glomeruli and then inject urea, it leads to an increased excretion of urea plus some water.

4. Sulphindigotate of soda is also eliminated by the tubular epithelium.

"If the blood becomes too alkaline, as it may by the conversion of vegetable salts of alkalies into alkaline carbonates, the renal cells separate the excess of these carbonates from the blood.

"If the alkalescence of the blood be diminished, perhaps by the liberation of sulphuric acid and phosphoric acid, caused by the decomposition of the proteids, of nucleins and lecithins, the renal cells take up the neutral salts of the blood, separate them into acid and alkaline, convey the acid salts into the urine and the alkaline back into the blood until the normal alkalescence is restored."²

Therefore, we can say that the tubular epithelium excretes urea and some water and has other functions in maintaining the normal condition of the blood. But the how, is not known to us. We are here confronted with the problem, the life of the cell, a term of whose meaning no one has any conception. But we do know that it possesses those incomprehensible qualities which bring about synthesis in the organism.

THEORY OF THE SECRETION OF THE URINE.

1. The secretion and excretion is partly mechanical and partly a vital process.

2. The water and most substances soluble in it, are eliminated by the glomeruli chiefly by filtration, the amount depending upon blood pressure in the glomeruli, provided, at the same time we have *a*, velocity of flow; *b*, normal condition of the blood; *c*, intact condition of kidney structures; *d*, average amount of urea, salts, etc., (including those which act as diuretics) present in the blood.

3. That this blood pressure is under the control of the vasomotor system.

The function of the glomeruli is not mechanical alone, but also vital, as it will allow egg albumen, an excess of sugar, etc., to pass through but will not allow any serum albumen to pass under normal conditions, and no sugar unless it be in excess.

4. Urea, uric acid, etc., are eliminated by the tubular epithelium, the concentration of the urine therefore depending upon: *a*, the amount of salts in the blood; *b*, intact condition of the tubular epi-

thelium. Somewater is also eliminated by the tubular epithelium.

5. A hearty meal increases the quantity of urine by *a*, increasing the fluids taken; *b*, by increasing the proteids which increase the urea, it in turn stimulating the tubular epithelium.

Thus we see that the work done by the kidneys depends on the condition of the blood, this furnishing the normal stimulus and thus explaining why secretory nerves are not found, simply because they would be superfluous. The greater the percentage of abnormal constituents, or the excess of normal ones, the more active the kidneys.

6. There is a compensatory relation existing between the skin and the kidneys and cold applied to the skin increases the quantity of urine by diminishing the amount of sweat, and also by increasing blood pressure it increases renal pressure and thus the amount of urine.

7. In fever the renal artery is less full and therefore there is less urine.

8. In case of weak heart, dropsy is caused by *a*, increased venous pressure brought about by diminished arterial pressure; *b*, slowing of the current of blood and thus increased venous pressure in the kidneys, thus diminishing elimination of water.

9. Diuretics act in one of the following ways: *a*, by increasing pressure and velocity in the glomeruli; *b*, by acting locally on the tubular epithelium.

10. In hysteria, etc., where there is polyuria it is possible that there may be dilatation of the vessels entering the glomeruli, but this is pure speculation.

11. Certain substances as hippuric acid, are formed synthetically in the kidneys.³

From the foregoing it must be evident that the composition of the urine must vary within rather wide limits even in health. There are in the urine:

1. Certain normal constituents in considerable amounts, whose origin, place of formation as well as composition, etc., are well known.

2. Others which appear only in small amounts.

3. Those which are found only under abnormal or pathological conditions.

4. Those which have been accidentally introduced as foods or medicine and are eliminated with the urine.

ORIGIN OF SOME OF THE URINARY CONSTITUENTS.

The proteids are, by the action of the digestive ferments, converted into peptones; the peptones further converted by having a part of the nitrogen split off in the form of amido caproic acid, or leucin, an aromatic amido acid, tyrosin, amido succinic acid, or aspartic acid, and also glycocoll. These are probably the precursors of urea as shown by the experiments of Schulzen and Necki, Salkowski and Emeriem.⁴ Hoppe Seyler and Salkowski regard cyanic acid as the immediate precursor of urea.⁵ Dreschel considers that urea arises from the carbamate of ammonia. Carbamate of ammonia stands midway between carbonate of ammonia and urea.

But the question of interest and importance, (aside from the precursors) is, *where is urea formed?* The most complete and reliable researches as to where urea is generated have been made by W. von

¹ Bunge, p. 317. Foster, vol. v, p. 136.

² Bunge, "Physiological and Pathological Chemistry," p. 319.

³ *ibid.*

⁴ W. von Schroeder, "Archiv. of Exper. Path. in Pharm.," vol. xv., p. 136, 1892, and vol. xix., p. 274, 1875. Bunge, p. 364.

⁵ Bunge, "Physiological Chemistry," p. 331.

Bunge, "Physiological Chemistry," p. 331.

Schroeder.* He shows conclusively that urea is *not* formed in the kidneys, but merely excreted by them.

Although we would naturally turn to the muscles as the next most likely place of generation, he also shows that it is not formed here nor in the nervous system, and if it is present in the blood, the blood probably obtains it from the liver. The evidence in favor of its formation in the liver is both clinical and experimental and is abundant and conclusive. Experimental.[†]

1. The synthesis of carbonate of ammonia into urea occurs in the liver.

2. In disease of the liver as interstitial hepatitis, the elimination of urea is interfered with and the amount of ammonia rises from one-half gram (normal) to two and one-fifth grams in twenty-four hours in cirrhosis of liver.

3. The creatin formed in the muscle is also converted into urea in the liver.

4. The blood contains 1 part in 3,000 to 5,000 parts and the renal artery contains more than the renal vein.

5. In the case of leucin, there is distinct evidence that the conversion into urea is effected by the liver.[‡]

6. The amount of urea is increased principally by proteid food.

The amount of urea is augmented in congestion of the liver or markedly diminished by such diseases of the liver as yellow atrophy, diabetes and hepatic cirrhosis.

8. In those diseases of the liver which interfere with urea formation, the immediate precursors of urea such as leucin, tyrosin, ammonia, cyanic acid, etc., are eliminated with and are found in the urine. It is evident therefore, that urea is formed in the liver from various substances brought to it by the blood stream, that the original source is the proteid foods, and that it does not all represent tissue metabolism; the amount of urea depending upon or being influenced by foods, breaking up of body proteids, diminution of or loss of blood, plenty of water and drugs—as morphin, the salicylates, mercury euonymin, arsenic, etc.

URIC ACID.

This is one of the unilluminated pages in physiology. But in the following brief note I give the more recent views concerning this important, though much disputed question and I venture to quote rather fully and to give many references because the observers are not by any means a unit in regard to theories. The views of Sir Wm. Roberts seem to me to be particularly well sustained by evidence.

Uric acid is the nitrogenous end product which, next to urea, carries off most of the nitrogen from the body. The amount varies from 8 grains (average) to 35 grains on a flesh diet. Proportion to urea 1 to 45 (Landois), 1 to 32. (Haig, "Uric Acid," p. 10.)

OCCURRENCE.

1. *Free Uric Acid.*—Not known physiologically, neither in the body nor in the urine. Known clinically and pathologically as the crystalline sediment in the urine, and as gravel and calculus in the urinary passages.

2. *Neutral Urates.*—Not known physiologically nor pathologically, only known as laboratory products.

3. *Bi-Urates.*—Known pathologically as compo-

nents of gouty concretions in the tissues. Known in the urine only after the secretion has undergone (ammoniacal) fermentation. It is doubtful if they ever exist physiologically in the blood or the tissues.

4. *Quadri-Urates.*—These are specifically the physiological salts of uric acid. They exist normally in the urine and probably in the blood. They constitute the entirety of the urinary excretions of birds and serpents. All the morbid phenomena due to uric acid arise from secondary changes in the quadri-urates. (Sir Wm. Roberts, "Uric Acid, Croonian Lectures" 1892, p. 31.) He also says (p. 38): It would appear that whenever uric acid exists in the healthy body, it exists exclusively as quadri-urate. The quadri-urates may, therefore, be regarded as being in a special sense the physiological salts of uric acid, and as constituting the only form in which uric acid subsists in the living body in the normal state. It may, moreover, be inferred further that when uric acid gives trouble and originates morbid phenomena the mischief arises proximately from the uric acid department, in one direction or another, from this normal state of combination.

Viewed in this light, pathological gravel may be regarded as due to an exaggeration of the conditions which prevail in a less pronounced degree in the normal state; and an elucidation of these conditions may be reasonably expected to throw light on the etiology of gravel and calculus, and perhaps furnish hints which may be turned to therapeutical uses. The conditions of the urine which tend to accelerate the precipitation of uric acid are:

1, high acidity; 2, poverty in salines; 3, low pigmentation; 4, high percentage of uric acid.

The conditions which tend to postpone precipitation are:

1, lessened acidity; 2, richness in salines; 3, richness in pigments; 4, low percentage of uric acid.[§]

The foregoing conclusions furnish a key to the rational therapeutics of uric acid gravel, which resolves itself largely into preventive measures. Roberts also says that he found that lithium carbonate was a better solvent of uric acid than is any of the other three carbonates, and this well known fact has led to the universal employment of that remedy in this condition, and more especially to the indiscriminate employment of the various "lithia waters."

In the employment of these waters, the benefit derived is from the water and not from the lithia, as shown so well by Bunge (p. 357). Because the combination of uric acid with lithia is more soluble than with soda or potash it is thought best to treat these cases with the so-called lithia water, which simply implies an ignorance of Berthollet's law:

"We know that in solutions of bases and acids, every acid is distributed to all the bases in proportion to their quantity. It follows that only the very smallest portion of uric acid will combine with the lithia, the largest proportion combining with the preponderating quantity of soda which we introduce as chloride of sodium. The largest proportion of lithia will reappear in the urine united with the chlorine, with sulphuric and phosphoric acids. There will be no increase in the solubility of the uric acid."

Cheese is said by Bunge (p. 356) to be especially apt to cause the precipitation of uric acid in the urinary tract. It is much better to keep the urine

[†] Bunge, p. 354.

[‡] Foster, vol. v, p. 163.

[§] Roberts, p. 34.

alkaline by a diet of fruits containing the vegetable organic acids. After combustion of the acids the potash appears in the urine as a carbonate. Potatoes cause a strongly alkaline urine because they contain little albumen and therefore little sulphuric acid, and much malate of potash which is converted into a carbonate. Citrate of potash is probably the best drug to employ. Dose, 40 to 60 grains at night.

ORIGIN OF URIC ACID.

The locality of the formation of uric acid in animals has not been experimentally investigated, although this seems important from physiological as well as from a pathological point of view. The most complete investigations upon the subject of recent times have been made by von Schroeder and Minkowski. (Bunge, p. 342.) Minkowski shows that in birds, ammonia is a normal antecedent of urea, and that the uric acid is formed synthetically in the liver by the union of ammonia and a non-nitrogenous substance and imagines this latter to be lactic acid, having a common source in proteids; that it is increased by proteid foods and is independent of carbohydrates. This form of lactic acid is saccolactic acid and not the lactic acid produced by the fermentation of the carbohydrates.

In cirrhosis of the liver and in cases of phosphorus poisoning large quantities of lactic acid have been observed in the urine.¹⁰ The liver is therefore probably one of the places of uric acid formation. In leukemia the amount of uric acid is double that in health on the same diet. It is not an antecedent of urea.¹¹ It is not a product of sub-oxidation.¹²

REMARKS ON THE TREATMENT OF DIABETES.

Read before the Section of Practice of Medicine, at the Forty-fourth Annual Meeting of the American Medical Association.

BY N. S. DAVIS, JR., A.M., M.D.

PROFESSOR OF PRINCIPLES AND PRACTICE OF MEDICINE AND OF CLINICAL MEDICINE, NORTHWESTERN UNIVERSITY MEDICAL SCHOOL.

It will be my aim in presenting the subject of the treatment of diabetes, to call attention to some facts which my own experience has impressed upon me and to one or two of the most recent suggestions that have been made in regard to it.

I believe that patients are often placed too quickly on a rigorous diabetic diet. A sudden, very great change in one's régime will invariably disturb the appetite and if only one or two articles of food are constantly eaten a disgust for these will be produced. Very considerable depression is frequently noticed after such changes. In two cases that came under my observation, though in the practice of others, the sudden restriction of them to a diet that was uncongential produced a disinclination for food, and growing out of this a diminished secretion of urine and apparently great mental depression and physical malaise which soon culminated in fatal diabetic coma. There may have been no causative relation between the restriction of the diet and the fatal result of the disease but as I watched the progress of the cases it seemed as though a degree of mental and physical depression was produced that intensified the disturbed nutritive changes which the disease

caused. Often patients to whom a diabetic diet is distasteful can be educated to take it and even enjoy it. To accomplish this it is best to first ascertain what the individual's habitual regimen is. It can be modified day by day by diminishing first the amount of the articles that must finally be dropped and later omitting them altogether. In a majority of cases this is not a long process. By the end of the first week patients can usually be gotten onto a sufficiently restricted diet.

Moreover, it is frequently not necessary for patients to limit themselves to a strictly diabetic diet. How much of farinaceous food can be safely permitted to any one individual can only be learned by experiment. If the taking of a potato each day for dinner does not increase or its omission diminish the amount of sugar excreted daily by the kidneys it can, I think, be taken with safety. The diet which I prescribe is similar to that usually recommended. I generally permit the use of a little bread except in the severest cases and I prefer that patients should use ordinary wheat bread rather than gluten bread, for a feeling of false safety is usually engendered by its use and it is eaten too freely. I am inclined to believe the statement made by many good chemists that all the gluten flours on the market are very impure and contain a large percentage of starch. In a half dozen samples of such flour that I have tested starch was present in large amounts. Macaroni is forbidden in some diet lists and permitted in others. Practically, I find it can be taken without detriment by most diabetics.

Of drugs that have been recommended and somewhat widely used the last two or three years antipyrin has been in my hands the least useful. Germain See claimed for it a strong controlling influence over the production and excretion of sugar. In his hands it seemed to be of marked benefit. He recommended it especially when patients were weary of their diet, as by its use it was possible to return for a short time with safety to a mixed diet. I have had an opportunity repeatedly to try it in cases of moderate severity, cases that are amenable to treatment but relapse often. In these cases I have observed no uniformly good results from the employment of the drug. In most instances the glycosuria did not seem to be modified at all by it. In a few cases it seemed decidedly beneficial. Whenever I attempted to rely upon the administration of antipyrin and to discontinue the regulation of diet an increase of sugar in the urine took place. I was greatly disappointed in these results for I rely upon no one's therapeutic judgment more than upon Germain See's.

No drug has seemed to me so uniformly to give good results as Clemen's solution of arsenic and bromin. In 1885 I published a series of cases that were treated with this drug with good results. I might now extend this list very much for I have tested it thoroughly in nearly two hundred cases. In the brief time allotted to the discussion of subjects it will, however, be better to state conclusions and the basis for them rather than to enumerate cases. I have had under observation four diabetics who would not adhere to even a tolerably restricted diet. The administration of Clemen's solution was uniformly followed by good results. In other cases, and they have been more numerous, a strict régime reduced the excretion of sugar to a certain point, but further improvement could not be obtained even by

several weeks of perseverance. In such cases I have seen the sugar greatly diminished and in almost every instance disappear entirely from the urine under the influence of Clemén's solution. These cases seem to demonstrate the good effect of the drug. Its mode of action can not be explained.

Indeed, our lack of knowledge of the cause and exact pathology of diabetes makes all treatment empirical. It has been shown that arsenic lessens the glyco-genic activity of the liver and it has been supposed to energize oxygenation of the blood and therefore of the tissues. Theoretical explanations of its good effects in diabetes have been based upon both of these modes of action. There is however no experimental evidence that Clemén's solution acts even in these ways. By it, not only is the quantity of sugar in the urine diminished but usually the amount of urine and urea excreted is also lessened. In a few cases of great chronicity in which there are undoubtedly anatomical changes in the kidneys such as glomerular dilatation or arterial sclerosis of the renal arteries, there will be an excessive diuresis in spite of the administration of Clemén's solution.

The following case will illustrate well the therapeutic action of the drug in a case of moderate severity and great chronicity, that was not at all perfectly relieved by treatment of other kinds or persistent dieting: A physician suffered from diabetes for seven years. During that time his urine was never free from sugar. In health his weight was 230 pounds. When he began the use of Clemén's solution he weighed 177 pounds. He was unable to walk more than two or three squares without much fatigue. At this time there was evidence of incipient pulmonary tuberculosis. January 21st, he began the use of Clemén's solution; he made that day 87 ounces of urine in the twenty-four hours of a sp. gr. of 1038, which contained 50 grains of sugar to the ounce. Therefore 4350 grains were excreted during the day. February 12th, 66 ounces were passed containing 23 grains of sugar to the ounce and having a sp. gr. of 1030. February 23d, 36 ounces with a sp. gr. of 1029 were passed containing 15 grains of sugar to the ounce. April 5th, 45 ounces of urine were made in the twenty-four hours of a sp. gr. of 1020, containing only 3 grains of sugar to the ounce. April 26th, there was not a trace of sugar in the urine. He had gained eight or ten pounds in weight. He was able to do difficult operations without especial fatigue and to attend to his practice easily. Up to this time, whenever he attempted important operations or was much worried over cases of severe illness the quantity of urine was increased and usually the amount of sugar excreted was also. No such effect was now observable. To quote his own words: "I have been a sugar factory for seven years, and now for the first time am not making any. Yet I was under treatment continually and always observed a strict diabetic diet. Lately my diet has been more promiscuous." These words were written April 29.

In the following June he suffered from a severe attack of pneumonia which left his lungs permanently crippled. In July of the following year he died of phthisis pulmonalis. There was no return of sugar in his urine after the date of the above quotation. He continued the use of Clemén's solution for two months or a little more after the glycosuria ceased.

A similar experience I have had repeatedly so that

I can not but feel that the drug has some specific action upon the disease. The dose should be gradually increased to the point of toleration provided all the effect that is desired is not obtained before that point is reached, which is very frequently the case. It is best to begin with three minim doses. Five minims is well borne but in several cases when treatment was begun with this dose and the patient placed within a few days upon a diabetic diet the urine diminished rapidly in amount and the quantity of sugar excreted also rapidly lessened, but a feeling of depression, weakness and general discomfort was very marked until toleration to treatment was obtained. I have not, however, noticed the same discomfort when treatment was begun more cautiously and we were contented with apparently slower improvement. The dose of the drug can be increased to ten or fifteen minims repeated three times daily. It is rarely necessary to give more than eight drops at a time. Occasionally unpleasant side effects are observable from doses of six or eight minims. These have been in two cases slight oedema of the eyelids and in one instance also very slight oedema about the ankles. In one case, whenever the drug was administered steadily in eight drop doses for several days a mild conjunctivitis was produced. In another instance a pharyngitis was uniformly provoked by ten minim doses if long continued. Three times I have observed nausea caused by it, but this ceased so soon as the drug was administered in a larger amount of water. A tolerance to the drug is very slowly acquired, which will make it necessary occasionally in some relapsing cases to use larger doses than had been required in previous attacks to produce desired effects. For instance, one gentleman who has been under my observation continuously for seven years has almost annually a mild relapse which is usually relieved quickly by treatment. He is careful at all times about his diet but does not find it necessary to maintain at all times a strictly diabetic one. During the last winter sugar reappeared in his urine. Its amount quickly lessened under careful regulation of diet but for four months it could not be made to disappear. He took Clemén's solution in eight minim doses which in all previous attacks had been sufficient. It did not seem judicious to increase this dose for several times disagreeable pharyngitis had been produced when slightly larger amounts were given. So soon, however, as the dose was increased and pushed up to twelve minims the glycosuria disappeared. A slight but not troublesome pharyngitis was provoked by it.

Codia and morphia are certainly useful in lessening the glycosuria and mitigating other symptoms of the disease. They can be administered interchangeably, each in its appropriate dose. The best effects are obtained from large doses given persistently for a long time. Since I have found Clemén's solution so useful I have rarely used the opiates in diabetes because they derange appetite and digestion, and when used long will sometimes cause the symptoms of chronic morphineism. In the severest cases I occasionally use them as adjuvants.

During the last year I have employed in three cases the arseniate of strychnia. The cases were not severe and in each case the glycosuria disappeared. They were all placed upon a diabetic diet. It is difficult therefore to say how much of the good effect of treatment was due to the diet and medicine.

One case was of unusual interest because of gangrene of one finger which complicated it. In July of 1892, the patient came to me with the history of a rapid loss of flesh, frequent vomiting and purging, copious urination, much thirst but no appetite. I could not obtain a sample of urine at this time and did not see him again for ten days. He was then feverish, with a quick full pulse and mentally dull. He had made very little urine for several days although there was a strong urinous odor about his person. His bladder was empty and no urinalysis could be made. He left the city at once and was not seen again by me until September. The last joint of the ring finger of the right hand was gangrenous. It was dry, hard, black and without sensibility. The rest of the finger was much swollen and very painful. He had recovered entirely from the attack of stomach and bowel trouble from which he suffered in the summer but he had not regained his flesh perfectly. His appetite was fair, not excessive and he suffered from no noticeable thirst. He urinated often, three or four times at night. On the 7th of September he made four quarts of urine. Its sp. gr. was 1030. It contained eight grains of sugar to the ounce. His diet was gradually restricted and he began the use of the arseniate of strychnia in doses of $\frac{1}{16}$ of a grain. In ten days the quantity of urine voided was diminished one-half and it contained only one and one-third grains of sugar to the ounce. On the 24th he made three pints of urine which contained no sugar. There was no longer pain or swelling in the finger though the necrosed end was still firmly adherent. Sugar reappeared in the urine about the middle of October. During the two weeks preceding its reappearance being so much improved in general health and having no glycosuria he was permitted to partake sparingly of potatoes. On the 20th, four quarts of urine was secreted of a sp. gr. 1030, containing three and one-fifth grains of sugar to the ounce. There was some glycosuria for the next two weeks. The 4th of November there was none, the necrosed tissue had sloughed off and he was feeling well. During the next six weeks there was no return of diabetic symptoms. The arseniate of strychnia did not in this or the other cases in which I have used it exhibit a decidedly controlling influence over the diabetic condition as the Clemen's solution has done in other instances.

In 1891 I began to use pancreatic preparations tentatively. The somewhat frequent involvement of the pancreas in gross lesions in diabetes suggested that possibly a fault of digestion might be at least partly the cause of the glycosuria. As pancreatic diabetes is not very common and as we do not possess evidence that a lesion of this organ is certainly the cause of the disease I had little hope of success in the trials. I used at first Fairchild's essence of pancreatin as an adjuvant in the administration of Clemen's solution. I tried it in twenty cases without noticeable effect. Such a trial is not a fair one as it is impossible to judge whether any good was accomplished by the adjuvant or whether all the results obtained came from the arsenical preparation. During the last year such good results have been obtained from the administration of thyroid extract and gland substance in myxedema that I was stimulated to give the pancreatic preparations a better trial. I was still more incited to do

this by the growing notion that the pancreas is not only an organ secreting a juice for use in the intestine, but one forming some substance which absorbed into the blood is essential to the maintenance of good nutrition. I give the essence of pancreatin in two cases without restricting the diet or using other drugs. In neither of these cases was there any improvement during the ten days of trial. There was some daily fluctuation in the percentage of sugar in the urine, its specific gravity and quantity. The general symptoms such as appetite, thirst and weakness were apparently uninfluenced. After the ten days of trial the patient's diet was gradually restricted and the pancreatin treatment was continued. The glycosuria lessened in one case steadily until the sugar disappeared; in the other a point was soon reached beyond which improvement did not take place until Clemen's solution was employed under which the glycosuria disappeared for weeks at a time, though it still returns occasionally. I have since tried powdered pancreatin in three cases but without appreciable results. In the *British Medical Journal* for January 14th, 1893, there were two articles, one by Neville Wood, the other by H. W. G. Mackenzie which gave the results of their trials of liquor pancreatens in similar cases. In the two cases to which Dr. Mackenzie gave the drug, the feeling of well being was greatly increased, the lassitude and weakness was greatly lessened, the quantity of urine voided and the thirst were moderately diminished, but the specific gravity and the relative quantity of sugar in the urine was unchanged. Both of these patients were put upon a diabetic diet. The first of Dr. Wood's patients was advised to restrict the diet but carried out the directions very imperfectly. His general condition improved greatly, his weight increased and thirst diminished. The quantity of urine lessened one-half and excretion of sugar one-third. The second case was not dieted. Her general condition improved. She gained weight, but the thirst and the amount of sugar excreted increased while the quantity of urine voided remained about the same. This patient finally died of diabetic coma.

In more recent numbers of the same journal there are reports of a few more cases treated with pancreas or its extracts. A detailed analysis of symptoms of two cases is given by W. Hale White. His patients were dieted and simultaneously fed raw pancreas, or fluid pressed from it was administered hypodermatically. A marked diminution in the quantity of sugar excreted occurred in one case and no change in this regard was observed in the other. In neither case was there any diminution in the quantity of urine excreted or urea eliminated or in its specific gravity. Under treatment with pancreas the patients felt better and gained a few pounds in flesh. One patient was much troubled with an erythema and transitory fever while he took the raw pancreas. W. K. Sibbey described a patient who improved in strength and feeling of well being while using preparations of pancreas, but the amount of urine voided, its physical characteristics and the amount of sugar it contained was unchanged. A. L. Marshall reported a case that improved upon codia. When liquor pancreatens was administered the feeling of improvement was maintained, although the amount of urine excreted and the amount of sugar it contained and its specific gravity increased.

From these few trials and reported cases we must conclude that pancreatic preparations have no decided value in the treatment of diabetes.

65 Randolph St., Chicago.

HEADACHE.

Read in the Section on Practice of Medicine at the Forty-fourth Annual Meeting of the American Medical Association.

BY JAMES W. PUTNAM, M.D.

RUFFALO, N. Y.

Headache is a symptom arising from such a variety of constitutional and local conditions, that to treat it properly it is necessary to arrive at a just estimate of the patient's standard of health. For no other symptom is it more important to carefully examine the patient as to heredity and constitutional taint. As to heredity, the inheritance may be direct, or it may be that the neuropathic parents, who may have been epileptic, or insane, or alcoholic, have transmitted to their offspring an instability of the nervous system which, instead of being of the same variety as that of the parent, has manifested itself as headache arising on various pretexts, as fatigue, worry, eye strain, etc.

Having determined the fact of inheritance in a given case, the examination of the patient requires a correct estimate of the constitutional conditions which may be present, whether the patient has been afflicted with syphilis, malaria, rheumatism, its allied condition, lithemia, or arterial disease.

A most careful inquiry should be made as to the digestion and the condition of the alimentary tract, as in the disorders of stomach and bowels we find a most common source of headache. Indigestion in its various forms and constipation are responsible for a large portion of the headaches of to-day.

An examination of the urine may reveal a diminution of excretion of urea, which often is responsible for headache. The presence of uric acid crystals, of albumen, of sugar, all indicate a line of treatment which must be followed if we would relieve the distressing symptom.

After we have determined the presence or absence of these conditions, we are prepared to study the headache itself, when our inquiry should be directed to the history of this particular symptom, the original attack—under what circumstances did it develop? Often we get valuable information on this point. The first headache may have come on when working in the sun on a hot summer's day. It may have developed after prolonged work at books, in which both brain and eyes are overtaxed. It may have followed a fall. In all cases the history of the first headache is of great value, and often suggestive of a line of treatment.

Having a history of the origin of the headache and its duration, the study of its character naturally follows. It may be continuous or intermittent. If the latter, it may occur at stated regular intervals and last a definite length of time, or it may occur at irregular intervals, each attack seemingly following a directly exciting cause, which in some cases may be an over indulgence in eating or drinking; insufficient sleep; anxiety; prolonged mental strain; or prolonged use of the eyes, which may or may not be normal.

Having established its type as to periodicity, the study of the pain and its location must be learned.

As to location, it may be diffuse over the entire head, and may appear to the patient to be superficial, but it is more usually described as being deeply seated. It may be localized as frontal, vertical, occipital, or one sided.

Frontal headache we sometimes find due to a gastric cause; to anemia; to fever, and often to prolonged mental work.

Vertical pain is often due to gastric disturbance, as is also occipital.

When, however, we find headaches which are not due to altered blood states, nor to any of the causes to which I have alluded, there is still the great cause of ocular defects. This cause may be operative alone or in connection with some other, but wherever found, whatever it may be, I believe that it should be corrected. Whether the error is one of refraction or of lack of muscular balance it, in my opinion, is a cause which must be removed.

Having now thoroughly examined the headache case, how may we classify it, for upon the proper classification depends the treatment adopted.

Headaches may be either anemic or congestive, toxic, neuralgic, organic, neurasthenic or reflex.

The anemic headache is commonly found among people convalescent from disease of exhausting character; in large numbers of the poorly fed, hard worked young women in offices, shops and schools, and in the young society women of the day. It is usually of the diffuse variety, but it is often more severe in the frontal region and back of the eyes. In cases of chlorosis the pain is sometimes very intense. It is not constant, but attacks are easily brought on by exertion or prolonged reading. This latter cause probably operates by reason of the weakened condition of the muscles of the eye, which share in the general poor nutrition of the body. The diagnosis of this type is rendered easy by the accompanying symptoms, which exist in varying degree, of faintness, vertigo, palpitation, breathlessness, dizziness on rising suddenly, and improvement of the headache by lowering the head and elevating the feet.

The treatment of the anemic condition need not be described here. The treatment of the attack is often successful by giving a diffusible stimulant, as spirits ammonia arom., one drachm, to be repeated if necessary in one-half hour. Sulphate of quinia in five or ten grain dose often is effectual in arresting the pain or at least in moderating it.

The congestive headache affects the whole head. It occurs often in school children. It is rarely due to overwork—more often to gastric and intestinal causes. The pain is throbbing, increased after meals, and is usually worse in the latter part of the day. Sleep is often tardy, and when it does come it is often disturbed by bad dreams. The patients are as a rule all children of neuropathic ancestry, and are liable to suffer from other diseases, as epilepsy and chorea. As a rule they are dull at school, or else bright in some things, dull in others, irritable on the play ground and changeable in their moods. Such patients, it should be remembered, are always in danger. It is possible that these headaches, in a limited number of cases, may be forerunners of more serious mischief—tubercular meningitis. These children should be taken out of school and the entire attention be given to making good active physical beings, not intellectual prodigies of them. They

should be given a system which they are to carry out most religiously. This should include mild gymnastics, cold sponging, salt water rubbing, outdoor plays, but particular care must be taken that the child does not become exhausted, and to that end I make it a rule to order that the child come in at four o'clock and rest an hour. In many cases we find such cases are best treated by the mixed bromides, five to ten grains, *t. i. d.*, for a few days only.

Regulation of the diet, which should include avoidance of sweets, prevention of over eating, the giving of fruits, and attention to the bowels, should complete a cure.

In adults, congestive headaches more frequently occur in men and are often due to frequent wining and dining. The head pain is described as being a feeling of fullness, a throbbing, beating head. The treatment by blue pill and salts, with dietary restrictions, is effectual in curtailing the duration of the attack. A full dose of bromide of potash, or of one of the effervescent salts of caffeine or antipyrin often relieves the pain. The English gentleman prescribes for himself on such occasions the juice of half a lemon in a glass of apollinaris water.

There is also the congestive headache due to prolonged brain work. It is perhaps needless for me to remind you that when an organ is functioning it requires more blood than when at rest, and that after prolonged mental work there sometimes is a passive cerebral congestion. This is seen in lecturers, ministers, jury lawyers, and students cramming for examinations. It is usually accompanied with restlessness, general fatigue and insomnia. The patients complain of a feeling of pressure on top of the head. There is also dizziness, ringing in the ears, and photophobia. If these attacks are frequent there gradually develops a capillary dilation, due to the frequent active hyperemia, and then a chronic congestion may occur, and we then have a chronic headache most difficult to cure. These headaches are made worse by the workers taking stimulants as a spur to the flagging energy.

My treatment of these cases is, cessation of work where possible; first thing in the morning before rising, a cup of black coffee; a spinal douche, 40 degrees, at ten or eleven o'clock.

R. Tinct. nucis vom 1 oz.
Elix. gent., 2 oz.
Acid. phos. dil., 1 oz.
Elix. pepsin, 2 oz.

Sig: A teaspoonful in water three times a day.

If the heart is flagging, give a little digitalis. At night I have them take a sponge bath with cold salt water before retiring, well rubbed, in order to stimulate the peripheral circulation, and deplete if possible the engorged cerebral circulation. If, after being in bed one hour they do not sleep, I give

Ergot, m. xxv.
Pot. brom. gr., xxv to lx.

In the congestive headache of old people I have had some good results from continued small doses of ergot. In some chronic cases which have yielded to no other treatment, potassium iodid in 15 to 20 grains a day relieves the severity of the pain.

In the headache occurring at the menstrual period in which the pain is frontal, extending from the root of the nose over the eyes to the temples, Dr. Glasgow of St Louis, reports that in a number of cases he has given immediate relief by pricking the congested

cavernous bodies, and thus causing free local blood letting. This I have never tried, as it requires some manual dexterity which I do not possess.

The syphilitic headache is marked by great violence. The pain is usually vertical and may be diffuse or localized. Its characteristic accompaniment of scalp tenderness and nocturnal increase of pain make the diagnosis sure enough to warrant questioning the patient as to his personal history, and to treat him antisyphilitically, even though we meet with a denial of specific disease.

I have not found as prompt results with small doses of mercury in these cases as I have with doses of potass. iodid of from 15 to 20 grains three times a day. This may be due to the fact that the majority of my cases have had the headache as a late symptom.

The headache due to cerebral growth, the toxic headache, arising from the use of drugs, the headache occurring in the course of acute febrile diseases, of which typhoid fever and la grippe are examples, the headaches which occur in rheumatic, gouty and lithemic subjects form a group, the treatment of which is a part of the treatment of the disease of which it is a symptom, and will not therefore receive special consideration here.

The headache due to reflex causes, chief of which is some eye defect, are to the general practitioner of the most baffling character. This is so because, even though the patient is asked if there is any trouble noticed in using the eyes, we often are answered: "No, my eyes are perfectly strong. I can see perfectly." An examination with the test type, which is the only way we who are not oculists have of examining the eyes, often reveals what we estimate as normal, or near enough to normal vision, and then we dismiss the eye question from the case. Or perhaps the patient may be wearing glasses, and will mention the name of some well known oculist who fitted the glasses, and pronounced them correct. The general practitioner must indeed be bold who will persist in clinging to the idea that there is still an unsolved ocular problem. But my experience with rather a large number of patients of this class has forced me to the conclusion that oculists may differ in their mathematical calculations as surely as we will differ in our prescriptions for disease. It is not uncommon to have a patient examined by two different competent men, and receive different glasses from them. This, I believe, is not always because the measurements taken differ, but because oculists differ as to the advisability of giving full correction or only a partial correction. What may be the correct view to be taken in case of fitting glasses for correcting defective vision unaccompanied by nervous symptoms, it is not within my province to say, but in those cases in which the defective eyes are accompanied by headache, I am convinced that in the very large proportion of chronic cases the error must be fully corrected, and corrected after the use of a miotic before we can eliminate the eyes from the case.

In reference to the cases in whom we find loss of muscular balance, we must wait for the decision of the oculist as to the relative value of tenotomies and prisms.

In the cases due to ocular defects which have existed for a long time, the patients will as a rule require treatment for a considerable time after the proper correction has been made.

After a careful study of all headache cases, there still remains a considerable number in whom we can find no ascertainable cause, and where we meet with but little success in treatment. It is these cases that give the general impression that headaches cannot be cured but must be endured. It is also in these cases that we must avoid recourse to the hypodermic or other use of morphia, for they become habits only too easily.

Leaving out those cases in whom we can find no definite cause, I believe that by careful study of individual cases a large majority can be greatly improved, if not cured.

388 Franklin St., Buffalo, N. Y.

DR. J. T. WHITTAKER, Cincinnati, O.—We all of us come to a time when we suffer from eye strain; when we reach 45 we all have to use glasses, as a rule. In only the minority of us who suffer from headaches it has seemed to me the fatigued condition of eye strain and headaches which it has excited is always corrected by glasses. It is the experience of the majority that glasses do not correct the headache. Besides the infective diseases the headaches in adult life, especially male adult life, should suggest to us first, Bright's disease; a persistent headache is nearly always accompanied by increase of urine, and we are often led aside because we fail to find albumen in the urine. We should take the specific gravity and observe in this it is very light; then when we have the urine measured we find it has increased. So far as syphilis is concerned, there are very few cases attended with headaches. There is a disease associated with syphilis accompanied by exaggerated headache, and I have risen to see if my experience coincides with my colleagues. Gonorrhoea is attended with headache, especially that kind which attacks the posterior urethra, which is very frequently entirely independent of any scars; where the gonococcus produces restlessness, insomnia, jactitation, and above all an exaggerated headache. These cases are by no means uncommon; they often pass without diagnosis, especially where the history is denied, but on microscopical examination you can discover the so-called gonorrhoeal threads that are passed in the first urine in the morning. These cases are not relieved by any ordinary treatment of gonorrhoea, or any ordinary injections. They require topical treatment by the catheter which reaches the prostate gland with the nitrate of silver. First a 2 per cent. solution, and increased gradually to 10 per cent. That relieves the jactitation and restlessness of the nerves, restores the vitality and relieves the exaggerated headache.

DR. JAS. W. PUTNAM, Buffalo, N. Y.—I have only one word to say. I am glad the doctor who has just discussed this paper agrees with me that after you have fitted the glasses properly to the eyes we find then the case is not cured; the treatment must go on afterwards. The treatment of headache following gonorrhoea is new to me; I have never met with it.

AN ADDITIONAL NOTE ON THE USE OF STROPHANTHUS IN THE TREATMENT OF EXOPHTHALMIC GOITRE.

Read before the Section of Practice of Medicine, at the Forty-fourth Annual Meeting of the American Medical Association.

BY E. D. FERGUSON, M.D.
TROY, N. Y.

At the meeting of the New York State Medical Association on October 23, 1890, I gave my experience with the use of strophanthus in eight cases of Graves' disease. The paper was printed in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION in Vol. xv, No. 21, 1890, page 785.

Previous to writing that paper only two or three references to the use of strophanthus in that disease had been seen by the writer in current medical literature, and since that time the year books and journal articles recommend other therapeutical measures as a rule—rarely referring to this recent addition to our materia medica. While my own use of the drug in this particular disease antedated by more than a year any reference to it in the medical literature, still it had been recommended before the publication of my cases, so that I have no claim to originality or even priority to maintain, and only write this brief note to call attention again to its usefulness.

Since the instances of the disease noted in the paper referred to, I have not kept a detailed record of the cases coming under my observation, but I have probably had fifteen or twenty additional cases in which strophanthus has been used. In all of these an improvement has resulted, though the degree of amelioration of the symptoms has varied. In one, a young woman 22 years of age, who had exophthalmos in what might be termed a hideous degree, and was incapacitated for even moderate exercise by the tachycardia, the pulse rate being even at rest from 160 to 180, I was unable to reduce the pulse below 110 or 120; but though in appearance she is not notably improved by the treatment, she is quite gratified with the results, for she is able to attend to household duties and travel for pleasure, even enduring without inconvenience several days of shopping in an occasional visit to New York city.

So far as I have been able to follow the cases related in my first paper, the improvement has continued. There was no instance of a relapse, though some have been obliged to continue the use of the drug the greater portion of the time. The first case related in my former paper, that of a woman now over 60 years of age, and who was an extreme sufferer from the disease, has been able to keep herself in a condition for active exercise by the nearly continuous use of strophanthus.

The fact that the tachycardia is often the earliest manifestation of the disease has enabled me in two instances to suspect the approaching development of the exophthalmos and the goitre, and so bring the patient under the influence of the drug before notable deformity had occurred in relation to the eyes and the neck, though there was sufficient change to justify the diagnosis before the tachycardia was relieved.

It is not my wish or intention to urge strophanthus as a specific in Basedow's disease, for while my own experience has uniformly given favorable results, it is manifest that this complex of symptoms may be associated with irremediable changes in the nerve centers, or there may be conditions more favorably influenced by other drugs or measures. Many cases benefited by strophanthus may need additional therapeutical agents, and in several I have felt the necessity for the administration of iron, arsenic and strychnin. It has seemed to me that belladonna would prove of value in some cases, and next to strophanthus I should regard it as our most valuable agent. It has not been my fortune to observe favorable results from electricity, but the fact that some of the cases are mild and tend to a favorable termination should be taken into consideration in forming our conclusions. I am satisfied that this favorable course in some cases has been

the result of the natural tendencies of the disease, rather than any effect of therapeutical measures. In my early use of strophanthus I endeavored to protect my conclusions from error in that direction by limiting its use, not only to undoubted cases of the disease, but it so happened that the early trials were made in severe cases.

If the individual case is favorably influenced it will then be wise to inform the patient of the probable necessity for a prolonged use of the agent, for though a few months often seem sufficient in some cases, others may require its use for an indefinite number of years.

The question of dosage is one of considerable importance, for it varies greatly in individual cases. When strophanthus was first introduced by Frazier its dose was given at from four to seven drops of the tincture, but it was soon manifest that either the individual specimens of the drug differed greatly in potency, or personal susceptibility was an important factor. It is true that from five to ten drops will occasionally give notable results, but my own experience has shown that much larger doses are often required. My present plan is to have the patient secure a sufficient quantity of the tincture to obviate the necessity for frequent changes of the preparation, and then to begin with eight to ten drops at each of the three daily meals, using always the same dropper. After a week, if no benefit results, this dose is increased by one or two drops, and in this way continued and increased until its beneficial results are obtained or until there is evidence of injurious effects, though so far I have not been obliged to cease from its use on account of toxic symptoms. Injurious or unpleasant effects will furnish indications relative to its continuance or the dosage.

In this way I have increased the dosage to fifty drops three times daily—an amount found by actual measurements to be about thirty-five minims—before relief was experienced, and this large dosage has been continued for several months, not only without unpleasant effects, but with great relief.

It seems the part of wisdom to have the patient purchase the drug in considerable quantity at each time, thus obviating the necessity for frequent changes in preparations, and when taking large doses it may be well to take somewhat less than the maximum dose when a new specimen is procured, for it is a clinical fact that the activity of the preparations is not uniform.

DR. HORACE A. HARE, Philadelphia, Pa.—The observation of so many cases of what I consider, from a fairly large experience in hospital practice to be a rather rare disease, enables Dr. Ferguson to make much more authoritative statements than most of us can make in this affection. I do not know the percentage of this disease because I have not had the opportunity of studying the subject recently, but I am sure even fifteen cases within a short time is a rich experience in this trouble. I have one hundred and forty beds under my care six months in the year in a large hospital and see from 300 to 400 cases a day in dispensary work, and during the last four or five years I have never seen more than two cases of true Graves' disease. I have seen a number of cases of that condition known as paroxysmal tachycardia, and when I make the distinction between true Graves' disease and tachycardia I mean that all the typical and physical signs of Graves' disease have not appeared more than a few times in this large

number of cases. I have used strophanthus I think as faithfully as possible to use it, and have never seen it do any good whatever. I have a case under me who has taken strophanthus in all sorts of conditions until it has come to be the talk in the patient's family, how many changes is that doctor going to make? I have used a combination of remedies, such as belladonna with a little digitalis and sometimes a little nitroglycerin added to the prescription. Dr. Ferguson has not mentioned a symptom which I hardly believe he could have failed to meet with from these large doses of strophanthus; that is, a troublesome diarrhoea which usually comes on at the end of the third or fourth day when you are giving moderately large doses of this drug. I have a case in mind in which the administration of five drops of strophanthus produced so much valve trouble at the end of a few days that the drug had to be stopped although it was doing good in the cardiac disease which was not benefited by digitalis.

DR. W. E. QUISE, Chicago—There are few diseases, that tax the therapeutic resources of the medical practitioner more than the one under discussion, and I imagine also that there are few medical practitioners of experience in the management of this disease who have not had occasion to resort to the employment of strophanthus. I have used this medicine in a goodly number of cases in varying doses and states of combinations, and with varying results. Examples of Graves' disease have been under my observation and care in which strophanthus proved to be a sovereign remedy and in which improvement in the condition of the patient began with the administration of that agent and continued until established amelioration, a little less than absolute cure in the majority of instances and in some instances advanced to the point of absolute cure. I have never administered strophanthus with as free a hand as has been done by the essayist. I have noticed, as others must have noticed, the symptom already referred to as resulting from the excessive freedom of use of this agent, namely, relaxation of the bowels. I have also been annoyed in a goodly number of instances by the irritability of the stomach and its intolerance of this agent as other agents of the same general class. It has been uncommon for me to encounter cases of exophthalmic goitre in which it was possible to administer strophanthus as freely as has been described by the essayist. Some reference has been made by one of the gentlemen in the discussion to the comparative infrequency of pure Graves' disease in his own experience and the relative frequency of tachycardia. I have long since reached the conclusion that the derangement of the heart which goes familiarly by the name of tachycardia is in the majority of instances but cases of immature or imperfectly developed Graves' disease. Tachycardia may be and often is the primary symptom; it may exist for months or years before the enlargement of the thyroid, or any of the nervous phenomena have had time to develop; it may be the only symptom to attract attention for a considerable period of time. Belladonna has been in my hands a capricious and uncertain remedy; it has been useful in a small number of instances but I have derived quite as much satisfaction from the administration of medicines of the general sedative class whose ordinary effect is that of lessening reflex instability, such as gelsemium and canabum indicum.

DR. J. M. ANDERS, Philadelphia—My experience coincides with that of Dr. Hare, so far as the use of strophanthus is concerned in typical cases. In those cases the best results are obtained in the use of digitalis and other remedies that are certain to show the action of the heart. There is, however, one class of cases in which the combination of strophanthus and digitalis has had most admirable results, that is in arhythmia. There can no longer be any question that

strophanthus regulates the contractions of the heart better and overcomes arrhythmia better than digitalis alone, no matter how large the dose of digitalis that may be employed. Strophanthus alone will not do this to the same extent as when combined with digitalis; it has long been my practice to combine strophanthus and digitalis when there is marked arrhythmia.

DR. E. D. FERGUSON, Troy, N. Y., in closing the discussion, said: My paper did not intend to exhaust the treatment of exophthalmic goitre; it simply referred to the use of one drug, and I indicated that it was not a specific, although proved to be useful. So far as a genuine cure of exophthalmic goitre is concerned, relief of the symptoms relating to the pulse and to the anatomical condition of the neck and the eyes, I have never seen a cure, and so far as our present therapeutical resources are concerned I don't expect to see a cure, but patients have been improved and comparatively relieved of the dyspnoea, particularly upon exercise.

In regard to the preparations of strophanthus, in my article I called attention to a considerable difference in the preparations—that there seemed to be some material in it of an intensely bitter taste, in some instances of a balsamic nature when separated by putting the alcohol solution into water that was quite disagreeable, would disturb the stomach and also the bowels. I have seen the effect upon the bowels and heart which has been referred to, but by changing the preparation have been able to right them.

In regard to the frequency with which we see these things, it is a fact that diseases often hunt in couples, in triplets and in platoons. In my first paper I related a case where I was called to a patient and when I gave my diagnosis the doctor was frank enough to say he did not know what it was, had never heard of it and never seen it before. In a few weeks he brought another case to me, the second he had met after practicing thirty or forty years. I had seen the disease occasionally up to the time of that paper and since then I have seen it more frequently, possibly because some of my professional brethren have brought the cases to me. Whether the locality has anything to do with the development of this trouble, as it has with simple goitre, is a question. I agree with the gentleman that in many cases of tachycardia it is masked, similar probably to what would amount to a genuine case of exophthalmic goitre if allowed to go on.

In regard to the use of strophanthus and digitalis, I do not regard strophanthus as a specific, but if it is of use it would seem to me that digitalis cannot be of use. I am aware that we cannot place too much confidence in the varying effect of drugs, but if the tincture of strophanthus lessens the heart's action and digitalis while lessening the action of the heart increases the tension we have two different effects.

All my cases were fully developed exophthalmic goitre; there was not only the tachycardia but the enlarged thyroid body and protrusion of the eyeballs, the dyspnoea on exercise and the general nervous symptoms that go with this trouble.

Bad Water for Soldiers.—About a hundred members of the Second Regiment, New Jersey militia, encamped at Sea Girt, were recently taken ill with vomiting and purging soon after their arrival in camp. In nine cases the attack was so severe that a fatal result was feared, but all fortunately recovered. The cause of the illness for a time was shrouded in mystery, but an examination by the State chemist of the water taken by the soldiers proved it to be contaminated with surface drainage; the driven wells from which they drank being only fourteen feet deep.

DIPHTHERIA.

Read before the Section on Practice of Medicine at the Forty-seventh Annual Meeting of the American Medical Association.

BY J. B. MURFREE, A. M., MD.
MURFREESBORO, TENN.

Diphtheria is an acute infectious disease, highly contagious and dependent upon a specific virus for its inception and propagation. Usually beginning by an involvement of the throat, characterized by exudations locally, and enlargement of the lymphatic glands, soon to be followed by a general systemic poisoning, attended with various paralyses as sequelae.

At first seemingly a local disease, caused by an inoculation it soon becomes general and assumes a constitutional form of a most virulent character, constituting one of the most dreaded diseases of childhood, from the frequency of its prevalence, as well as the great fatality that attends it. While it does affect the general system finally, yet primarily it is locally characterized by affecting especially the mucous surfaces of the throat though not necessarily confined to these parts, as it may affect the mucous surfaces elsewhere, and even the skin.

Locally, its chief manifestation is the formation of a grayish white film or pellicle upon the mucous surfaces and upon the skin when deprived of its protecting epithelium. Usually the virus of the disease is conveyed through the inspiration of the infected air, but occasionally it is communicated by direct contact of the infecting material with a mucous surface.

The history of diphtheria is interesting as well as instructive, and shows that the marked features of a disease will identify it in spite of a difference in the names assigned to it. From the investigations made of its prevalence, the conclusion is that diphtheria is not a new disease but has prevailed with more or less fatality in the remote ages of the world. Certainly it is a disease of antiquity. The name diphtheria was first applied to the disease by Bretonneau of Tours, in 1824. He called it diphtheria from the supposed resemblance of the exudations to leather or parchment. Notwithstanding the fact that this name was applied at so recent a date yet from the descriptions given by ancient writers of a disease (and epidemics of that disease) affecting the throat and prevailing chiefly among children we conclude, from the similarity of the symptoms presented, the class of patients attacked and the fatality attending it, that it was identical with diphtheria of the present day, as we meet with it. An account is given of a malignant sore throat (and even of laryngotomy being performed to relieve suffocation) before the Christian era.

Again, in the early centuries of the Christian era we have some graphic descriptions of a putrid sore throat, the disease sometimes extending into the wind-pipe and producing death by suffocation.

From the close of the fifth century until the sixteenth the record of diphtheria is broken. It is probable that during the long period embraced in the dark ages, every decade witnessed epidemics of this fatal disease, but if they were observed and recorded the records were lost, the literature of diphtheria sharing the fate of the general literature during this time of intellectual darkness.

Since the sixteenth century medical literature has

contained many essays descriptive of epidemics of an angina whose features tallied well with diphtheria of the present day, so much so that we cannot doubt but that it is the same disease. At different periods and in different countries diphtheria has received different appellations expressive of the leading features of the disease. Introduced into America by adventurers from the old world, diphtheria has prevailed more or less to the present time, with increasing frequency and fatality and has become one of the scourges of our country, no infantile disease being looked upon with more dread than diphtheria. So far as we are informed the natives of America, "the red men of the forest," were not afflicted with any disease except such as were due to climates, seasons and their own indiscretions.

Epidemics of contagious diseases were unknown in this country until the white man put his foot upon the soil and planted the banner of civilization. Cortez and his men in their greedy thirst for gold introduced the small-pox into Mexico. Sailors under Columbus brought the diseases of vice and immorality into America. And in the sixteenth century diphtheria was landed, first manifesting itself at Boston and now "it is to be from appearance above all other maladies, the scourge of America in the future." As the line of civilization advances the physical man deteriorates and with the increase of population there is an increase of epidemics of contagious diseases. Bretonnean investigated the disease extensively in 1821 and with him originated the name of diphtheria. Since then quite a number of eminent medical men have studied and investigated the nature and character of diphtheria. Within the last fifty years diphtheria has prevailed extensively in all parts of America as an epidemic and in some localities as an endemic disease, so much so as to be pretty well domiciled.

It prevails in all sections of the country, in the crowded cities and in the sparsely settled country. Epidemics of the disease have swept over thinly inhabited parts of the country with fatal effects and likewise they have raged in crowded cities with frightful mortality. But it prevails more frequently and with a greater fatality in cities, especially the larger ones. In some of our larger cities the disease has become endemic. The etiology of diphtheria presents an interesting and much disputed question for our consideration. For a great many years past a close investigation of the disease has been carried on and quite a number of experiments have been made upon the lower animals with the endeavor to determine the precise cause of diphtheria.

Its specific cause has been denied by many and for awhile it was considered by some to be due to the same cause as that of scarlet fever. But more recently it has been conceded to be dependent upon a specific, infecting virus. Yet the profession were at a loss to know what this specific cause or virus was. Pathologists labored earnestly to discover the special cause of the disease, numerous observations were made and many experiments carried on.

In 1868 Oertel discovered micrococci in the pseudo membrane of diphtheria, in the blood and lymphatic vessels and kidneys in severe diphtheria, appearing as "point like, dark, contoured round or oval little bodies, isolated and in zooglia." In later investigations (in 1874) he found a larger or smaller number of the bacteria termed accompanying the micrococcus

and he expressed more firmly the belief that a bacillus lodging on the mucous surface caused the diphtheritic inflammation. But later observations tend to show that the micrococcus of Oertel does not differ from those found in putrescent animal matter. Later, Kleb discovered a microbe which he claimed to be the cause of diphtheria and his observation was afterwards confirmed by Loeffler. The theory which is generally acknowledged by the profession as correct is that diphtheria is caused by a microbe or microbes; that their action is chiefly on the surface and that the blood poisoning or toxemia which is the cause of the malignancy of the disease is the result of the absorption into the system of the products of the decomposition which takes place at the point of infection; that it is the result of the action of the ptomaines on the blood of the patient and that the ptomaines are the products of a micro-organism. The conclusion, then, is that diphtheria is a specific contagious disease and that the constitutional infection is the result of ptomaines produced by microorganisms. Diphtheria does not arise spontaneously, nor does it develop *de novo*, but is produced by a particular cause, a specific virus and that specific virus is a microbe.

The contagiousness of diphtheria is a well observed fact; it is communicated from one person to another as other contagious diseases are, and especially by direct contact. The nature of the disease is such that while it is no respecter of persons, but prevails among the wealthy and refined with as much virulence as among the poor and uncultured, yet the greater prevalence of the disease and the violence of the symptoms in unsanitary localities and conditions are such as to cause it to be classed with the filth diseases.

Whilst it does at times prevail with great fatality in sparsely peopled districts as well as in those that are densely inhabited, yet there is a marked increase in its progress in the groups of cities and towns of our country. Diphtheria is becoming more and more a disease affecting our large centers of population, and less prevalent throughout the country districts.

The disease is fostered and rendered more fatal in its attacks in locations where dampness exists, subject to cold wet winds and where the surface soil is such as favors the retention of moisture and where there is an accumulation of refuse organic matter. Seasons have a marked influence on the prevalence of diphtheria as well as upon its mortality. It is a disease of cold weather and prevails most usually in the fall and winter. The greatest number of epidemics prevail in the fall of the year; the greatest prevalence of the disease is from September to February.

Sex exercises but little influence on its prevalence; there is more excess of attacks in girls than in boys, perhaps because they are more frequently brought in contact with the sick. Age has a decided influence over the incidence of diphtheria. The greatest number of cases by far, both fatal and non-fatal, occur between the ages of three and twelve years. It is preëminently a disease of childhood, yet strange to say it very rarely occurs in a nursing babe.

The prevalence of diphtheria is associated with the prevalence of ill-defined sore throat during its existence from the commencement, during its continuance and after its cessation; and as a conse-

quence many deaths from diphtheria are not recognized but are attributed to croup, laryngitis, etc.

In some instances the prevalence of sore throats progressively develops the property of infectiousness which culminates in a definite, specific type of diphtheria. Diphtheria usually begins as a local disease showing itself first at the point of infection, *i. e.*, where the contagion has been received, whether through the atmosphere or other agents, and an unhealthy condition of the tonsils and surrounding tissues (to whatever cause due) operates strongly as a predisposing cause to an attack when diphtheria is prevalent. Assemblies, especially schools where children are aggregated together tend to increase the number of cases and favor the spread of the disease. Particularly is this true when preceded by a number of cases of sore throat. Diphtheria has been conveyed to distant places by clothing; being carried by means of the exudation. There is a number of instances of the disease being conveyed by means of milk, and in some instances there was strong evidence that the infection was due to the diseased condition of the cow. The direct cause of diphtheria is a microorganism, the bacillus, diphtheria, which has been cultivated and is capable by inoculation of conveying the disease to others and also to many of the inferior animals.

The period of incubation in diphtheria is rather short, more so than that of the majority of infectious diseases. It is usually from two to five days, sometimes longer, but rarely, if ever, longer than eight days. The symptoms manifested by diphtheria are characteristic of the disease and are generally well marked. However, in some instances they are so obscured that they are overlooked by the family and even by the medical attendant.

The disease varies greatly in severity: from a very mild attack to the most malignant form of the disease that perhaps we ever have to cope with. I have seen cases so mild that the little patient was scarcely sick enough to be confined to the house, and again I have seen cases so violent from the very outset of the disease that the system was soon overpowered by the poison and in a few days life was extinct. In general it is said by authors that at the commencement of an epidemic the symptoms are more severe than at its decline. In my observation the severity of the disease is the greatest at the height of the epidemic. The cases are milder at the beginning and at the decline of an epidemic and this holds good in all epidemics.

Usually the symptoms of a commencing diphtheria are slight. The patient complains (or shows signs) of languor, lassitude, headache, chilliness, succeeded by a fever, aching in the limbs, thirst, anorexia and sore throat, as evidenced by pain on swallowing. Small children cannot tell their complaints, but the mother notices they are not well; that they fret while nursing, and the expression of the child indicates that it does not feel well. In mild attacks the child may not be in bed and sometimes children with diphtheria run outdoors with other children and thus convey the disease to others. The sore throat may be so slight that very young children may manifest very little if any dysphagia and older ones may not complain.

It is a good plan to examine the throats of all the children under our charge when diphtheria is prevailing and at all times when ill-defined general

symptoms are presented. From a neglect of this precaution we sometimes overlook diphtheria until the case is far advanced. A few years ago I was called to see a little boy whose case the attending physician had diagnosed to be only simple croup. There was a difficulty of breathing with a beginning cyanosis. Upon exposing the throat the characteristic exudation was plainly seen upon the tonsils. The mother who stood behind me when she saw into his throat uttered a piercing scream, and ran from the room exclaiming, It is diphtheria. In less than twenty-four hours the child was a corpse.

In the initial stage of diphtheria the general symptoms so closely resemble those of a bad cold that the disease is liable to be mistaken for it unless there is had an inspection of the throat. In the beginning there is a redness of the soft palate and fauces with swelling of the tonsils, and upon their inner surface are spots covered with a grayish-white coating which is quite firmly adherent to the mucous membrane and these will likely be found also upon the soft palate and uvula. These patches may not be observed at the first examination but will be quite evident in a few hours. This is the exudation of diphtheria and may appear as points which sooner or later coalesce, forming a patch or pellicle which becomes thicker and firmer.

In the severer forms of the disease the attack begins abruptly and its symptoms are well pronounced from the commencement. There is a decided fever, with general malaise, thirst, loss of appetite and sore throat, possibly delirium and convulsions, but usually the mind remains clear throughout the attack. The temperature rises to 102° , 106° , or 104° Fah. rarely above this. In my observation a very high temperature is not a characteristic of diphtheria, nor is it apt to continue high long; after the third or fourth day the temperature is but slight. The diphtheritic poison when fully disseminated throughout the system does not tend to markedly increase the animal heat, but so overpowers the nerve centers as to prevent reaction, and when the toxæmia is profound there is scarcely any elevation of the temperature; sometimes it is subnormal.

In diphtheria a very high temperature long continued indicates some inflammatory complication. Ordinarily the thermometer is of but little service to us in diphtheria as the amount of fever does not bear any relation to the extent of blood poisoning. A severe attack of diphtheria with great malignancy, rapidly tending to a fatal termination may have a temperature but little above the normal while a mild case may present a comparatively high temperature. A continued high temperature in a case of diphtheria rather indicates some inflammatory action going on than the degree of blood poisoning. But the thermometer is of value inasmuch as it enables us to form some idea of the extent and severity of the complicating inflammation that may be present, whether it be a pharyngitis, tonsillitis, laryngitis, bronchitis, pneumonia or a nephritis or any constitutional disease that may exist as a complication. The pulse in diphtheria is usually feeble and frequent, often very rapid and small. The more malignant the attack the greater will be the feebleness and frequency of the pulse. In slight attacks ordinarily neither the local affection nor the constitutional symptoms are at all violent, but maintain a moderate degree of severity for a week or ten days when they decline and a steady

convalescence sets in. In the malignant type of diphtheria, however, from the beginning or early in the course of the disease, dangerous symptoms are evident and the child's life is in great jeopardy, either from the exudation extending to the neighboring organs or from the development of a deep constitutional infection. The exudation extends into the nares and this is usually a grave sign, not that the infection of the mucous membrane of the nose itself is so dangerous but it affords opportunity for a deep poisoning of the general system that will be severe and prolonged. The inflammation of the Schneiderian membrane may be simply purulent but usually it is croupous and attended with exudations and these sometimes extend outward and cover the excoriated lip. The involvement of the nares is generally secondary to that of the pharynx, yet it may be primary. As the disease advances the swelling of the nasal mucous membrane increases and the breathing is accompanied with a whistling sound, a snuffling; finally the nostrils are occluded and the child breathes only through the mouth; whilst at the same time the glands at the angle of the jaw become inflamed and enlarged.

The extension of the disease into the nares is a source of great danger, for the great number of lymphatic vessels in the connective tissue in and around the nose tend to increase the absorption of the virus and the infection of the system and it also begets a tendency to hemorrhage, which is often profuse and exhausting. Occasionally the disease extends through the Eustachian tubes to the ear producing great pain and impairing the hearing. In some instances it has produced inflammation of the internal ear with the rupture of the tympanum and necrosis of the bones. The eye is also subject to invasion, either through the nasal duct or by direct contact. The exudation may also extend to all parts of the mouth, the tongue, gums and lips—very rarely it involves the esophagus. But the most dangerous implication of all is the extension of the exudation into the larynx, where it creates a mechanical obstruction to the respiration and may produce suffocation. The extension of the exudation into the larynx is characterized by a hoarseness of the voice, croupy cough, difficult and laborious respiration, while the face becomes pale and livid and the lips cyanotic. Possibly the membrane may become loose and be coughed up and the child relieved, but unhappily this is an unexpected termination for most usually the stenosis increases, respiration becomes superficial and more frequent, the pulse feeble and very rapid, stupor ensues and death closes the scene.

Heart failure, the result of the overwhelming of the nerve centers by the poison of the disease is often the cause of death. The kidneys are very frequently implicated in nearly all the severe cases; albuminuria to a greater or less extent is present. Paralysis is a complication of diphtheria, occurring usually as a sequelae. It most generally affects the throat and materially interferes with deglutition and the voice; occasionally the muscles of the trunk and extremities are paralyzed. The prognosis in diphtheria is not very favorable and at all times is uncertain. The robust and healthy children succumb to the disease as well as the feeble and unhealthy. Many cases of a severe type get well while some mild cases terminate fatally. Therefore we are to be

guarded in our prognosis; still under good hygienic management and skillful treatment a fair proportion of cases get well, but diphtheria is to be regarded as a formidable disease attended with a large mortality. The course and termination of a case of diphtheria is uncertain and deceptive. Death may be the result of the poisoning of the blood by a specific virus of the disease or its ptomaines, of septicemia, diphtheritic croup, heart failure, or congestion of the lungs with oedema. The unfavorable symptoms are extensive deposits of exudations, anorexia with nausea, paleness of the surfaces, decided prostration, albuminuria, hemorrhage of the nose, extension of the deposit into the larynx.

In the treatment of diphtheria quite a variety of remedies have been suggested and many different plans proposed, for which great success is claimed. But in my own experience there are but few remedies that are of much avail and certainly none that are specific.

Although the treatment of diphtheria is not very satisfactory and in the hands of the most skilled many patients die, yet with a well formulated plan of treatment faithfully carried out we can hope for gratifying results.

The prevention of the development and spread of the disease is of the utmost importance. Being eminently contagious (in a small area) with a tendency to rapidly spread, the necessity for isolation is absolute and second to isolation is disinfection. Isolation and disinfection constitute the preventive treatment. In the treatment of the disease there are certain general principles by which we are to be guided and we cannot rely upon any particular medicine to cure the disease. The indications for treatment are to destroy or neutralize the local infection, to limit the exudation, to prevent the absorption of septic matter, to loosen and remove the membranous exudation, to prevent the disintegration of the blood, to disinfect and cleanse the diseased parts, to support the patient and to secure ample ventilation and the utmost cleanliness. The treatment of a mild case consists in regulating the secretions, the use of an antiseptic mouth wash, such as a weak solution of carbolic acid, bichloride of mercury, boracic acid or the chloride of sodium and an occasional touching the points of exudation with some stimulating antiseptic, (not an escharotic). The following has served my purpose well:

Recipe:—Acidi carbolic, gtt. x; tinct. iodini, tinct. ferri persulphatis aa, gtt. xx; glycerini qs ad 1 oz. M—Sig.: Apply daily. For the relief of the inflammation surrounding the exudation astringent gargles are used, and frequent swallowing of lumps of ice. Pepsin, lactic acid, trypsin, papoyatin are used for solvents of the membrane and as the membrane loosens or comes away the parts should be thoroughly disinfected with a solution of carbolic acid or mercurial chloride and this is best done by an atomizer. The general treatment will be best directed by keeping the patient quiet in bed, ordering a nutritious and easily digested fluid diet. To improve the condition of the blood, iron with a bitter tonic is given; to destroy or stay the destructive effect of the poisonous tox albumins the bichloride or mild chloride of mercury is given in small and frequently repeated doses. Later on, the muriated tincture of iron with muriatic acid and chlorate of potash is substituted for the mercuric. At the

first indication of increasing weakness the alcoholic stimulants are given; the best of these is good whisky—the wines are not active enough. The whisky must be given in large and frequent doses. Where the prostration is very great, French brandy should be substituted for whisky.

If the disease extends into the larynx and the stenosis is such as to threaten suffocation, tracheotomy is the only remedy that offers any hope. The operation is indicated by the persistent obstruction of the larynx. The operation will fail of success if the exudation has already extended into the bronchi, or the system is overwhelmed by the infection, and incipient paralysis of the heart exists. The result of tracheotomy in this condition is not very encouraging, but it is a forlorn hope and should be done.

DR. JENKS, Keokuk, Iowa—The majority of the profession agree with the doctor in believing that diphtheria is a disease which is primarily local. In a majority of cases the germ finds lodgment in suitable soil in the tonsil; from there it excites inflammation and probably the toxalbumin is absorbed. I wish to emphasize the importance of local treatment. The first thing I do when called to a case of diphtheria is to make an application of Smith's solution of persulphate of iron and carbolic acid; I frequently make the solution of pure persulphate of iron. I make the application with a piece of absorbent cotton, saturating the cotton in the solution, then pressing it firmly on one side, then on the other, touching the membrane firmly. I have used a great many other preparations but I prefer this. It coagulates the albuminous exudate and if applied early it contracts the dilated and enlarged blood vessels and in that way prevents absorption. If this application is made early, little constitutional treatment is needed. This application should be repeated two or three times a day or more. The constitutional treatment should be calomel given freely for a day or two, then the tincture of chloride of iron, and if you choose the chloride of potash; in mild cases, give liquid diet, keep patient in bed. Give plenty of whisky towards the close of the disease if there is evidence of asthenia, or the disease invades the larynx.

AN INSTRUMENT FOR APPLYING MEDICAMENTS TO THE URETHRAL, UTERINE AND RECTAL CANALS.

Read before the Section on Surgery and Anatomy at the Forty-fourth Annual Meeting of the American Medical Association.

BY A. B. KIRKPATRICK, M.D.

PHILADELPHIA, PA.

In October, 1891, I showed this instrument to the Philadelphia County Medical Society, and read a brief paper on the subject. But the applicator has been so much improved and has been used so successfully since then that I think the subject merits further consideration.

The applicator is made in different sizes, the largest eight inches long with a caliber of half an inch, and the smallest of the same length and caliber of one-eighth of an inch. The medium sized one, three-sixteenths of an inch in diameter is best for general use. The tube is made straight or slightly curved at the distal extremity. It is composed of a seamless aluminium, silver or hard rubber tube. On the upper end of the tube is screwed a collar, on each side of which is fastened a ring for the first and second fingers. There is a steel rod or piston, on the upper end of which is a ring for the thumb, and just

below it is a spiral spring which withdraws the aluminium tip which screws on the other end of the piston rod. This tip which is two inches long, is for the absorbent cotton when the instrument is used for liquid applications. When used for powder this tip is unscrewed and replaced by an aluminium plunger one-half of an inch long, which fits the tube accurately.

The parts of the applicator which come in contact with the liquid or powders being made of aluminium or vulcanized rubber, are not oxidized or corroded. It is so simple in construction that it is easily cleaned and kept aseptic, and is very light yet strong, and it cannot get out of order. It is very easily manipulated with one hand.

The instrument was designed primarily for the introduction of a slightly compressed pencil of powder into the uterine cervix, in the treatment of endocervicitis, endometritis, etc. Almost any powder can be used, such as iodoform, iodol, aristol, boric acid, salol, sulphate of zinc or tannic acid, or a combination of them with sedatives such as cocaine, morphine, atropine, etc.

In using aristol, salol, iodoform, iodol, or sulphate of zinc, I have found it best to use an equal quantity of powdered boric acid; otherwise, they pack too solidly in the applicator and are rather hard to push out and not so readily soluble. The different powders or combinations should be in screw-top bottles, about an inch in diameter and two or three inches long, and the powder should be moderately loose in the bottles, so that it will not pack too firmly in the tube.

To fill the applicator, remove the piston and press the tube down into the powder several times according to the length of the pencil desired. It can be made from one to four inches long.

After filling the instrument, before introducing it I cover the end with carbolized eucoline, or round it out with a small piece of cocoa butter, and dip it in a solution of iodoform or aristol in liquid alboline.

If the tube is passed into the cervix half an inch to an inch, and supported while the pencil is forced gently out it will follow the canal, even to the fundus of the uterus. Several pencils can be thus introduced in rapid succession, if desired.

In introducing powders into the male urethra, the instrument should be passed in in the same way as a catheter or steel bougie, and even the straight instrument will pass nearly to the prostatic portion of the urethra. If the prostatic portion of the urethra is to be medicated support the instrument in that position, and press the pencil gently out and it will follow the urethra. If the part of the urethra anterior to the prostatic portion, is to be medicated, gently withdraw the instrument while pushing out the pencil. It is well to force a piece of absorbent cotton through the tube before sterilizing, to cleanse it and make the piston work freely.

When used as a liquid applicator, the plunger is replaced by the roughened tip on which is wrapped the absorbent cotton. This is dipped into a solution of nitrate of silver, iodine, carbolic acid or peroxide of hydrogen, and then passed into the tube and the end filled with a little piece of cocoa butter and oil. Filling the end with cocoa butter prevents any of the solution from passing out before the part intended to be medicated is reached and protects the

healthy urethra, and also facilitates its introduction.

I do not use the liquid applicator for uterine applications as it has no particular advantage over the ordinary aluminium applicator if the speculum is used. Though, if one is dextrous, and it is necessary, the application can be made easily without a speculum in the same way as a catheter or sound is introduced without inspection.

In my experience the amount of iodine or other liquid that can be passed into the uterine cavity on a cotton wrapped applicator is so small, unless the cervix has recently been dilated, as to be useless. I get much more satisfactory results when introduced with a syringe. Nitrate of silver can be dissolved and deposited on the aluminium tip, and introduced into the male urethra after the manner of Lallemand's *porte caustique*; though I have never done so; for I have been satisfied with the use of a compressed pencil of powder.

Those who have used suppositories, medicated gelatin or cocoa butter, intra-uterine pencils, urethral and prostatic bougies and fistula crayons will appreciate this instrument, as it can be used more successfully whenever these or suppositories are required.

The result of my experience is that the excipient in suppositories and medicated bougies defeats the object aimed at, in that it coats the mucous membrane and prevents the absorption of the medication, is soon liquified and is drained away from the location where placed and needed. The cocoa butter passes out and carries the medicine with it and they are deposited on the patient's clothing, which is soiled and stained.

Suppositories and bougies are expensive, are hard to keep and carry, and disagreeable to use in bad weather; moreover, they are not always at hand when most needed.

With this instrument and three or four bottles of different combinations of powders—antiseptic, sedative and astringent, an application can be made in a moment without touching the medicine or soiling the fingers. No skill is required to fill the applicator. The expense is normal, being only the first cost of the powders.

The pencil of powder dissolves slowly, liquifying and passing through the tenacious mucus, producing the full, continuous, medicinal effect on the part.

A pencil placed in the male urethra after urination, and before going to bed, will be nearly dissolved next morning, and what little remains will be carried out at the first urination. The larger sized pencil, composed of equal parts by weight of iodoform or iodol and boric acid, and moderately compressed, will require at least twenty-four hours to be completely dissolved in the uterine canal. A continuous medication can thus be maintained by one application daily. I have found it very beneficial in endocervicitis, endometritis and subinvolution; also in inflammatory and irritable conditions of the male and female urethra.

In most of the severe cases of menorrhagia and metrorrhagia that I have treated within the past year, I have first dilated the cervix and curetted and then made applications of powder. These cases have recovered promptly and permanently—much more promptly than when I have made liquid applications or used none.

With our present knowledge of bacteriology and antiseptics it does not seem rational to attempt to

medicate six or eight inches of the urethra and destroy the gonococcus by giving sandal, cubeb and copaiba or even salol by the mouth. The medication is so changed and diluted by the time it reaches the urethra, the antiseptic and even sedative effects are so infinitesimal that they do not compensate for the disgust for medicine and disordered digestion which usually results.

Treatment by injection is more reasonable, but the effects are very transient, and likely to irritate the urethra if strong enough to be of any benefit. Their use must be intrusted to the patient, which is not only a pecuniary loss to the physician, but often a misfortune to the patient, as he gets his prescription and syringe and then thinks he can finish his case himself, thus losing the necessary subsequent care and advice of the physician.

The usual result of such treatment is a protracted case of gleet and one or more strictures. I think it may be safely said that 90 per cent. of the cases of gonorrhoea are treated by druggists or their clerks; the patient, if he has not had personal experience, goes to some friend who has had for "points," and if then in doubt goes to the nearest apothecary, who gives him medicines which he renews regularly for weeks and months. This increases the druggist's profits, but the physician gets only a fee for the first consultation, often not even that.

With the use of the applicator, an acute attack of gonorrhoea can be permanently cured in from six to twelve treatments. The physician then gets his fee, and the patient realizes that he is getting scientific treatment that neither himself or the apothecary can safely employ.

I have found the daily application of a pencil of powder of iodoform and boric acid with cocaine and atropine a specific in gonorrhoea and gleet, the cases all recovering permanently in from one to three weeks, and without the usual tendency to stricture. The pencil of powder allays irritation, keeps the urethra patulous, and promotes healing without the usual tendency to contraction.

In acute cases of gonorrhoea, if the urethra is very sensitive I inject half a drachm to a drachm of a 5 per cent. solution of cocaine, which is passed back past the ulcerated part of the urethra and retained for a few minutes by compressing the meatus. The application is then absolutely painless, and by the time the effect of the cocaine has passed off the urethra has become accustomed to the powder so that it gives no pain or irritation. The powder should be placed in the urethra at the seat of ulceration or irritation. This is usually determined by a bulbous bougie.

The best results in gonorrhoea have resulted from the use of a powder composed of equal parts by weight, of iodoform and boric acid. Rarely has it been necessary to add a local anæsthetic to the powder when the injection of cocaine is used before. The effect of the iodoform has been sufficient to overcome the pain and irritation. The odor of the iodoform is the only objection to its use, but this can be largely obviated if care is used in the application, and if the patient is careful in changing the dressings. After the application the foreskin is retracted and a piece of borated cotton is placed over the meatus. This will be retained usually by the prepuce, and the patient can replace it when soiled after urination. To still further protect the patient's clothing,

it is well to wrap a piece of lint or lintine over the end of the organ and retain it with a suspensory or rubber band placed over the lint not too tightly.

In most of my cases I use no internal treatment. Should the urine be very acid, causing ardor urinae, it should be rendered neutral by the use of citrate or acetate of potash. If there is a tendency to chordee I have found minute doses of hyoscyne hydrobromate very useful. But there has been little trouble from this symptom after beginning the local treatment. The best time to treat a gonorrheal patient is just before going to bed, and applications should be made every night if possible. I will report a few cases to show the length of time, number of treatments, etc.:

Case 1.—J. S., aged 22, waiter; first attack began three weeks before; characteristic gonorrheal discharge; had used cubebæ, copaiba, etc., internally, and nitrate of silver injections for two weeks without any benefit. He received eight treatments in fourteen days. After five treatments the discharge ceased, and at the end of fourteen days I passed a No. 30 French scale, bulbous bougie, without pain and there was no evidence of a stricture. The bougie was passed again in two weeks with the same result. There has been no return of symptoms since treatment five months ago.

Case 2.—C. C., aged 32; special officer; attack began six months before; had had skillful treatment internally, with injections, and finally by steel bougies passed every other day for three weeks. He had improved at different times, the discharge becoming gleety and nearly ceasing; but it had each time returned, resuming the purulent character. There was a slight stricture one inch from meatus, and a tighter one five inches below through which it was difficult to pass a No. 12 French bulbous bougie. These were dilated under cocaine anesthesia. He received fifteen treatments in thirty days, at the end of which time he was discharged. Twice in the following month, a No. 32 French bougie was passed without any evidence of stricture or local irritation. He has remained well up to this date, four months after treatment. In this case the patient was not able to get the benefit of rest in bed after treatment, as he went on duty directly after each application.

Case 3.—C. L., aged 24; wholesale druggist; had an attack of gonorrhea one year ago followed by orchitis and stricture, which I had treated by this method. I was consulted for the orchitis. He was under treatment four weeks, but I am unable to give the number of treatments. In the present attack treatment was begun during the first week and he was discharged cured after ten daily treatments.

I could multiply these cases by the dozen from a large dispensary practice, as well as from my private case book; but it would be needless waste of valuable time.

In this treatment I have had no toxic effect, nor disagreeable symptoms from the use of iodoform or cocaine, though I have used both freely in hundreds of cases. I feel confident, if surgeons would thoroughly investigate this mode of treating gonorrhea and apply it carefully and aseptically, that very satisfactory results will follow. I have had the same favorable results after dilating the male urethra with the Otis urethrotome for old strictures.

The irritable condition of the urethra and bladder arising from enlarged prostate is readily relieved by this form of medication, as are also prostaticorrhea and spermatorrhea, if supplemented with the necessary moral and constitutional treatment. There has

been apparent no danger in the size of the gland. When, for any reason, it is undesirable to operate, capable of treating sinuses or fistulas, either rectal or stramonious, by incision, if they have an external opening they can be treated successfully by the powder applicator. The formation of pus can be checked and healing facilitated, and a continuous medicinal effect secured; while with injections of peroxide of hydrogen or solutions of iodoform all the effect is only transient. I use the injection of peroxide of hydrogen first to destroy the pus and cleanse the cavity, and then pack with powder. I have had uniformly good results unless the sinuses are very small and tortuous.

I hope to see this method of treatment thoroughly tested by older, more experienced surgeons, and trust they will report their results.

1745 N. 15th St., Philadelphia.

APPENDICITIS: WHAT IT IS AND WHAT IT IS NOT—FROM A SURGICAL STANDPOINT.

Read before the Section on Surgery, and Anatomy, at the Forty-fourth Annual Meeting of the American Medical Association, 1901.

BY JOSEPH HOLTMAN, M.D.,
PHILADELPHIA, PA.

Among many with the fear of surgery before their eyes, there is a widespread and possibly a growing opinion that the advanced surgeon of today rushes upon every so-called case of appendicitis knife in hand, something after the manner in which our English friends fearfully dread the wild onslaught of the murderous Comanche in Chicago. To the surgeon holding in his mind the dangers and complexities of all serious abdominal work, most of all that in which the integrity of the vital organs is involved, the eagerness with which this operation is supposed to be sought is amusing. With those to whom the abdomen is as yet a fairland of surgery, where reputation may be speedily got, and mistakes hastily veiled in the corner's office by death from heart failure and exhaustion, the fair field is enticing. But woe to the untrained explorer who anchors his tray beside the siren, "Appendix," floating dreamily in a puddle of pus. The electrician is happier than he, and rather to be desired. With a view of insisting rather that surgery and surgeons shall not be held responsible for every vagary of the imagination by which operation is justified, whether cause exist or not, some of the determinate conditions and considerations belonging to the operation are here briefly presented. First of all, the anatomical relations of the appendix must be considered as settled finally within the peritoneum and therefore any inflammation of the organ is necessarily within the peritoneum; and inflammation outside the peritoneum, associated with the appendix, is the result of extension of the disease from within outward. Advancing along in the anatomical conception of the disease, we must remember that no matter what the cause of irritation or inflammation in the organ, we must not expect a common symptomatology or a fixed locality by which the disease is infallibly to be recognized or located. This opinion, in view of the somewhat general belief in the McBurney point, must be explained anatomically. In another paper I have

referred to the anatomy of the cecum as insisted upon by Rokitsansky, and a careful attention to a few points, *scilicet*, must convince the most skeptical, that although in a few cases the point of greatest pain in appendicitis may be constant, still there is no anatomical ground for this, and the cause is found rather in pathological adhesions in a given line than for any other reason. The cecum hangs more or less free in the abdomen, and has therefore considerable latitude of motion. There is first, rotation upon its own axis; second, rotation upon the mesentery as an axis; and third, upon another intestine as an axis. By rotation upon its long axis, the cecum may become so twisted that the ileum opens on the right side, but when revolving on its short axis the appendix may be placed toward the anterior abdominal wall, or it may be placed at the posterior aspect of the intestine. It will be evident that when these motions are concomitant there will be a resultant of motion and that the location of the appendix must vary according to the movement of the cecum. So far as the mesentery of the appendix is concerned, there is frequently a pouch between it and the ileum consisting of folds of peritoneum; by rotation of the cecum this mesentery becomes either congested or atrophied and is thrown into a band or perforated, in either way becoming a source of danger to the near-lying intestine, for it may either choke it off as by a cord or ensnare it through the perforation, choking it in true hernial fashion.

If we consider these anatomical relations for a moment, it will be evident, first, purely that a physiological motion may result in a dangerous pathological condition, and secondly, that this physiological twisting or revolution approximating it may provoke a symptomatology most misleading, and therefore dangerous so far as it apparently justifies extreme measures. It will also explain how in many cases in which the symptomatology has been presumably grave, the trouble has suddenly subsided and may never again return, for the reason that there has been in reality no real appendicitis by occlusion, retention or secretion, but only a physiological twist and corresponding irritation which has righted itself. So far for apparent disease of the appendix; now let us look at the real disease, so far as exact location is concerned. It is the universally conceded fact, that in operation for appendicitis, the appendix is not always readily discovered. Some operators fail to discover it at all. Why this should be so, when it is alone the seat of the disease, I do not understand. Why on opening the abdomen it is not always found in the same position is easily explained by the anatomy just referred to. The position must vary with the motion of the intestines with their degree of distension, again by the accidental adhesions of the organ and the adjacent structures, and again by the length of the organ itself. It has been found in the inguinal canal, now up against the anterior abdominal wall, and again in the floor of the pelvis. In women it is no rare thing to find it mixed up with an ovarian cyst, and it may, by extension of inflammation, cause a perforation of the diaphragm. All the facts being considered, it is fallacy to argue that lesions of the organ must have a mathematical constancy, either of kind or degree, or of situation. There must be variation in all them, according to anatomical peculiarities of the parts, and according to the nature and extent of the adhe-

sions and the duration of the disease. These arguments and facts I consider are sufficient finally to dispose of the real value of the McBurney point, although this has had its justification in the brilliant results of the surgeon whose name it bears, and whose insistence upon the legitimacy and true *rationalité* of the operation for the disease under consideration has done so much to give it permanency in the advanced surgery of to-day.

What must be considered operative cases of appendicitis outside the presence of abscess, must perhaps for a long time remain an open question. Pus, the advanced surgeon, no matter where its location, considers a legitimate cause for attack, and when once when this condition is present, delay is no longer to be considered. As to the diagnosis of pus, the question of duration of the disease and the accompanying symptomatology of pain and tenderness is always to be considered. The temperature is not necessarily high, is often sub-normal, and if there has been rupture, shock will usually have been present according to the degree of pus-invasion and occupation. If limitation by adhesions has occurred, the patient will rally and further delay will diminish chances of recovery. The point of greatest sensitiveness cannot be regular, and is in most instances traceable more to the discomfort produced by the stretching of adhesions, than to the inflammation in the appendix. If the omentum has become adherent at any point, tension, movement of coughing, turning, or any movement whatever, must be more or less painful. In the real presence of pus, if the inflammation is near the anterior plane of the belly, the walls over the seat of the inflammation are apt to be infiltrated and boggy. If, however, the appendix is deep seated in the pelvis, this boggy, while not discoverable anteriorly, will be discovered by examination per rectum. For this reason, examination by the bowel, which is often left until the last, should be one of the first procedures to establish the diagnosis. If the tumor is above the iliac bone, or near lying to them, percussion may be dull; if however the disease is deep seated, there may be tympany, owing to overlying intestine. In arriving at a diagnosis, the moderate and careful use of salines or of calomel is of more than a little use. If the inflammation is only congestive, or is mechanical, the emptying of the loaded bowel will relieve pressure, and thereby permit a general resolution with the abatement of all the symptoms. Moreover, if the tumor is fecal, this is removed and a diagnosis rendered possible if other mass remain. The use of the spiriting needle is precarious in the extreme, and is not to be advised. Pus may be so deep seated as to escape detection, and on the other hand so situated that perforation of the sac containing it be a most dangerous step. Again, if the condition of the patient is such as to justify exploration of this nature, incision is no more dangerous and much to be preferred, as at once making a diagnosis, and affording a means for relief. In long-standing cases, motion of the right leg is accompanied by pain, and the thigh is constantly flexed, while its complete extension is either impossible or accompanied with great pain. With the mind directed to the operative feature of the disease, careful observation along all the phases of the attack will generally enable a distinction to be made between cases essentially abscess-like from the start and those of a less degree of

inflammation. Among the latter that claim the attention of the surgeon are those recurrent in their type. Given a case recurring at various intervals, each recurrence marked by an increase in the seriousness of the symptoms, to the surgeon holding in mind the probabilities of the case, operation will be usually certain of selection. Every patient holding within his abdomen sufficient cause for periodic attacks of this nature, is never free from danger of a last fatal attack. In these instances the operation during the quiescence of the disease is to be considered. To my mind the argument of Semm for operation after a primary attack of appendicitis, granting that the nature of the disease is well established is logical, and the practice in good hands safe.

In the minds of many, the non-surgical treatment of appendicitis has by far the best of the argument. Case after case is cited in which recovery has taken place under the use of opium, and therefore, in the minds of those who pin their faith on the claims of Alonzo Clarke, surgery has little, if any excuse in appendicitis, if it be remembered that pain and tympany, and rise in temperature, may all exist in the right iliac fossa without the existence of appendicitis at all. Hence if a localized peritonitis, produced by the twisting or revolution of the intestines is present, opium will relieve the pain and consequently, as the gut is also thereby put at rest, in the interim it will have regained itself and the symptoms will abate.

The same logic follows the calomel or saline treatment.

If the gut is slightly twisted and congested, if it be freed from its contents and therefore given a greater possibility of physiological contractions, the normal integrity and relations are at once restored and the pain is at once relieved. Even in the presence of pus the relief of the congestion, brought about by the use of salines often conduces to the greatest comfort of the patient and gives a relief that seemingly interdicts operation. The same is true in tubal and ovarian pus disease in women.

It will thus be seen that the two methods of treatment in the non-suppurative forms of inflammation both accomplish the same thing in essentially the same manner.

NOTE:—DR. MUSSEY of Philadelphia, was placed on the program for a paper on appendicitis, in the Section on Practice of Medicine, but was not present. The gentlemen who had promised to take part in the discussion were present, and the discussion was proceeded with. By consent of the secretary of the Section it is inserted with the discussion on the same subject held in surgical Section.—*ERROR* JOURNAL.

DR. WHITTAKER in opening the discussion said:—So much depends upon what is meant by appendicitis. I do not like the term. I prefer the term typhilitis, and include under it all the cases of peri- and paratyphilitis, whereby I would make a distinction between inflammations which affect the cecum, and peritonitis from other cause, as from typhoid fever, dysentery, tuberculosis, or affections in connection with the uterus and fallopian tubes. We would be better satisfied with the surgeons in their diets if they made more of a study of etiology. They say, Cut in every case. The knife is in the air. We say, Let us first have a diagnosis. A great many of these cases depend upon tuberculosis. There is really no difference of opinion in a case in which suppuration has occurred, or where any real infection exists, and

cases of so-called appendicitis are nearly all inflammatory processes. They are not due to mechanical irritation, as from foreign bodies, enteroliths, etc. These things are rare, and it is true, but only exceptionally, and then as effects or accidents and not as causes. Every physician has seen cases of individuals who have suffered an attack of typhilitis once and never again. Every physician also has seen cases where the surgeon has cut down upon the cecum and found nothing. Therefore we may put up the knife, at least until we have studied the character of the case.

DR. HOREMAN, Philadelphia:—The diagnosis of appendicitis is not always easy, notwithstanding that physicians claim that it is, whether the case is operative or not. Even cases which are apparently operative sometimes get well without operation, as do cases which are apparently very simple. The last speaker has given to the disease the name which he prefers, typhilitis, and consequently the diseases he will meet will be typhilitis and not appendicitis. Unfortunately for this theorizing it has been proven by observations in about 15,000 cases in the German hospitals that 91 per cent. of all the cases so recognized had absolutely positive disease in the appendix, so that if you choose the name of typhilitis you must choose it for 9 per cent. of 15,000 cases. In discussing this subject please remember that all surgeons do not operate upon every case of appendicitis; that is, an unfair stand to attribute to us, any more than we would operate for pain without a diagnosis anywhere else. What we wish to insist upon is that a distinction must be made between typhilitis if it exists, which is very rare, and simple impaction and inflammation in the region of the cecum and appendix. We must remember that the appendix has a mesentery of its own, that the cecum has a rotation of its own, that these rotations take place separately, that they will produce twists in the peritoneum of this region and start up an inflammation which is simply the inflammation of congestion and not disease in the bowel. These are the inflammations which may give pain, which may give tympany, which may give a rising temperature. You know that simple colic may give a rising temperature, a simple twist of the intestine may give rise to pain and in most cases it passes away, but these are the cases which the physician will indiscriminately call appendicitis or typhilitis; these are the cases that get well with opium, and much more satisfactorily with calomel or salines, because they will clean the bowel out and restore its integrity. Such cases ought never to be called appendicitis. In regard to the treatment, or reasons for treatment of appendicitis, it is quite possible for a case to get well without any treatment at all. We all know that simple pleurisy gets well without treatment; we know that cases of empyema get well without treatment; but there is no physician who has the interests of his patient at heart who will refuse to tap a pleurisy as soon as he finds it, and not wait for it to be absorbed, and certainly none of us in the presence of empyema would wait for the patient to spit it up. In these cases we must hold that primarily there is an obstruction or impaction in the appendix which may accidentally get well, just as a bullet may become encysted and the wound heal. But if we know that there is a bullet in the abdomen, likely to cause a disturbance, fever and the like, we will try and get it out. We know that these abscesses do burst spontaneously; I have known one man to expectorate the contents of one of these abscesses, another to pass it through the groin, and they got well. The gentleman who preceded me said the origin of the appendix was inconstant; I beg to differ with him. The difference of its location depends not on the anatomical inconstancy of the appendix but upon the revolution and the motion of the bowel, hence there is no use in attempting to locate the appendix by an

absolute mathematical point. For instance, the cecum revolves upon the mesentery; that will bring the appendix into one position; it revolves upon the intestine, which will bring it in another position. You may find the appendix on the anterior abdominal wall and the posterior abdominal wall, in the pelvis, on the diaphragm or in the inguinal canal, so that to look for the appendix always in the same place is to look for something you are not going to find. In reference to the treatment, a simple case without pus or inflammation will get well of itself, but if we use opium it gives the patient a rest and the bowel a chance; if we use salines it cleans out the bowel and gives it a better chance. If there is inflammatory disease in the appendix, impaction of the cecum or anything of that sort, if there is a lesion there which is likely to make trouble let us stir it up by the use of a saline; if there is simple inflammation we will get rid of the trouble and not kill the patient.

DR. McLEAN, Detroit, Mich.—Appendicitis is one of the large class of diseases which from time immemorial have been classed on the medical side of pathology, and so long as it remained there it was not a very favorable subject for the practitioner to meet. Since it has been transferred to the department of surgery to a great extent, an entirely different aspect has been put upon this disease. In former times, as you all know, a case of appendicitis was diagnosed simply as peritonitis and the peritoneal cavity was regarded as an unapproachable region, and these cases were simply allowed to die; the general practitioner's duty being neither more nor less than to relieve pain and smooth the way down to the grave. Now we take a different course; we open the cavity and operate. It is a very grave question how the physician regards his duty in the matter. The title of Dr. Musser's paper suggests an opening for me. It is "An Extraordinary Case of Appendicitis." I have had some fifteen cases in my own practice in the last few months—some operated upon and some treated without operation and almost all got well. A peculiar case came within my observation a short time ago: I was called across the river into Ontario to see a man who was said to be in a very hopeless condition and I was asked to go for the satisfaction of the family only, as it was not supposed anything could be done for him. When I got to the house before I entered the door I smelled the odor of his breath and expectoration, and it was very difficult to breathe in the house. The poor fellow sat there propped in a chair and struggling for breath and expectorating continually the most fetid pus I have ever smelled. On examination and inquiry into the history I was surprised when the doctor stated to me, This is a case of appendicitis. I learned from the testimony of the patient and his friends that it commenced with a painful hard swelling in the region we would expect from appendicitis and had gone to such an extent that the doctor was for having an operation, when suddenly it disappeared and this difficult breathing came on. On examination I found the right lung dull as high as the fourth rib, perfectly dull, very little respiratory murmur anywhere; what there was was tubular and you could hear loud râles produced by this fluid which was secreted. I was surprised at the diagnosis and surprised at the history and I saw plainly it was impossible to do anything for the patient. I had him transferred to the Harper Hospital in Detroit and the day after his arrival I made an opening between the eighth and ninth ribs. First of all, I introduced an aspirating needle of large size and through that there flowed pus of the same character as he expectorated. I made a free opening so I could introduce my finger between the two ribs and hold it there until a quart of this stuff had passed away. I introduced a nozzle of a douche and washed the cavity out, put in a large drainage tube, washed out two or three times and in ten

days the man left the hospital and shortly afterwards I heard he was going about his usual vocations. I state simply the facts and leave you to judge for yourselves whether it was or was not a case of appendicitis, but if it was, it was certainly very remarkable indeed and it serves to illustrate the fact that it is very difficult to predict in what direction a typhilitic abscess may open.

DR. McMURTRY, Louisville, Ky.—There are two matters very important for us to grasp thoroughly in regard to appendicitis before we can reach common ground between physicians and surgeons. I believe that general practitioners who do not pay special attention to abdominal surgery rarely realize how common a disease appendicitis is. If you will examine the mortality tables reported by the health officer of any city as large as Milwaukee, you will find a number of deaths from peritonitis recorded. Peritonitis is not a disease; it is the result of a disease process, and the majority of these cases are appendicitis. Take any city in the Union of over 100,000 inhabitants and I undertake to say that there will not be two consecutive weeks in the year that there will be in the mortality table reported by the health officer less than from one to ten cases of peritonitis, and in the male nine out of ten of these cases are appendicitis. In the majority they are unrecognized in life,—they are treated as idiopathic peritonitis; but such a disease does not exist.

Dr. Whittaker's allusion to the pathology of this disease is unnecessarily complicated. We have learned more of the pathology of intraperitoneal diseases by opening the abdomen in life, than ever could be learned by opening *post-mortem*. The expressions, perityphlitis, peratyphlitis and typhlitis ought to be eliminated entirely for the sake of scientific accuracy and precision from all inflammations in the iliac fossa. Perityphlitis and peratyphlitis, meaning peritonitis and cellulitis around the appendix and around the cecum are not diseases—they are the secondary results of appendicitis; and so with the term typhlitis, which is applied to all the inflammations which originate in the appendix. I want to reiterate what has just been said, that surgeons do not advocate indiscriminate operations upon appendicitis.

In regard to the cases where the expectant treatment results in so-called cure, that is one of the greatest fallacies of statistics. Suppose a traveling man is sick with appendicitis in Milwaukee to-day and fights the attack and gets well—the doctor who attends him in Milwaukee records it as a case of recovery by expectancy. This man has another attack in Detroit, two weeks afterwards and the doctor who attends him there records it as a recovery. He has a third attack in Omaha three months later, and again it is put down as a recovery; so one patient, who will ultimately be operated upon by some surgeon, may be three times recorded as a recovery by the expectancy treatment.

DR. JOSEPH PRICE, Philadelphia—This is a subject that has given us in gynecological surgery the most anxiety and embarrassment and the most deaths. At one time it was looked upon as belonging purely to the practitioner; now we feel that it belongs to the surgeon and to no one else; our position is just this—it matters not by whom the patient is first seen, when he is suffering from appendicitis he should be turned over to the surgeon; or the second visit should be made with the surgeon before treatment of any kind with opium and poultices; everything else should be withheld until diagnosis is made, before symptoms of a very serious disease that kills many are obscured or masked. I shall discuss the subject very briefly and in conclusion refer to the case Dr. McLean has cited and the one I imagine Dr. Musser intended to report. I have discussed this subject with surgeons and practitioners in many States, and have

had hundreds of cases carefully noted. Dr. Wilcox, a justly celebrated surgeon of the Northwest, has had fifteen consecutive sections for appendicitis with one death, some of them early and late. I think Dr. McLean has had some of the thirteen consecutive sections without a death, a wonderful showing. My brother has done fifteen consecutive sections in Pennsylvania and New Jersey in a very short period, taking them as they come, some far gone, some very recent and they all recovered. While doing these fifteen sections for appendicitis he has twice stepped from the train only to be told by the physician, "Doctor, you are too late; my patient is dead." The mortality has been higher on the receipt of the telegram requesting him to come at once by the first train, and the visit of the surgeon, than after operation. I allude to this only to indicate the importance of an early diagnosis. Now, understand, we are talking about appendicitis; please do not mix it up with anything else, with chronic constipation, or impacted feces about the head of the cecum. Patients suffer from pain or trouble that simulates appendicitis very decidedly with a loaded and impacted head of the cecum. From the medical aspect of the trouble you can make no such showing. The mortality at present is very low following the interval of the first, second, third, or twelfth attack; the removal of the appendix in that interval is at present practiced with about a nil mortality. In my own work I have not lost a case; I have removed from seven to nine following the third, fourth, seventh and sixteenth attack without a loss. Dr. Musser's case is one in point; this young lady, aged 17 or 18, had a first attack at 11; she had a serious attack last summer and some physician urged its removal; she returned to Philadelphia to one of our brightest clinicians, but he was not willing to urge this woman into a section without exercising his own judgment in the matter. He put her to bed, giving her the benefit of the best treatment and in the midst of it she had another attack of appendicitis and came near perishing, and he asked me to see her. Three of these attacks occurred about the menstrual period and he feared dysmenorrhea; he telegraphed me on the morning of the operation to wait and he would enquire and see if there was any trouble in the uterus; to this I did not answer, but went. She was placed on the table for section; it was not an exploration. Let me say I am not in the habit of covering up ignorance by exploration. If I do not make a diagnosis I do not touch the patient. I had all confidence in the diagnosis; three or four physicians had seen this young woman and I knew there was trouble about the head of the cecum. There was not a shred of adhesion, the appendix lying in the pelvis like a little sausage three and a half inches long and three-fourths of an inch in diameter. It had simply been a retention sac without rupture. I transfixed it and tied it away, took a needle and turned the stump into the cecum and stitched over it. She made a beautiful recovery without unfavorable symptoms.

Dr. McLean has invited our attention to a diagnosis made by a provincial surgeon or physician. We know these men are educated physicians, as a rule, and they are keen diagnosticians. I am satisfied that the physician who called Dr. McLean was correct in his diagnosis. I will simply call attention to one case to verify my statement: Dr. Kellogg of New Jersey, an excellent physician of varied experience and good judgment, a few years ago asked Dr. Da Costa to see a patient who was suffering with appendicitis. Dr. Da Costa agreed with the diagnosis. A short time after this consultation a second took place. Again it was appendicitis. A few weeks later they agreed to treat this boy with poultices and a few weeks later he discharged the products of this appendicitis through the esophagus and got well.

It is of paramount importance that physicians and sur-

geons should understand each other on this subject. If we should do so now and forever whether it be by the practitioners of the surgery. Accordingly, it is necessary to discuss it, and it should be early and always given to the student by the surgeon. The young student needs to be taught to treat the appendix with poultices and treat the patient with powders until it is too late. We have attempted many times to save these patients, resulting at times in saving the patient one day, suffering or more for his life; it is a very sorry black eye. I am in the habit of asking the physician how long the patient has been sick. He answers, two or three weeks, the patient dying. If he says yes, that settles it, it is folly to operate on a dying patient. At times we have it as our duty to give the patient this one chance for a life. In alluding to Musser's patient, I will say we nearly saved my first adhesion, both mental and intestinal. It is important to consider the character of the operation with an adhesion, in a chronic case of appendicitis and in organized cases. In the neglect of cases the lateral incision with resection and drainage will save about all of them, but if there is obstruction with six to sixteen inches of ileum clogged up and fixed with adhesions and obstruction of the bowel, I won't answer, and I am satisfied that some are lost by not considering that point. In that class of cases the central incision will answer best. You can deal with extensive adhesions and complications by that incision, better than by the lateral and you will do very much less mischief in freeing these extensive bowel adhesions, and it will have to be followed by thorough toilet and well placed drainage. This appeal is simply made in the interest of patients and not in the interest of surgeons and gynecologists.

DR. HOBART A. HARR, Philadelphia.—It is not every one who is situated in a city where there are such successful operators as Dr. Price and his brother. I was taught by Dr. Price the value of operating early in these cases. I have found in private practice that patients object to an operation; they will say, "Doctor, can't you do something for a little while to overcome the inflammation?" In many instances such a request is dangerous, because it is a temptation to the physician to temporize; but on the other hand it must be possible to have acute inflammation in the appendix without the formation of pus. You can have inflammation in any part of the body without the formation of enough fluid pus to do any harm. A man in my ward at the St. Agnes Hospital was in bed for a number of days with acute inflammation which was diagnosed as appendicitis by several of my colleagues on the surgical and medical staff who were imbued with the idea that all such cases should be operated upon. I insisted on an operation but the patient refused for a number of days, but finally consented. When the appendix was found it was red and inflamed, but there was absolutely not a single drop of pus in it. I believe it is feasible for the physician to temporize at least so far as to modify and allay acute local inflammation. I think the surgeon should be called in at once when the physician has an idea that pus is beginning to form or is present. I think I should say to a patient: "Here is a disease in the abdominal cavity and I want to call in such a man because he is an excellent surgeon, not so much for him to decide whether you should be operated upon as to get advice from him whether pus is present. If pus is present by all means it should be cut into. But I do not think we ought at the very first instant say, because there is inflammation here, go to the surgeon. I do not think opium is a good thing to use, not because of the harm it does to the intestines but because it masks the symptoms to such an extent that we have a valuable indication of pus formation taken away. The patient ought to be kept quiet, so if the surgeon is to operate you can use a rectal injection or anything to indu-

ence the inflammation locally. I do not think purgatives should be used under any circumstances prior to operation. I want to protest against the opinion that has been expressed that all cases of peritonitis in the male are due to appendicitis. I doubt if the doctor can prove that this is true. I have seen peritonitis in which the inflammation started in other portions of the abdomen. In my own case I was taken with acute enteritis involving the sigmoid flexure, and finally the entire peritoneum was involved. This was fifteen years ago; I was treated by belladonna and other things, in the hands of a skillful practitioner, and it is unnecessary to say that I recovered. So I know that it is possible for peritonitis to start in some other parts of the abdomen.

DR. C. SIDLER, Cleveland, O.—I am an ordinary doctor but a great friend of the surgeon, and I have acted upon Dr. Price's suggestion when I could, and I must say the majority of these cases have gotten well. None of them were of the trifling kind. While I believe every one is a surgical case, yet the cause is different in each; take a wound on the hand, it makes quite a difference what sort it is, whether a scratch or a foreign body; in either case we will have pain and trouble, but the outcome will be entirely different. The difficulty with me is to tell what the trouble is in these cases of appendicitis, if you like that term, and I think it is as good as the other—it shows where the trouble is just as much as does typhilitis. This is the difficulty physicians have: shall we tell every one of our patients to have the abdomen cut open, or which ones shall be cut open? I shall be very glad to hand every one of these cases over to the surgeon and have him decide, but my families say to me, "What would you do?" and I am in great trouble over it. I hope from this discussion we will be able to decide which of these cases should be operated upon and which not; it would be a great advantage in the practice of medicine.

DR. REED—I have no doubt that when Dr. McLean's interesting case was being presented it flashed upon the minds of many that this was not a case of suppurative appendicitis but possibly of empyema, simply because of the deposit and the remote point at which it was liberated. I have opened an abscess originating in suppuration of the vermiform appendix, making the opening in the popliteal space and have passed the drainage tube from the popliteal space out in Ponpart's ligament; so when we speak of these remote deposits of pus and the remote point of exit we are not taxing the credulity of those who have become familiar with this disease by actual surgical experience. Dr. Whittaker takes the surgeon to task because he records his surgical procedures and recoveries, and perhaps deaths, but fails to illustrate those interesting problems of etiology which go far towards solving the question. I believe that foreign bodies in the peritoneal cavity, pus pockets, and the frequent constriction from distortion of the appendix by virtue of the excessive rhythmic activity of the head of the colon, these constrictions coming primarily from adhesions are perhaps the most important and well-demonstrated cause of this disease. I am glad to hear that physicians do not wait for patients to become saturated with pus before sending for the surgeon, and I am willing to heartily testify to the fact that such progressive physicians as Dr. Whittaker do not ask surgeons to operate on moribund patients. In my own city within the last ten days I was called upon to operate upon a patient whose abdominal wall was distended like a bass drum, who was practically moribund. When the post mortem was made the abdomen was found full of pus and there was an enormously elongated vermiform appendix. This is but one instance of almost a dozen that have come to my observation in the last two years. It is not true, therefore, that all physicians engaged in general practice recognize the importance of this difficulty and

advise early operation in these cases. This discussion is calculated to bear good fruit with those gentlemen who by reason of their occupation are unfamiliar with the results obtained by the surgeon in these cases, and who stand somewhat in awe of surgical procedures which impress them as being more or less formidable. The impression has gone out that surgeons sometimes operate upon these cases and do not find inflammation but do find adhesions. Will some one kindly inform me by what means adhesions originate unless it is by previous inflammation, and whether we must not recognize in their existence a constant menace to the life and strength of the patient? Dr. Hare has formulated a rule which I think in the main is a safe one, that during the first attack surgery should not be contemplated until there is developed a distinct indication of pus. I believe with him that the rule ought to be adopted and that wherever pus symptoms exist incision should be made. There is another class of cases that should be operated upon without reference to the history of pus; that is the recurrent cases in which by the very fact of recurrence we have demonstrated the existence of adhesions which are calculated sooner or later to bring about suppurative at this point. These cases should be operated upon by ligation and during the quiescent period if possible. The idiopathic origin of peritonitis is I think a definite outline of pathology. There has been perhaps no stronger confirmation of the point the surgeons are contending for than the statistics of Dr. Fitz. He presented figures which proved conclusively that the mortality following operation was greater than that following the let-alone policy, but that was when the let-alone policy was the one preeminently followed by all practitioners of medicine. But when we have the revised statistics from Fitz they will show that these conditions are reversed, because, as has been indicated by the discussion here, the trend of practice is to the early detection of suppurative conditions, of recurrent attacks and of early operation. So that to-day surgery is making its best record, making a better record than in the past and one to be excelled only by future attainments.

DR. J. B. MURPHY of Chicago—Cases of appendicitis should be divided into 1, catarrhal, without perforation; 2, suppurative, without perforation; 3, perforative, with local peritonitis, and 4, gangrenous. It was formerly believed that there were many cases of perityphlitis without appendicitis, but I have yet to find one single case of that kind. The appendicitis will always be found primarily. In ninety-five laparotomies which I have made I have found in every one a lesion of the appendix. We can have the suppurative variety without perforation and it will be found that the peritoneum can become infected without perforation having occurred. As to the time of the operation—when to operate and when not to operate. In Germany they advocate not operating, but in my large number of cases in nearly every one I found a lesion of the appendix and pus in all but two. We have to trust to fortune for the opening of the pus into the bowel. That is nature's way—a good one if it occur, but the patient may die of general peritonitis while we are waiting. I have not seen one case of so-called idiopathic peritonitis. I have always found that it was the result of a lesion. Appendicitis is the cause of death in many of these idiopathic cases. You should operate the moment you have made your diagnosis; the earlier you operate the easier it will be to operate. When the classical symptoms are found that is all you need to wait for, and if you cut down then I believe you will find a lesion of the appendix. Make your diagnosis the first time you see your patient; then the appendix has the advantage of being easily removed, but if you wait a few days it may be very difficult to find it and remove it and then there will

be great danger of extensive infection from the accumulation of pus. Remove the appendix in every case, if you operate early; if late, it will depend upon the condition of the patient; if necessary it may be left behind and removed subsequently. Out of my ninety-five cases there were four deaths.

Dr. N. Senn of Chicago—A few statements have been made here which might mislead the general practitioner. First, as regards the ease of operating in the first three or four days. I have always looked upon the removal of the appendix as a not very easy matter, even when it is in its normal condition. So I would give warning against undertaking the operation on too slight grounds. It is easy to preach such doctrines as making a diagnosis from the classical symptoms and shelling out of the appendix and cure of the patient, but it is a different matter in active practice. The tendency is in the other direction.

When the patient has had repeated attacks, there can be no question as to the propriety of operating, but I always hesitate about advocating operation in a first attack. As regards the diagnosis, while in nine cases out of ten we can rely on the classical symptoms, there are many sources of error, particularly in the female. When the operation is undertaken we should remember the difficulties attending it, in order to make adequate preparations.

Dr. Thomas of Pennsylvania—There are fashions in surgery and in other things. I am not opposed to operating when it is necessary, but we should give nature a chance—she does wonders. My experience differs from that of most men. In the past twenty years I have had on an average of from three to five cases of appendicitis every year, and not one died. I don't rise to speak against the operation dogmatically, but most cases will get well without operation, and many that have been operated upon and died would have recovered without it. The peritoneum has been entered in the search for this disease when it was not found, and the patient died.

Dr. G. Stox, Georgia—My experience is unique in these cases where perforation has occurred. I have had four or five cases of perforative appendicitis where collapse occurred; sometimes I operated and sometimes I was kept from it by the advice of others. If the operation can not be done in the first few hours after the escape of fecal matter, we will find a necrosed condition of the serous membrane, and then the operation is of no avail. I do not consider that McBurney's point assists the diagnosis much in the early stages. If we could fix on these cases early and operate we could probably arrest the disease.

If we allow the proper moment to pass it is gone forever. I am against the view that we should temporize. We are on the safe side in operating when we have the indications of appendicitis.

Dr. R. M. of Iowa—It seems to me unfortunate that any of us should feel like temporizing in view of the unsatisfactory history of the treatment of appendicitis in the past and the fact that nearly all cases tend to recur. The old idea about idiopathic peritonitis should no longer be thought of. I saw one operation performed for appendicitis and no evidence of appendicitis was found, but the error was on the safe side because the danger attending the laparotomy was almost nil.

Dr. Lyndon of Chicago—It would be difficult for the general practitioner listening to this discussion to know exactly what he is to do. There is no question that could bring out more diametrically opposed opinions than have been expressed here in the discussion of this subject. We all know undoubtedly of many cases of appendicitis which got well without operation, and we also know of many that died without operation.

I think we are safe in concluding that the truth lies between the two extremes advocated. We do not so much want so many arbitrary expressions as we do careful study on the part of all, so the physician and surgeon can go along in their work hand in hand. Conservatism is a good thing but when there is no abdominal surgeon standing at one's elbow it is not the kind that is most conducive to the life of the patient. I have seen this style of conservatism calmly standing over a case of peritonitis from perforative appendicitis. There is a vast difference between that kind of appendicitis and the slow kind where there is no great tendency to the formation of pus. We should not conclude that all cases should be treated conservatively or all operated upon. I differ with Dr. Murphy as to the ease of diagnosis. Whenever you are able to diagnose appendicitis from the presence of induration, pus is already present, and conservatism is then very dangerous.

Dr. Somers of Missouri—In lecturing on anatomy I have found it more difficult to find the appendix in the normal subject than in the pathological condition of appendicitis.

Dr. Horvay in closing said:—I wish to thank the gentlemen for the breadth of their discussion, the bringing out of which was the real object of my paper. I wished primarily to draw out the difference between operative and non-operative cases. He who insists that because a few cases get well spontaneously all ought to, argues from a very bad standpoint. There must always be operative and non-operative cases. Those which recur are always operative, as also are some of those that come on primarily. I wish again to refer to the point that nature does wonderful things, but I think that in a case of appendicitis she has had her chance and failed and is working backwards. I call attention to the fact that we do not apply the waiting doctrine to empyema. The logic of waiting is bad logic. In reference to Prof. Senn's remarks about the difficulty of the operation, I can say that my first one was certainly not easy. In women the condition is apt to be complicated by pelvic troubles, and the diagnosis is then not so easy. The time for the study of the case is certainly in the first twenty-four hours. The difficulty of diagnosis must depend on the mobility and length of the appendix, which it has been demonstrated varies from one to ten inches.

SUPPURATIVE APPENDICITIS.

Read at the Meeting of the Missouri State Medical Association at Sedalia, Mo., May, 1893.

BY E. H. LADLEY, M.D.

PROFESSOR GYNECOLOGY, BEAUMONT MEDICAL COLLEGE, SURGEON TO PROTESTANT HOSPITAL, CONSULTANT TO FEMALE HOSPITAL, ST. LOUIS, MEMBER OF THE AMERICAN ASSOCIATION OF GYNECOLOGISTS AND OBSTETRICIANS.

The history of the cases of appendicitis given in this paper warrants me in making a few remarks upon its pathology and diagnosis. Until recently the anatomy of these parts was not fully understood. Mr. Treves, in 1885 called attention to the fact that the caecum itself is entirely covered with peritoneum, which after enclosing it is reflected upon the posterior wall of the abdomen, being continuous with the ascending mesocolon where this fold exists. This organ lies quite free in the abdominal cavity, allowing it to enjoy various movements owing to its structure and attachments. Rokitsansky describes these as three-fold: first, rotation upon its own axis; second, upon the mesentery as an axis; and third, upon other intestines as an axis. From these movements the location of the appendix will vary even in health, and especially is this true after the results of inflammation have taken place. A knowledge of this is

important, especially in the primary operation, that the least time may be consumed and that the intestines may not be disturbed; hence, we find that its usual anatomical position of backwards, upwards and inwards is not always the position occupied by this body. As a result of repeated attacks of inflammation this organ is always displaced and its anatomical structure is so confused that the greatest care is required to locate it. Kraussold, Toft and others, show that the various diseases of the cæcum are but the sequelæ of appendicitis, and there are those who, with the evidence before them, claim that only as an exception to a general rule is any disease of this organ found, except as primarily beginning in the appendix vermiformis.

Dr. McMurtry reported a case of stercoral colitis with perforation of the cæcum before the American Medical Association in 1888, which can be classed as an exception to a general rule, and I prophesy the day will come when the terms used to express the various forms of inflammation of the cæcum will be supplanted by that which will express a true pathology of these varieties of the same disease. Only upon a true pathology can we establish a true diagnosis, the principal symptoms being a localized pain, tenderness, swelling, rigidity of the abdominal wall on the right side, and other symptoms suggestive of circumscribed peritonitis in the ileo-cæcal region. As long as the disease is limited to the appendix the swelling is not distinct, and if the appendix is located behind the cæcum it eludes detection. Constipation and vomiting are usual accompaniments which may confuse in making the differential diagnosis from intestinal obstruction. With a diagnosis fully made, what is the duty of the attending physician? With the pathology of this disease fully settled to be primarily an inflammation of the appendix, how shall it be treated? There has been so much said in discussing this subject that we all feel warranted in an operation in properly selected cases. Apropos of the former dilly dally methods of the so-called "conservatives" in medicine, "who believed in opium, poultices and funeral rites," we have two classes of counsel in regard to operation. The first is, that upon a real danger signal—persistent pain, high temperature, greater or less in duration—operation should be resorted to; they also advise mild purgatives. Of the other faith are those who counsel waiting, with the argument that in reality few cases of appendicitis result fatally and that a great majority recover under rest, poultices and opium. A third comes forward and advocates an operation between the attacks. Among this number are Drs. Senn and Treves. Dr. Senn also urges an operation before inflammatory adhesion takes place, while Dr. Treves believes in waiting until all inflammation and other symptoms have ceased. Dr. Senn dwells particularly upon the safety of such an operation; Dr. Treves says: "I have excised the appendix in a large number of cases and up to the present time have to record no death as resulting from the operation." In the light of the following cases I believe that to wait is to jeopardize the lives of our patients; that Dr. Senn's position is the correct one, to operate early before adhesion takes place, although inflammation exists, and not to wait for a recurrence as Dr. Treves would advise. Discussion has been going on as to the best method of operating upon these cases, the proper line of incision, as to

whether drainage should be employed, etc. Certainly there can be no fixed rules in every case, for we rarely find the same conditions to deal with. An incision should be made that will expose the parts to be operated upon and not injure any part that should be protected. As to the drainage tube, it should be employed where it will save life. Mr. Tait says it decreased his mortality from 10 to 25 per cent. This may not be ideal, but it is common sense and it is profitable both to the surgeon and the patient. In illustration of this topic I report the following cases:

Mrs. S., aged 29; married. Has one child living; two miscarriages. Had been in good health prior to six weeks before I was called. During that time she had been attended by three prominent practitioners. She gave the following history: Was taken with a severe pain in the right inguinal region, the pain disseminating from McBurney's point towards the umbilicus and extending up as far as the gastric region, attended with nausea, constipation and unbearable suffering within that time. She had been informed that she was pregnant by the first doctor in attendance. She called a second, a prominent gynecologist of this city, who, passing the hand over the distended abdomen, told her she had womb trouble, and to come to his office the following Wednesday and he would treat her, charging her \$10 for his valuable information, and instructed her to have leeches applied over the abdomen, which was done. The ecchymotic points at the time I operated upon her showed the ravages of these animals upon this poor sufferer, for which she had to pay an additional fee of \$10. I examined her on April 1, 1891, at her home. She then had a temperature of 103.2-5 degrees, pulse 119, weak and irregular. Her senses were blunted, she being in a moribund state, caring little as to what was going on. The abdomen was distended from the pubic arch to the margin of the liver, the right side being greater than the left. Upon percussion there was dullness over the right side of the abdomen. Fluctuation was noticed over the greater part of the right side extending posteriorly. She was sent to the Protestant Hospital that night and early the next morning I operated for suppurative appendicitis. An incision four inches long was made along the outer line of the rectus muscle, which allowed the escape of one gallon of pus. It was so eager to escape that as soon as the knife entered the cavity it spouted out a great distance and was exceedingly offensive. Over the region of the cæcum and within this immense sac outside of the peritoneum; the skin and fascia making its outer covering. I removed this necrotic appendix vermiformis adhering to a thin sheet of peritoneum. I submitted the specimen to Dr. D. V. Dean, who pronounced it the appendix and its hardened secretion in its lumen. The cavity was very extensive, the pus burrowing from the pubic arch to the line of the liver and back of the kidney, at which point a counter opening was made for more complete drainage. The parts were washed with 1 to 1000 bichloride solution, after which it was washed with hot Thiersch's solution once or twice a day until the cavity began to fill up and heal. The patient made a very slow recovery, being confined to her bed for two months, when she was able to move about the house for the first time. She recovered with an enormous ventral hernia in the right lumbar region, owing to the destruction of the muscular tissue from the long retention of pus in that region. I proposed an operation for its cure, but I am doubtful if much good can be accomplished by such procedure because of its extent.

Miss R., aged 20, student at the high school; had enjoyed

excellent health prior to her present attack of pain, which began the day before my first visit, July 25th, 1891. The pain began with a distinct chill; had no former attack of a like character. Her temperature was 100-105 degrees, pulse 100, full and hard. The pain began immediately over the region of the cecum extending backwards and upwards, and was attended with vomiting and increased pain. The right limb was drawn up and held in that position to give relief. I announced the diagnosis to be appendicitis and urged immediate operation. The widowed mother demurred and after a time refused me the privilege of an operation. I ordered saline cathartics, chloral with extract of hyoscyamus to relieve pain, with hot poultices over the parts affected. The temperature ranged continually from 101 to 103 degrees, with increased frequency of pulse until the sixth day, with a slight bulging over the region of the cecum and with conjoined touch I discovered a fluctuating tumor in the region of McBurney's point. I was then permitted to make the operation by making an incision along the rectus muscle developing a sack of pus which contained about eight ounces which was removed with the debris of the appendix vermiformis and the specimen of an enterolith weighing about 10 grains which had dropped down into the blind pouch causing plastic inflammation, ulceration and perforation, and the formation of the cavity outside of the peritoneum. The wound was rendered antiseptic and carefully drained, which allowed the patient to make a speedy and rapid recovery and she now enjoys uninterrupted good health.

Mr. K., aged 20, had been ill for six weeks supposedly with typhoid fever (?). He had been under the care of a prominent homoeopath and finding he did not get any better I was called on August 12th, 1892. I found the patient with a history of pain beginning in the region of the cecum accompanied with fever alternating with rigors. I could not get a satisfactory history of the case up to that time but on examination I found a tumor in the left inguinal and hypogastric region to the left of the bladder in front of the larger bowel. By conjoined touch, which was made under an anæsthetic, I could feel a round, fluctuating tumor about three inches in diameter. All the organs of the body were normal. The bladder was emptied, the lower bowel was washed out with an enema; with the previous history, the pain beginning over the region of the cecum, fever accompanied with rigors, I made out a diagnosis of suppurate appendicitis. On the following day I made an incision over the tumor, beginning over the middle of Poupart's ligament extending upwards about four inches, opening the abdominal cavity and exposing a glutinated mass of omentum low down in the cavity which was an indication of the location of the sac of pus. This was broken into by the finger, the cavity thoroughly opened which was walled off by a plastic inflammation. The pus was washed out by a liberal use of sterilized hot water. The sac evidently was formed by the borrowing of pus from the region of the appendix vermiformis and had formed a deposit at this point. After thoroughly cleansing the parts an iodoform gauze packing was introduced into the lower angle of the wound which was retained until the following day when it was removed; the cavity flushed with sterilized water and a drainage tube introduced, which was allowed to remain until the third day when it was removed. The patient made a speedy recovery suffering from a large varicocele, evidently due to pressure upon the spermatic veins arising from injury to those parts during the operation. He has entirely recovered from that affliction and enjoys excellent health with no evidence of a recurrence of the disease.

Mr. Jos. W., of Dallas, Tex., was taken ill for the third

time on September 9, 1892. He had been treated at each time for acute appendicitis, the treatment being applications of ice over the region of the inflammation with saline cathartics, etc. At the time I was called he had the well marked symptoms of pain over the region of the cecum, but more especially did he suffer from pain in the stomach. He had been given a hypodermic injection of morphine which helped to obscure the symptoms, a most pernicious custom. I ordered saline cathartics with chloral to relieve pain and hot applications over the abdomen, and had the patient removed to the Protestant Hospital the following day. His pulse ranged from 88 to 100, temperature from 100 to 102.3-5 degrees. On the 13th I opened the cavity over the cecum, carefully dissecting the tissues to avoid the peritoneal covering until it was determined there was no sac formed outside of the peritoneal covering. When the abdominal cavity was opened a somewhat unusual condition was shown. The cecum was movable, and on being lifted up it was discovered that a thin fold of omentum was adherent to its wall posteriorly, forming a sac which contained pus and the remains of the appendix vermiformis, a portion of which remained showing the character of that organ. The adherent omentum was carefully detached and that part which had become necrotic was tied and cut off. The cavity was washed out with warm sterilized water, the opening packed with iodoform gauze, which was removed on the following day. The cavity again being cleansed, a smaller packing of gauze was introduced. From this time the patient made an uneventful recovery, since which he has been in perfect health.

Mr. T., aged 49, healthy, except occasional attacks of indigestion causing pain in the right inguinal region. Had in the past six months two other attacks of pain which had passed off after he had taken a dose of castor oil and laudanum accompanied with rest for a few days. I was called to see him for the first time September 21. His pulse was 100, full and hard, temperature 101 degrees; pain in back and side, chiefly in the region of the cecum. He had taken paregoric for the past two days and was fully under its influence when I examined him. I continued to visit him, ordering saline cathartics and chloral to relieve pain. On the 23d I for the first time discovered dullness over the region of the cecum; on the 24th he was placed under the influence of an anæsthetic; an incision was made over the most prominent part of the field of dullness, cutting into a sac of pus which was small, containing not more than one or two ounces with the debris, composed of the broken down appendix vermiformis. The sac was washed out with a hot bichloride solution, the cavity packed with iodoform gauze, which was the beginning of a speedy recovery which took place within the following six weeks.

Mr. R., aged 16, student, had enjoyed excellent health until his attack three days before I was called to see him, August 26, 1892, giving me the following history of pain in the right iliac region with range of fever from 100 to 103.3-5 degrees, pulse 85 to 104. On the fifth day a tumor the size of an orange was discovered by conjoined touch, which prompted an operation the following day. The patient had been treated with cathartics, pain relieved by chloral and hot applications over the inflamed surfaces. On the sixth day an incision was made over the tumor, which was opened and about six ounces of pus evacuated. The cavity was packed with gauze, allowing free drainage. The patient made a speedy recovery, since which time no recurrence of the disease has made its appearance.

Mrs. L., colored, aged 23 years, came to the outdoor department of the Protestant Hospital some time in 1892. She suffered great pain over the region of the cecum which continued for about a week. I did not see her for about

four or five days after her first visit. I was called to see her in great suffering, and upon examination I found a dullness over the region of the cæcum and by conjoined touch I could feel a fluctuating tumor. I made an incision in the usual line, opening into a cavity of pus which was discharged, the parts washed out as well as the surroundings and circumstances would allow, the cavity packed with gauze which was removed on the second day and again dressed. The patient made a good recovery notwithstanding she was surrounded with filth and poorly fed.

Miss T., aged 22, sister of a West End physician. I was called to see her late in the fall of 1892 and found her suffering from pain in the right inguinal region beginning at McBurney's point and extending over the abdomen. She had fever with a temperature of 101 to 103 degrees, pulse 110 to 120 weak and irregular. She suffered with nausea, vomiting and constipation. I could by percussion notice a dullness over the region of the cæcum. I made a diagnosis of appendicitis and urged an immediate operation. The family would not consent to it. Afterwards I learned from her brother that she had passed quantities of pus with the stool. She continued to have fever and in about a fortnight she was taken with a violent attack of phlegmasia dolens. I was called to see her again when she was removed to the Protestant Hospital for treatment. The circumscribed dullness over the cæcum had disappeared. The pus evidently had burrowed under the peritoneum to the region of the left caphanus vein, which had produced obstruction of that vessel causing the phlegmasia dolens leaving the poor suffering patient in a most deplorable septic condition. The fever did not abate up to the time she left the hospital, which was three months after the first time I saw her. I hope but cannot believe that she will enjoy health even if she does not perish from this unfortunate condition brought about by this disease, and especially since she was denied the only remedy, a surgical operation, which in my opinion offered her the only hope of health or security from death. I learn that she has since died.)

In conclusion, the symptoms attending this disease are as distinct and definite as any other affecting the abdominal region. Mistakes in diagnosis should be an exception; that after a diagnosis is made it becomes purely a surgical case and as such it should be treated; that such methods of operation should be used for the removal of cause of the disease, namely, the removal of the appendix; that drainage should be employed in cases where pus is likely to jeopardize the life of the patient; that the earlier the operation is made the safer it will be to the life of the patient, as well as protect the health of the same. Above all, the public should be enlightened and a proper estimate placed upon the danger of this disease and that surgical interference is the only rational treatment.

SELECTIONS.

Children's Rights.—In a recent address to the graduates of the Marion-Sims College of Medicine, Prof. I. N. Love, among other bright sayings, said:

"The child is the only right so many are granted to children was the first-born, and to this day this right is granted them without regard to how they are considered. They are fully justified often in their position. 'What are we born for?' Surely in response to the question of the physical authors of their being. The children are the creatures of a momentous act, born upon the greatest of all the scenes of the earth, the parents, for bringing the radiant child into the world, worry and death. There are many who still believe that the right of the child is to be born or by those portions

ally inclined, it may be granted the additional right of being 'born again' or else damned forever. All will grant the truth of Tupper's announcement that 'a babe in the house is a well-spring of pleasure;' at least if it is not, it should be. Is there anything more beautiful, more sweet, more lovable, more heavenly, than a baby? Nothing, unless it be two babies. Yes, truly a baby is a thing of beauty, and we have good authority for the statement that it is a joy forever; but are babies developed in the direction of being perpetual joys? Does their loveliness increase? Will they never pass into nothingness or, what is worse than nothingness, coarseness? As the statement has often been made, that the problem as to whether life is worth living depends much upon the liver, so we are safe in saying that the question as to whether a babe is worth the bearing and all that the term implies, depends much upon those engaged in, and responsible for, the bearing.

I make bold to say that the men who have invested their money and given their gray matter toward the raising of the finer breeds of horses, cattle and others of the lower animals, manifest greater intelligence and appreciation of their awful responsibilities than do the average parent. Unquestionably, one of the greatest obstructions to-day to the proper appreciation of duty on the part of parents to their children, is due to the material struggle for money and place. Fathers work frantically day and night for gold, and with gold they buy their children. Mothers, too many of them, are filled with the desire for social preferment or the securing of that place in society which will enable them to outshine some one else. Both father and mother should be satisfied with a less degree of success in these things, and begin their children's beginning of their career to work toward the furnishing to the State of high-bred, good blooded children. There is one thing in the Catholic church which commands my admiration, and that is their teaching in the direction of duty to the home and the children, particularly upon the part of mothers. In fact, I am strong in the belief that the world owes much to the Catholic church for its noble fight for the rights of motherhood; for the nobility and the dignity of motherhood. It might well be called the Mother Church if for no other reason than that of having placed the Virgin Mary upon the level of God himself, thus putting maternity close to Divinity.

It is the right of every child to have something more than the privilege of calling a man father. It is his right to have that father realize that child as a child, not as a subject, not as a provider of food and clothing, a thing to bluish at if not possessed. If, however, the father absorbs himself only with money getting and the jumes and frets of trade, profession or the commercial world during the earlier years of the child's life, he will be his own worst enemy later in life to find that he knows not his own nor does his own know him?

The father calls the child into being. Having done so, he assumes a duty which he should not neglect. It is the right of every child to have something more than his father than a mere provider of food and clothing. Does the father want the honor, the respect and the enjoyment of the sweetest part of life, he must needs make himself acquainted with his child from the day of its birth on. It is as much his duty to study the child's nature, character, general tendencies, as it is the duty of the mother; indeed he has no more right to shirk his part of the sentimental relations between parent and child, than has the mother. Of course the father who neglects the material interests of his children on the theory that what was good enough for him is good as an obligation, should pay conscience money to his own father. All children have the right to claim that their parents give them the benefit of the mistakes made in raising them; in truth, parents might well take pointers from horse, bird and dog fanciers and cultivate themselves in the direction of becoming child fanciers.

I think it was Oliver Wendell Holmes who once said that the time to treat some of the ills, mental, moral and physical, of children, would be to have treated their great-grandparents.

Children have a right to a home, before they are born, that their parents be healthy. A common-sense view of this question should be taken. The State should enact laws preventing the marriage of the criminal, or those diseased, mentally and physically, and all who have reached the age of sixty. The child has a right to demand that such marriages do take place, that it be protected; that preventive measures be taken to guard it against the transmission of unfavorable germs. With the existing knowledge that we have, the child should demand protection against disease in advance of its birth, and even of its conception.

Knowing that each and every one of us is a part of all that we have met, we should realize that the child has a right to be protected from improper associations, whether these associations be the germs of diphtheria, scarlet fever, typhoid fever, or what it be, these children should be protected with vice and crime. An authority, high in the church, has given expression to the thought, that if children can be kept under the church influence until the age of seven, they are secured in their faith through all coming time.

Children have a right to demand the completest cultivation of one of the most important organs given to them, namely, their voice. They cannot all be made good singers, but the voice of every individual child can be developed in the direction of being a good singer. I believe that nowhere on earth is the human voice more neglected than in America. The number of shrill, harsh voiced girls that one comes in contact with daily is appalling. Too often not sufficient attention is given to the voice and the habit of loudness and carelessness of speech is developed. The girl has been badly educated, and the boy as well, no matter what may be their accomplishments, unless they have learned that the secret of being understood lies more in enunciation than loudness. There are many voices being squandered and irreparably injured each day that presses by the heavily burthened and careless roughness of untrained voices that are being worn out by overwork or whipped out by alcohol. It will be difficult for one who ever saw the beautiful, gentle Adelaide Nelson to forget her beauty, but no one who has listened to her voice, can fail to remember it. I believe that the voice of a boy or a girl who has reached his second childhood, that the gentle echoes of a sweet voiced mother. I recall a big, strong, rough and ready man, to my mind, who, when danger rose, turned to his mother for help, and the strongest point he made in his favor was that she was a little woman and so, kindly voiced, always to have had an influence over him in life, beyond that of anything on earth; and that the memory of her sweet voice, came to him over and over when tired, weary and worn, and gave him inspiration.

The Peptonizing Values of Papain.—The *Pharmaceutical Record* for July, 1893, deals with the properties of papain as an aid to digestion. This substance is derived from the milky juice of the unripe fruit of the pawpaw tree (*Carica papaya*). The preparation made by Dr. Finkler is the one taken up for consideration in the *July Record*.

Papain is a most energetic solvent of albuminoid substances, in many respects resembling pepsin. Its fermentative agency is not dependent upon the presence of microorganisms. These facts entitle the substance to be classified as a proteo-hydrolytic enzyme.

Papain has its vegetable origin to commend its employment as a medicine. The general tendency of our times being, as the article points out, to discard so far as possible those drugs that have an animal origin, thereby evading some of the dangers of bacterial infection that inhere in devitalized animal tissues.

The action of papain is not impaired by the presence of most salts and antiseptic agents. It is also considerably stimulated by either dilute acids or weak alkalis, a fact which appears to adapt it to assist in gastric digestion where the reaction is acid, and also in the intestinal digestion where the juices possess an alkaline reaction.

Helbing and Passmore, the investigators in this instance, took up anew the question of the peptonizing powers of this substance and they report that their experiments show beyond peradventure that papain is a true peptonizing agent. It is capable of converting at least one thousand times its weight of fresh meat fiber into soluble peptone and thus bringing that fiber into an assimilable form.

Ophthalmia Leprosa.—*Ophthalmia leprosa* was the subject of a very interesting paper read before the St. Petersburg Medical Society by Dr. Hulanicki. He found the eyes diseased in three-fourths of the cases and always both eyes affected, though in different degrees.

The eyelids are the most frequent seat of the leprosy disease, showing nodular infiltrations along the edges; but in exceptional cases only these nodes ulcerate, leading to secondary disturbances by cicatricial contractions (ectropium, entropium, blepharophimosis).

The conjunctiva does not seem to be the primary seat of leprosy infiltrations: Dr. Hulanicki at least came to the conclusion that the nodules described by so many writers as leprosy nodes of the ocular conjunctiva most likely have been episcleral infiltrations, because the conjunctiva was always found freely movable over the nodes.

In the cornea, leprosy produces two distinct forms of pathological changes, to wit: either a diffused progressive opacification, or a nodular infiltrate. Both forms are characterized by a very chronic course and the absence of all inflammatory symptoms. The diffuse opacity is much more frequent than the nodular form, and usually begins at the upper corneal margin, where we find a number of minute gray spots and streaks over which the surface of the cornea is perfectly smooth. These spots gradually increase in number and size, coalesce and ultimately cover the whole cornea with a dense grayish-white opacity (like a total leucoma), which destroys the sight entirely and permanently; for there has never been observed an improvement in the condition of the cornea.

The nodular infiltrate of the cornea is very seldom a primary affection; in most cases it is the product of an episcleral nodule encroaching upon the cornea. The episcleral tumor is seen to grow toward the corneal margin, where it forms a thick, half-moon-like infiltrate; its border facing the cornea is well marked and prominent, while toward the sclera it slopes down gradually; the conjunctiva about this infiltrate is always very vascular. This semi-

lunar infiltrate slowly spreads over the cornea, sometimes getting so large as to give the anterior portion of the eye the appearance of a nodular tumor protruding between the eyelids. These tumors finally disappear either by gradual absorption or by ulceration; but in either case the morbid process terminates with atrophy of the eyeball.

The iris is frequently involved by acute inflammation and the formation of small yellowish-white nodules resembling tubercles or gummata; these nodules are absorbed leaving no trace behind, or a small cicatricial spot in the iris. With the iritis there is almost always an inflammation of the ciliary body and choroid, producing temporary or permanent opacities in the vitreous.

The microscopic examinations have always found the typical lepra bacilli, especially in the cells of the nodular infiltrations. These cells are lymphoid cells, imbedded in a fine fibrillar network.

The treatment of the ophthalmia leprosa consists in the early destruction of the nodules either by cauterization or by excision and subsequent cauterization. In this way sometimes the further development of nodules in the cornea is prevented and a fair degree of sight preserved. The leprosy iritis is treated like the acute iritis of any other origin. The removal of the nodes in the iris by iridectomy has been recommended, but does not seem so far to have given great satisfaction.—*St. Petersburg Med. Week-schrift*, June 5, 1893.

Rapid Demonstration of Cholera Bacilli in Water and Feces.—Schill, *Centralbl. f. Bakt.*, June 8, 1893, having observed that tubes containing cholera culture remained uncontaminated notwithstanding frequent removal of the cotton wool plug, conjectured that germs gaining access to the nutrient medium were destroyed by the cholera bacilli, or more probably their products of metabolism. This supposition was borne out by an experiment, which consisted in adding to old cultures of cholera, previously sterilized by heat, pure and mixed cultures of various pathogenic and saprophytic bacteria, leaving the inoculated tubes a certain time in the incubator, and then preparing from them plate cultures. These were found to remain quite sterile, or at most to show a few colonies after the lapse of some days; control plates showed abundant growth in a day. When, on the other hand, the sterilized cholera culture was inoculated with cholera bacilli, the plates afforded evidence of growth of these organisms, even after twenty-four hours' exposure to the action of the metabolic products. Upon these observations Schill bases a method of demonstrating cholera bacilli in water and feces. Broth culture of cholera, several months old, is sterilized by boiling once; a small quantity of the water or feces is then added to it, and the whole is placed in the incubator. In two to three hours—longer if the cholera culture is not an old one—gelatine and agar plates and gelatine tubes are prepared from the mixture—the last to show the characteristic growth of cholera. If cholera bacilli are present the colonies should be apparent in a day or so. It is advisable to render all the media employed, alkaline by the addition of crystallized soda (1 percent.), as recommended by Dahmen. By this means a soil very favorable to the growth of cholera bacilli is obtained.

The Use of Buried Wire Sutures in Laparotomies and Hernias.—In a severe case of abscess between the recti muscles with umbilical hernia in a child 15 months old, Schede of Hamburg, united the two muscles with silver wire sutures, obtaining the most gratifying results.

In a similar case, occurring after a laparotomy, he followed the same procedure, which resulted in his adopting this method principally in laparotomies, to avoid subsequent hernias and also for the removal of already existing hernias.

Since 1890, 150 laparotomies have been treated in this manner, resulting in 121 cures. Seven of the cases had small hernias in the cicatrix, but only four of these were directly attributable to the method of operating. The wounds healed mostly by first intention; small fistulous sores occasionally occurred, but disappeared immediately after the removal of the sutures.

While at the beginning Schede used silver wire only for peritoneal and muscular approximation, he has also employed it extensively in abdominal suturing in general, for the reason that the tension of the wire is easily regulated thus preventing suppuration around the stitches.

The sutures were disinfected by boiling first in 1 per cent. solution of sodii bicarb. and immersion in a 3 per cent. carbolic acid solution.

The dressing of laparotomy wounds when completely sutured, consisted for years in a strip of iodoform gauze from two to three fingers (breadths) wide, made to adhere with collodion.

Schede operated on eleven umbilical hernias, three hernias in the linea alba and thirteen ventral hernia. In all of these the hernial sac as well as the skin covering it were entirely extirpated.

Finally forty-eight patients with incarcerated external inguinal hernias were operated upon, six of whom died. Six with irreducible external inguinal hernias recovered completely. Sixty-eight with reducible inguinal hernias all recovered; however, several of this number later on had a recurrence of the trouble. Of thirty-four patients with incarcerated femoral hernias, three died. Out of four with irreducible femoral hernia, one died. Twenty-four patients with reducible femoral hernia were all cured, only one having a relapse.

The total number of relapses (10 per cent.) is relatively small, though Schede allowed no trusses to be worn.

The pillars of the ring were united after extirpation of the sac, by six to eight buried sutures. The remainder of the wound was closed without drainage by catgut sutures. —*Centralblatt für Chirurgie*, July, 1893.

British Interest in Chicago Water.—The *North American Practitioner* pointedly suggests that while thankful for the British interest taken in the question of the water supply in the World's Fair city, yet there are good cruising grounds for the *Lancet* and *British Medical Journal* Commissions nearer home.

The *Practitioner* suggests that American sympathy should be extended to England, as the following distressing condition shows:

Ashton-under-Lyne, June 15th.—The Waterworks Committee decided to curtail the supply on and after June 19th. The population to be supplied is 200,000, and there was on June 15th only thirty-five days' supply in store.

Bokewell, June 10th.—The reservoirs are very low, and the supply is cut off at night.

Brentford, June 9th.—Notice issued by the Mayor that the available sources are so greatly reduced that it may be necessary to limit the supply and to discontinue street watering.

Deerport, June 16th.—The Water Company have notified the military authorities that they cannot continue full supply, and must cut it off from 6 p. m. to 6 a. m.

Leamington, June 14th.—Water supply very short.

Marchfield, June 17th.—The Water Committee recommend the greatest care in the use of water, the reservoirs being low.

Manchester, June 20th.—Supply shut off from 8 p. m. to 5 a. m., the entire storage ("of what might fairly be called good water") being enough for forty to forty-five days. Street watering was stopped, with the result of much injury from dust, and bad smells from the gulleys, but well water has subsequently been utilized for that purpose.

Pewsey, June 14th.—Reservoirs emptying rather rapidly, and supply to be shut off earlier than usual.

Whitechapel, June 8th.—The local board issued a notice prohibiting all washing of footbaths and yards, and watering of gardens, with the town's water, and threatening prosecution for any breach of the notice.

Transmission of Epithelial Tumors to White Mice.—At the French Academy of Sciences M. Verneuil read, in the name

of M. Henri Morau, a very interesting observation on the evolution of certain epithelial tumors in white mice. The experiments were made during the five years from 1888 to 1893. In 1888 M. Morau placed in the right axilla of a white mouse a tumor of the size of a hazel nut, which under the microscope showed the characteristics of an epithelioma of the cylindrical type. This neoplasm has now been transmitted to seventeen generations of mice. In those inheriting, the tumor is still reproduced, but less constantly, and less quickly than at the commencement. In new and healthy animals the inoculation reproduces less quickly and less often, as if the inoculable principle were becoming attenuated.

After giving in detail some control experiments, M. Morau gives the following conclusions, which are of great interest, for it is confirmative of the clinical facts already observed in the march and evolution of these neoplasms:

1. Cylindrical epithelioma of white mice is transmissible to animals of the same species, by inoculation and by ingestion.

2. Heredity plays an important rôle in the development and evolution of these tumors.

3. Traumatism hastens and favors their generalization; and also gestation and accouchement.

4. These tumors produce poisons which, absorbed in the organism, retard deterioration and cachexia.

5. These tumors seem to lose their virulence in the measure in which they are evolved in new animals, but always in the same species.

6. So long as these tumors are not ulcerated they are not invaded by microbes.—*Gazette Médicale de Paris*, July 15.

A Novel Competition for Nurses.—In the course of the discussion on Nurses' Homes which took place at the International Congress at Chicago, Dr. Billings, the president, expressed the view that it was about time that women manifested the latent power claimed for them in a practical and definite form. He pointed out, for example, that it had been left to man to design and erect homes for nurses and training-school buildings. Architects and male experts had exhausted their ingenuity in designing such buildings, and he thought that Congress was a very appropriate platform which to invite the exhibition of woman's latent power by urging the superintendents to elaborate plans and enumerate each item which a model nurses' home and training school should contain. The following details of the proposed competition will no doubt be of interest:

ATTACHED TO A HOSPITAL OR UNDER SEPARATE MANAGEMENT.

Two prizes, namely, a first prize of \$75 (£15), for the best plan sent in for competition, and a second prize of \$25 (£5) are offered by the editor of *The Hospital*, London, England, for competition amongst lady superintendents, matrons and nurses in the British Empire, the United States and the countries of Europe.

Competitors must send in the proposals in typewritten form, which must consist of two parts: (1) A statement setting forth categorically all the rooms and accommodation which are necessary in order to make the proposed nurses' home a model of what such an establishment should be where room is provided for from fifty to one hundred nurses; (2) A second statement and plan prepared in similar form which provides accommodation for from one hundred and fifty to two hundred nurses. Each of these specifications (1) and (2) must be accompanied by plans drawn to a uniform scale, and must explain how the proposed home for nurses can be extended, should the growth of the establishment render such a step necessary.

CONDITIONS.—1. The competitors must send their names and addresses by Nov. 1st, 1893, to Dr. J. S. Billings, U. S. Army, Washington, D. C., and all plans and proposals presented for competition must reach Dr. Billings not later than January 1st, 1894.

2. Dr. Billings, Dr. Henry M. Hurd, Superintendent of the Johns Hopkins Hospital, Baltimore, Md., and Miss Sophia S. Palmer, Superintendent of the Garfield Hospital, Washington, D. C., are appointed as the judges of the papers and plans submitted in this competition, and their decision will be final. Should the papers and plans submitted demand such a course, the judges reserve the right of withholding any award.

3. All proposals must be typewritten on one side of the paper only, and all plans must be drawn to a uniform scale of one-eighth inch to one foot.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, IN ADVANCE, POSTAGE PAID.
PER ANNUM, IN ADVANCE, \$5.00.
SINGLE COPIES, 15 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 68 WABASH AVE., CHICAGO, ILLINOIS.

All members of the Association should send their Annual Dues to the
Treasurer, RICHARD J. DUNGLISON, M.D., Lock Box 1274, Philadelphia, Pa.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Dunglison, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues and subscription for THE JOURNAL. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

SATURDAY, AUGUST 5, 1893.

THE NATIONAL ASSOCIATION OF MILITARY SURGEONS OF THE NATIONAL GUARD.

The National Association of Military Surgeons will meet in Chicago next week. Among their number will be found many from the army who have seen service in the last war, and others who have served in the Indian campaigns. Naval medical officers will be there who have had years of arduous service at sea; Marine Hospital officers who have fought epidemics at close quarters; guardsmen who have served on one side or another during the Civil War and young guardsmen who are ready to be mustered into active service whenever they may be needed.

It is a gallant and accomplished body of medical officers, and that they now have an organization, is due to PROFESSOR NICHOLAS SENN, Surgeon General of the Illinois National Guard, then Surgeon General of Wisconsin. Order is coming into the organization, and when their aims are fully accomplished, the NATIONAL GUARD will be officered by a corps of medical men, in no respect inferior to their colleagues in the Public Service. Much legislation is needed, before all the States provide for suitable examinations before appointment, but the sentiment that the Association is creating will soon compel it. The scientific character of the meetings is yearly improving.

There is some talk of asking the AMERICAN MEDICAL ASSOCIATION to establish a new Section of Military Surgery and Hygiene, but we are not aware of any definite steps to that end. As the constitution of the Association will be under discussion at the San Francisco meeting, this would seem a favorable time to act in the matter.

LEGISLATION FOR THE PREVENTION OF
BLINDNESS.

To devise means by which the number of the unfortunate who people our blind asylums may be less-

ened, is a noble aim; the prevention of blindness is a question which interests the humanitarian and the political economist alike, for the ever increasing number of blind people is a living burden upon the State, and as there are always people who see in legislation a panacea for all evils it is not astonishing that the legislative machinery has lately been set into motion against the evil of blindness. Statistics show that one-third of the inmates of the blind asylums have lost their sight by hemorrhoidal ophthalmia in infancy while, on the other hand, the oculists maintain that if this disease is seen and properly treated at the outset, the eyes can be saved in almost every instance, the law makers concluded that if all cases of ophthalmia in the new-born could receive early and proper treatment the number of blind children would be materially reduced. This is perfectly sound logic; but how did they propose to put it into practice?

The New York act for the prevention of blindness (which has served as a pattern for similar laws in other States) prescribes that nurses and midwives should report at once to some legally qualified practitioner any suspected case of ophthalmia in a new-born infant. We must confess our utter inability to understand how a law of this kind shall prove of any practical benefit. It would take the case out of the hands of an ignorant midwife or nurse and turn it over to a physician who may be just as incompetent to manage the case intelligently and successfully; for this law does not require specifically that the legally qualified practitioner to whom the case shall be reported, shall possess the necessary knowledge and experience to treat this disease intelligently, and if the law takes it for granted that every physician has this knowledge and skill, it commits a fatal mistake; for if the experience of those best qualified to give an opinion is correctly reported to us, it would seem that most practitioners are not competent to manage a case of ophthalmia neonatorum; therefore we are convinced that the statistics of blindness will not be altered one iota by such laws as have been enacted, unless every physician is required to give particular attention to, and show his ability in the treatment of this very important disease.

But if we wish to prevent blindness by legislation, it would seem far more rational to act upon the principle that an ounce of prevention is worth a pound of cure. If we can prevent the outbreak of ophthalmia neonatorum we have surely a far better guarantee for saving the eyes of the infants than if we allow the disease to develop and then try to cure it. Now well authenticated reports leave no room for doubting the efficacy of the prophylactic treatment suggested by PROF. CRILE, of immediately washing the eyes of the newborn infant and dropping into them a few minims of a 2 per cent. solu-

tion of silver nitrate. He and his followers have succeeded in banishing ophthalmia neonatorum almost entirely from their wards, and if these silver instillations are, as we are assured, perfectly harmless, there is no valid reason why they should not be made obligatory. As the compulsory vaccination has saved hundreds of thousands of men from the ravages of small-pox, so might the compulsory prophylactic treatment (which requires no special skill and can be carried out by any physician or nurse or midwife) of the eyes of the newborn infant save thousands of eyes from the ravages of ophthalmia neonatorum, and effectually close one of the most prolific sources of blindness.

THE ACTION OF PILOCARPINE ON BODILY TEMPERATURE.

Any scientific investigation of the physiological action of a drug is always welcomed by the profession, and this is especially true when opinions of various investigators are at variance. Some investigators claim that pilocarpine lowers the body temperature, while others assert with equal positiveness that it increases it.

With a view to furnishing evidence which might settle this question, or at least to determine how the heat processes are affected to bring about alterations in temperature, PROF. EDWARD T. RECHERT, of the University of Pennsylvania carried on a series of experiments upon five dogs. His conclusions are interesting and valuable and are as follow:

1. Pilocarpine first increases and then decreases bodily temperature.

2. Heat production and heat dissipation are first increased and then diminished. Heat production is the process primarily affected, the alterations in heat dissipation following and being dependent upon the effects upon heat production, excepting after very large doses, when heat dissipation may be depressed even more than heat production during the stage of lessened heat production.

3. The alterations in temperature are dependent essentially upon the actions on heat production, but may be affected by sweating, and after very large doses by alterations in heat dissipation.

The primary increase of temperature is due primarily to an increase of heat production, but after very large doses this increase may be exaggerated and continued by a diminution of heat dissipation which is greater than the depression of heat production.

The decrease of bodily temperature is due to a diminution of heat production, but may, in part, be due to sweating.

4. The actions on the process of heat production are so much more potent in their effects on temperature than those on the sweat glands, that it is doubtful if the latter ever plays an important part in the temperature alterations.

5. Bodily temperature may be increased during the stage of diminished heat production, owing to the greater depression of heat dissipation.

6. The amount of increase and decrease of temperature and the duration of each of these periods are essentially in direct relation to the dose.

MALPRACTICE CASE.

This word has no charm for a physician's ears. Still he is very much interested in knowing what the courts have to say upon the subject. The latest reported decision touching it, and one too of considerable importance, is that of the Supreme Court of Iowa, in *PECK v. HUTCHINSON*. This action was brought against a physician and surgeon, who, it was asserted, held himself out as especially skilled in the treatment of diseases of the eye, and was therefore employed and undertook to treat a diseased eye, when he negligently resorted to a surgical operation, instead of using proper medical treatment, and, in performing the operation negligently used a large knife, instead of an instrument adapted to that purpose; and also, it was said, negligently and unskillfully undertook a painful operation on the eye without first giving the proper drug to render the patient insensible to pain, so that by the latter wincing, he negligently and unskillfully cut a long gash in and about the "sight" of the eye, which he left without proper treatment.

A correct statement of the law as to what is required of physicians and surgeons, the court said, is that they are required to use ordinary skill and diligence—only the average of that possessed by the profession as a body, and not by the thoroughly educated only, having regard to the improvements and advanced state of the profession at the time of the treatment. And the defense, which was attempted to be made, that no payment was received for the services rendered, and that where the services are rendered as a gratuity, gross negligence or willful negligence or want of skill will only create a liability, the court further said, was clearly wrong; for it could discover no good reason why the degree of care to be used by the physician or surgeon should be less in case his services are gratuitously rendered. Moreover, in the absence of an express contract in such cases, the law implies that the physician or surgeon shall be compensated for his services, and in the absence of any express contract touching compensation, as the law implies a promise to make compensation, the physician or surgeon must exercise skill accordingly in rendering his services, though in fact he may never be compensated. Two other points in the decision are also to be noticed: The reading from an old edition of a medical work to show what is proper treatment, the court held to be a harmless error, when the evidence clearly showed what the modern practice is. And, lastly, evidence tending to show that a disease from which the patient was suffering generally resulted in the loss

of the eye, was held admissible in defense of a charge of malpractice as above. The court therefore reversed the decision of the lower court and remanded the case for a new trial.

MASSACHUSETTS SANITARY EXHIBIT.

The exhibit of the State Board of Health of Massachusetts in the Bureau of Hygiene and Sanitation in the Anthropological Building at the World's Columbian Exposition is one that should be examined by all interested in sanitary work. It shows the various lines of work done by the Board as well as the results of special investigations.

In the principal court may be found:

Diagrams and charts illustrating the general work of the Board upon Life and Health, Diseases and Epidemics, Vital Statistics and Comparative Mortality. This exhibit includes maps and charts showing the distribution of deaths by townships and by different diseases, the influence of density of population on mortality from several diseases, the distribution of births, marriages and deaths by months, and the results of investigation into the causes of several epidemics of typhoid fever in Massachusetts.

The Lawrence Experiment Station is very completely represented by many samples of sands, gravel, sewage, water, filtered sewage and filtered water, together with photographs and a model showing the arrangement of the filters, laboratories, *et cetera*. Several pieces of apparatus used in the chemical and bacterial laboratories are also shown. This station at Lawrence, Mass., was established in the fall of 1887 by the State Board of Health for experimenting, on a large and complete scale, upon the purification of sewage and water by filtration through sand and other substances, and is the first of the kind in America.

The Department of Food and Drug Inspection shows samples representing some 50,000 samples examined since 1882 of injurious or fraudulent adulterations found in Massachusetts, with diagrams showing the decrease of adulterations since the work of inspection was begun. Models are shown of trichinae, with charts illustrating the decrease of trichinosis in Massachusetts.

Maps and figures are given showing the results of long continued examination by the Board of the public water supplies of the State. Samples are also shown of Massachusetts waters.

A full set of the reports of the Board since its organization is exhibited, together with many blanks and circulars used in the regular work.

In the annex adjoining the main pavilion may be found photographs and plans of public works illustrating some of the practical results of the scientific investigations of the board, including the sewage filter beds at Framingham and Marlborough for

purifying the entire sewage of these towns—sewage precipitation works at Worcester, the largest of the kind in this country; the metropolitan sewage system, which is to form a connected system of sewers for Boston and the cities and towns immediately surrounding it; and the filter bed, now nearing completion, for the purification of the water of the Merrimac river to supply the city of Lawrence—the first large filter of the kind in America. This bed covers two and one-half acres and will filter at the rate of five million gallons per day.

A table and maps are given, showing the towns and cities which have been advised by the Board in regard to water supplies and sewerage systems.

Near by the exhibit of the State Board of Health, is a model and map of the water supply system of the city of Boston, showing the different water sheds included. A set of photographs of the different reservoirs is also shown.

Massachusetts has been more liberal in its appropriations to the State Board of Health than any other State in the Union, and as a result the work accomplished in many respects is better than any done anywhere else in the civilized world.

This exhibit is an object lesson well worthy of study by other States, as owing to the increased density of population and increase of manufacturing wastes, our water supplies are annually becoming more polluted, and the necessity for such work, more and more imperative.

A PROPOSED NEW MEDICAL HOME.

The *Brooklyn Medical Journal*, July, states that a very important meeting has recently been held in Brooklyn, the outcome of which may be expected to be the erection of a building wholly devoted to the interests of the medical profession. DR. C. N. HOAGLAND, the liberal founder of the beautiful laboratory existing at that place, has agreed to give largely to this project if the physicians of his city can be unified and brought in under the same roof. He stands ready to give not less than \$50,000, if the like sum can be raised from other sources by the profession. A sub-committee of the meeting above referred to has in charge the duty of presenting the project before the various medical societies, about a dozen in number, which will need to take up the subject favorably before the philanthropic donor can move further in the matter.

NEW INEBRIATE ASYLUMS.

A company has been formed, of which DR. C. H. HUGHES of St. Louis, is one of the principal promoters, to establish sanatoria in several principal cities of the country, solely for the treatment and cure of inebriety, with a view of having them managed by thoroughly educated neurologists under

one general management. The sanatoria are to be managed according to business methods that will meet the approval of the regular profession.

SOCIETY NEWS.

American Medical Association.—The majority report on the new Constitution was not adopted at Milwaukee, as the matter was postponed until next year, when all amendments and the minority report will be in order for discussion. The question of army and navy representation, we are assured by certain members of the committee, will be adjusted on a basis satisfactory to the three medical services, and no one need fear but that their wishes will be fully met.

Tri-State Medical Society.—The President of the Tri-State Medical Society of Alabama, Georgia and Tennessee has appointed Drs. A. W. Boyd, E. E. Wise and G. Manning Ellis on the Executive Committee to arrange for the next annual meeting, which will be held in Chattanooga, beginning Tuesday, October 17.

The following sub-committees have been appointed:

Exhibits: Frank Trester Smith, B. S. Wert and Wm. Nolan.

Hall and Hotels: G. Manning Ellis, B. F. Travis and E. A. Cobleigh.

Transportation: E. B. Wise, G. A. Baxter and H. Berlin. At a recent meeting of the Executive Committee it was decided to limit the number of subjects so as to give scope for a fuller discussion. Prominent men will be invited to treat of a given subject, each writing of a single phase and not endeavoring to cover the whole ground. This will not exclude volunteer papers, which will be welcomed as heretofore, but will be grouped with those of kindred subjects so that all of a kind may be discussed together.

Congress of Education.—The opening ceremonies of the General International Congress of Education was held Tuesday afternoon, July 25th. A reception was held in the evening. The receiving party were the general officers of the World's Congress Auxiliary, and the general officers of the Woman's Branch, assisted by the Commissioner of Education of the United States, and the officers of the National Educational Association, and the General Educational Committee.

The Pan-American Medical Congress.—SECTION ON MILITARY MEDICINE AND SURGERY.—*Preliminary Program.*—The executive president requests the honorary presidents, advisory council and secretaries of the Section, to meet him at the Hotel Richmond, Washington, D.C., on Monday evening September 4, at 8 p. m.

On Tuesday, September 5, from 3 to 6 o'clock p. m., an informal meeting of the Section will be held at the Army Medical Museum for the purpose of inspecting the collections contained in this Museum and the Library of the Surgeon General's office.

On Wednesday, September 6, the regular sessions of the Section will commence at 11 a. m. The address of the executive president will first be read. Short addresses by the honorary presidents will then be in order. A paper on "Laparotomy in Gunshot Wounds of the Abdomen" will then be read by Prof. P. S. Conner of Cincinnati. This paper will be discussed by several prominent surgeons.

The afternoon session will be devoted to a demonstration of the Hospital Corps drill by a detachment under the command of Major John Van R. Hoff, Surgeon United States army, also to an exhibition of a field hospital complete,

with equipment now in use in the United States army; followed by a discussion upon first aid to wounded, transportation of wounded men from the battlefield, and field hospitals.

On Thursday, September 7, the morning session will be devoted to reading papers in the English language; the afternoon to papers and discussions in Spanish. One of the honorary presidents of the Section familiar with the Spanish language will be invited to preside.

Friday morning September 8, will be devoted to the reading of papers.

The meetings of the Section will be held in the lecture room of the National Museum Building.

Headquarters of the Section at the Hotel Richmond, corner of Seventeenth and H Streets, N. W.

GEO. M. STERNBERG, *Executive President.*

Pan-American Medical Congress.—*Committee of Arrangements.* Washington, D. C.: Samuel S. Adams, M.D., chairman; J. R. Wellington, M.D., secretary; G. L. Magruder, M.D., treasurer.

Executive Committee:—Dr. Samuel S. Adams, chairman; Surgeon Generals, Geo. M. Sternberg, U.S.A.; J. Rufus Tryon, U.S.N.; Walter Wyman, U.S.M.H.S.; Drs. S. C. Busey, G. Wythe Cook, Carl H. A. Kleinschmidt, H. L. E. Johnson, Llewellyn Eliot, H. H. Barker, C. W. Richardson, W. Sinclair Bowen, George S. Ober, G. L. Magruder, J. R. Wellington, and John R. Walton, D. D. S.

SUB-COMMITTEES.

Reception:—Dr. S. C. Busey, chairman; Surgeon Generals, Geo. M. Sternberg, U.S.A.; J. Rufus Tryon, U.S.N.; Walter Wyman, U.S.M.H.S.; Drs. J. Ford Thompson, Charles Hagner, Louis Mackall, J. Taber Johnson, T. Morris Murray, G. Byrd Harrison, and Jos. H. Bryan.

Entertainments:—Dr. G. Wythe Cook, chairman; Drs. G. N. Acker and Thos. E. McArdle.

Registration:—Dr. Carl H. A. Kleinschmidt, Chairman; Drs. John S. McLain and Johnson Eliot.

Roompools:—Dr. H. L. E. Johnson, chairman; Drs. E. L. Tompkins and J. Foster Scott.

Printing:—Dr. Llewellyn Eliot, chairman; Drs. Thomas N. Vincent and F. B. Bishop.

Halls and Exhibits:—Dr. H. H. Barker, chairman; Dr. J. T. Winter and C. M. Buchanan.

Ways and Means:—Dr. C. W. Richardson, chairman; Drs. John Van Rensselaer, Wm. Dillenback, Henry B. Deale, and Wm. Compton.

Information:—Dr. W. Sinclair Bowen, chairman; Drs. E. Oliver Belt and F. S. Nash.

Hobbs:—Dr. Geo. S. Ober, chairman; Drs. Wm. E. Handy and D. O. Leech.

Delegates to the Pan-American Medical Congress.—Gov. Boies of Iowa, July 26, appointed the following delegates to the Pan-American Medical Congress: Donald MacRae, Council Bluffs; J. W. Holliday, Burlington; Jennie McCowan, Davenport; B. H. Riley, Dallas Center; W. B. Kibbey, Marshalltown; W. Smouse, Des Moines; George Allen Staples, Dubuque; A. C. Jones, Breda; G. S. Bagley, Des Moines; L. B. Matton, Elgin; Harriet Mallon, Waterloo; F. W. Cram, Sheldon; James P. Reynolds, Creston; J. F. Kennedy, Des Moines; R. C. Hoffman, Oskaloosa.

International Congress of Public Health.—The second address of this Congress has been issued.

This Congress will be in session in the Art Institute Building, Chicago, October 9-14, 1893.

Membership in the Congress is open without fee to all persons interested in public health, who comply with the formalities of registration.

The proceedings will be published by the American Public Health Association, and will be distributed to all members of the Congress who, on the payment of five dollars and election, may become members of the American Public Health Association. This payment of five dollars entitles the member to a copy of the proceedings; is the only fee required, and is entirely voluntary.

Registration may be conducted in person or by correspondence, and it will facilitate the work of the Congress for this to be accomplished as early as possible. To that end an

officer will be present in the Art Institute to attend to registration every day during the preceding week, October 2-7, from 9:00 to 5:00 o'clock, and again on Monday, October 9th, during the same hours. Registration may also be accomplished later, according to placards in the hall.

Correspondence on this subject may be addressed to "The Registration Clerk, Public Health Congress, Art Institute, Chicago." Checks should be made payable to the Treasurer American Public Health Association.

Registration consists in recording the name, including designating titles; the official representation, if any; the permanent residence; and the local address; this may be omitted or changed at discretion. The particular section the member wishes to work with should also be noted. No charge is made for registration.

Special business meetings of the American Public Health Association will be held each morning, including Monday, October 9th, and also at 4:00 p. m. Monday, October 9th, for the election of members.

The opening session of the Congress will be held in one of the large halls of the Institute, at 8:00 p. m., Monday, October 9th, and will be devoted to addresses of welcome by the president of the World's Congress Auxiliary, by the mayor of Chicago, and by the president of the American Public Health Association, and to responses by foreign delegates. These will be followed by the inaugural address by the president of the American Public Health Association.

The mornings of Tuesday, Wednesday and Thursday, from 10:00 to 12:00 o'clock, will be devoted to discussions in general of the meetings of the Congresses upon the following topics:

Tuesday—Diseases chiefly manifested in the air passages: tuberculosis, diphtheria, pneumonia, their prevention or control through public health service.

Wednesday—Disease affecting the alimentary canal: the diarrhoea of childhood; cholera; enteric fever.

Thursday—The eruptive fevers: smallpox, measles, scarlet fever, and the diseases of modern life due to nervous conditions.

Friday morning will be given up to a business meeting of the American Public Health Association.

The general meeting of Saturday morning will close the Congress.

The afternoons of Tuesday, Wednesday, Thursday, and if necessary Friday, will be devoted to the work of the Congress by sections as follows:

1. International, National and State Hygiene: Its methods and regulations, including Vital Statistics. ("State" as here used, indicates an autonomous part of a nation, as a kingdom of the German Empire, an integral State of the American Union.)

2. Municipal Health Service. To include the control of the infectious diseases of men and animals, offensive trades, water supply, the disposal of excreta, garbage and the waste of manufactories, schools and public assemblages.

3. The Infectious Diseases of Men and Animals: their causes, prevention and control.

There will also be general meetings of a popular character at 8 p. m. on Tuesday, Wednesday and Thursday, when addresses will be delivered on public health subjects of general interest. The object of these is to disseminate general information on such subjects as: The prevention of infectious diseases; the causes of ill-health due to soil, air and water; the health and sickness of self-supporters (workers).

All papers that are offered must be received by the Secretaries of the Public Health Congress, Chicago, Ill., before September 15th, 1893, and titles and abstracts of these by September 1st.

The president of the American Public Health Association, which embraces the Dominion of Canada, the Republic of Mexico and the United States, will be the president of the Congress.

Honorary presidents will be appointed from other countries.

Dr. John H. Rauch, chairman; Dr. F. W. Reilly, vice-chairman; Dr. F. W. Brewer and Dr. C. N. Hewitt, joint secretaries.

General Committee of the World's Congress Auxiliary, Public Health Congress: Dr. E. Garrett, Dr. J. M. Hall, Dr. J. B. Hamilton, Col. Bernard J. D. Irwin, M. D., U. S. A., Dr. S. B. Jones and Dr. A. R. Reynolds.

Woman's Committee of a Public Health Congress: Dr. Sarah H. Dayton, Chairman; Dr. Sarah Hackett Stevenson; Dr. Eliza Root and Dr. Julia Ross Low.

The American Public Health Association, as appointed by the following Committee of Cooperation for the World's Public Health Congress of 1893:

Dr. John H. Rauch, chairman; Chicago, Ill.; Dr. Charles N. Hewitt, secretary, Red Wing, Minn.; Dr. Samuel W. Abbott, Wakefield, Mass.; Dr. A. N. Behl, Brooklyn, N. Y.; Dr. Peter H. Bryce, Toronto, Ont.; Dr. H. D. Fraser, Charleston, S. C.; Dr. Lucien F. Sagnon, New Orleans, La.; and Lt.-Col. Alfred A. Woodhull, M. D., U. S. A., Hot Springs, Ark.

The American Electro-Therapeutic Association has issued the following circular:

The following Circular is published by the Association:

—The next annual meeting of the Association will be held in Chicago, Sept. 12, 13 and 14, 1893.

Committee of Arrangements—Chairman, Dr. Franklin H. Martin, Venetian Building, Chicago; Secretary, Dr. S. C. Stanton, 3537 Indiana Avenue, Chicago.

1. Will you attend the next meeting? If so, write to the secretary of the Committee of Arrangements in Chicago, to secure rooms.

2. Will you read a paper? If so, please send title to the secretary of the Association.

3. Have you any new members to propose? If you have, application should be sent to the secretary, with two signatures of members recommending the candidate.

4. Send any change of address to the Secretary.

MARGARET A. CLEAVES, M.D., Secretary,
68 Madison Ave., N. Y.

The American Medical Editors will have a meeting and banquet in Washington on the evening of Monday, September 4, the day preceding the assembling of the Pan-American Medical Congress.

Dr. I. N. Love, of the *Medical Mirror*, 3642 Lindell Avenue, St. Louis, has been appointed chairman of the Committee of Arrangements for banquet, which fact gives ample assurance of the success of the latter.

It is earnestly hoped that every medical editor of all of the Americas will endeavor to be present on the interesting occasion. Please address the chairman of Committee of Arrangements promptly.—*The Medical News*, July, 1893.

National Association of Military Surgeons.—We will publish the president's address and an abstract of the proceedings in our next issue.

DOMESTIC CORRESPONDENCE.

Prostatic Hypertrophy.

T. G. Editor.—I have read the editorial on "Prostatic Hypertrophy" and desire to indicate my pleasure in reading it. Paper surgery of that sort does much good. It puts us to thinking. How many have gone down under prostatic hypertrophy and its sequelae who might have been saved had the remedial powers of surgery with the knife been invoked. Time has been wasted in the study of catheter fever and quibbling as to the nature of the growth. Sir Andrew Clark would have conferred a blessing on the kind ten years ago if instead of his learned disquisition on "catheter fever and its causes" he had referred the patient to a surgeon.

There is need, however, for more aggressive work on the prostate. It must be attacked earlier. A dissection of the perineal and external aspects of the prostate without opening the urethra does good if applied before the vesical symptoms have fully developed. The vascular supply of the gland is interrupted by this means and it withers in consequence, and the disturbance of micturition disappears. A perineal cystostomy with the cysto-urethra left out will afford

great relief and cure the patient before his bladder is diseased. The dangers are almost nil because the great source of sepsis, the fetid urine, can not touch the wound if it is well packed with iodoform gauze until it heals from the bottom. Open the perineum by the bilateral section, proceed as though you intended to enucleate the prostate, but don't. Dress as above described, and the results will prove satisfactory in most instances.

HALL C. WYMAN.

Medical Practice in Colorado.

DENVER, COL., July 24, 1893.

To the Editor:—I should be glad to have you publish the following regarding our present Colorado law:

Hereafter the Colorado State Board of Medical Examiners will recognize only diplomas from three years schools as entitling their holders to license. The courses of lectures must have been of at least twenty weeks each, and given in three separate years, and a preliminary examination must have been required. Instruction must have been given in anatomy, chemistry, physiology, pathology, materia medica and therapeutics, obstetrics and gynecology, surgery, medical jurisprudence, theory, and practice of medicine and hygiene.

In default of such a diploma the candidate for license must pass an examination in anatomy, chemistry, physiology, pathology, surgery, obstetrics and gynecology, and theory and practice of medicine. Yours very truly,

J. N. HALL, M.D., Secretary.

An Inquiry.

FULTON, N. Y., July 24, 1893.

To the Editor:—Will some of your contributors give reasons why venesection is not as useful in relieving acute diseases, viz: pneumonia, *now*, as it was fifty years ago? Also the causes why epistaxis and other hemorrhages in the young, are so uncommon now compared with 1840 to 1870? During that period I was frequently applied to, to arrest nose bleed, more often for the young under 20 years of age. For the last twenty years, I do not remember of being called in a single instance excepting in a few cases of severe exanthematic to relieve nose bleeding. Has the diet, the mode of living, the less physical labor endured, or what has made the difference? C. G. BACON.

There are no Classes in the Association—All are Equal and Pay Annually.

To the Editor:—Please tell me how long must a paying member continue his dues until he is a life member?

L. K. W. S.

Sparks, Neb., July 26, 1893.

BOOK NOTICES.

System of Diseases of the Ear, Nose and Throat. Edited by CHARLES H. BURNETT, A.M., M.D., Emeritus Professor of Otolaryngology in the Philadelphia Polyclinic, etc. Vol. I. Illustrated. Philadelphia: J. B. Lippincott Company. 1893. Pp. 800. Price per vol. in cloth, \$6.

Dr. Burnett has produced a valuable and practical book. It consists of monographs upon the various subdivisions of these subjects by twenty-three writers. They aim to give practical conclusions arrived at by other investigators and by themselves aside from theories.

There are two volumes. The first is devoted to the ear, nose and nasopharynx; and the second to diseases of the pharynx and larynx. The purpose has been to make this

work a complete, exhaustive and authoritative treatise with special reference to diagnosis and treatment.

Dr. H. Richards describes the instruments and methods of examination of patients with diseases of the ear. Too much space is given to the old, to the exclusion of the new and important instruments and methods. Fig. 14 illustrates "Politzer's method of inflation of tympana." It represents the forcing of a column of air upward in the direction of the nasal duct, instead of horizontally backwards, as it ought to be, in a line with the orifice of the Eustachian tube. It is plain that a jet of air, like a jet of any gas, or water, should be propelled in the direction of the tube through which it is intended to pass, and such an error as is perpetuated here should be eliminated from a work of this character. Fig. 18 illustrates catheterization. The Politzer air bag is fitted directly into the catheter, without any intervening soft rubber tubing, as it is done in Vienna. Many American aural surgeons have used for years an improvement on this method that saves the patient much unnecessary suffering. It consists of interposing a soft rubber tube between the air bag and the catheter tip. By this means the pain-producing, jerking motion imparted to the catheter with each compression of the bag is prevented. These improvements are important and should be recorded, especially those made by our own countrymen, and they are many. The great strides made in improvements in compressed air apparatus and instruments as employed in Berlin, New York and Chicago are not mentioned in this paper.

Dr. G. Bacon's paper on acute inflammation of the middle ear is full of excellent advice and good sense. He is to be commended for condemning the universal practice of taking large doses of quinine for "colds in the head," especially when the ear is involved. He is one of the very few writers who properly pluralize the Latin name for drumheads (*membrana tympanorum*). He sensibly discountenances the use of the Valsalva and Politzer methods by patients. They usually do themselves more harm than good. His paper is illustrated by seven colored drawings.

Dr. S. Sexton writes on chronic catarrh of the middle ear. He treats the subject with special reference to the removal of two larger ossicles. The operation is described and strongly recommended. Nothing is said of the deplorable results that sometimes follow this operation—suppuration, vertigo, apparently intensified tinnitus, reproduction of the drumhead and total deafness. Both sides of this question have been fairly and impartially presented in the meetings of the otological section of the American Medical Association, and one naturally looks for the same here.

Dr. C. J. Colles has an exceedingly valuable contribution on the middle ear affections due to the various dyscrasias. It evidences painstaking and exhaustive research.

Dr. R. Barclay gives the best description of fungoid growths of the ear that we have ever seen. There are twenty-five pages, well illustrated, on this subject alone.

Dr. C. H. Burnett's paper on chronic suppuration of the middle ear is a thoroughly practical one. He describes minutely the operation for incision of the hammer and anvil, and is in accord with the best authorities in advising this procedure in the very intractable cases. His statement that peroxide (dioxide) of hydrogen is decomposed by warming it before putting it in the ear is a mistake. At the temperature of the blood the efficacy of a good H_2O_2 is retained, and it is conducive to the comfort of the patient. While he does not endorse Staake's operation for opening the attic and antrum and excision of the ossicles, he gives a brief but clear account of it. This procedure is about to be tried by Toeplitz and others of New York, and it has been done recently in Chicago, with successful results, by the aural surgeons of the Illinois Charitable Eye and Ear Infirmary. It is one of the most difficult and dangerous operations in surgery.

In Part II, Dr. A. W. MacCoy has a beautifully illustrated article on the anatomy and physiology of the nose and pharynx.

Dr. C. Wagner's paper on the treatment of the nose and throat is of great practical value to the general practitioner. Yet it is regrettable that he endorses the use of the abominable nasal douche. In recommending the use of pykottannin (which kind?) in sprays and powder, he omits the necessary warning regarding its intense staining property—yellow or violet.

Laryngologists will be surprised to find in the first line of Dr. Bosworth's paper on acute rhinitis the word he has so uncompromisingly condemned—catarrhal. He has re-

versed the generally accepted theory that chronic nasal catarrh results from repeated attacks of cold, for he states that "the chronic inflammation develops primarily, and the recurrent attacks of acute rhinitis become the prominent symptom of the chronic affection." This has the merit of originality. Here is comfort for the poor: "An excess of clothing involves a greater risk to health than a deficiency." The doctor wisely prefers woolen underclothing, and recommends that it be worn and laundered wrong side out by those who have irritable skin—a good suggestion.

The Law of Cremation: An Outline of the Law relating to Cremation, Ancient and Modern. By ALFRED RICHARDSON. Cloth, 16mo., pp. 182. London: Reeves and Turner, 1893. "Some three years ago," says the author, "at the Medical Society of London, a discussion arose on a paper on the subject of cremation read by my father, Dr. Benjamin Ward Richardson, F.R.S., whether a person could determine for himself as to the mode of the disposal of his remains after death, and whether or not such disposal was entirely in the hands of his executors." Becoming interested in the question, the author collected information from various countries, and this book, interesting alike to the legal and the medical profession, is the result. The historical chapter, which opens with an account of the ancient law, is perhaps the most interesting of any. In the section devoted to the United States, due mention is made of Dr. LeMoynes's crematorium at Washington, Pa., and an opinion of Judge Ewell is quoted at length. An interesting account of the attempt to cremate the remains of General Garibaldi is given. We commend the book.

A Text-Book of Medicine, for Students and Practitioners. By DR. ADOLF STRUMPELL, Professor and Director of the Medical Clinic at Erlangen. Second American Edition, translated by HERMAN F. VICKERY, A.B., M.D., and PHILIP COOMBS KNAPP, A.M., M.D., with Editorial Notes by FREDERICK C. SHATTUCK, A.M., M.D. With 119 Illustrations. 8vo., 1,043 pages, cloth, \$6. New York: D. Appleton & Co., 1893.

The second American edition of this standard work, thoroughly revised from the sixth German edition, has just been published. This work is so well known to every practitioner of medicine that it needs no extended introduction. The new edition has been thoroughly revised and brought into line with the latest advances in medicine and bacteriology. In many cases the details of microscopical and bacteriological examination for diagnostic purposes have been so clearly given that a general practitioner may be able without reference to an expert, to make sure of the nature of his case and treat it accordingly. This is noticeably done in the chapters on Malaria and Dysentery, two diseases so frequently met with in practice, and in which the diagnosis is so often in doubt.

Dr. Knapp, one of the translators, has edited the section on Nervous Diseases, and has inserted many notes that add to the value of the section. It is a little singular, however, that no mention is made of the possibility of the identity of Morvan's disease with the anæsthetic form of leprosy, which identity is now strongly suspected by some observers. On the whole, the second edition has sustained the high reputation for accuracy and thoroughness established by the first American edition.

A Chapter on Cholera for Lay Readers: History, Symptoms, Prevention and Treatment of the Disease. By WALTER VOUGHT, Ph. B., M.D., Medical Director and Physician-in-Charge of the Fire Island Quarantine Station, Port of New York, etc. Illustrated with colored plates and wood-engravings. In one small 12mo volume, 110 pages. Price 75 cents: Philadelphia: The F. A. Davis Co.

This book is a timely one, and well calculated to instruct the general public on the nature of the disease and its prevention. We heartily commend it.

Letters from a Mother to a Mother on the Care of Children's Teeth. 16mo paper. Philadelphia: Wilmington Dental Mfg Co., 1893.

This book is the fourth edition of an excellent treatise intended for popular information on a much neglected branch of hygiene.

Sterility in the Woman and its Treatment. By DR. DE SLEURY. Translated by E. P. HENR, M.D. Paper, 16mo. Detroit: George S. Davis, 1893.

This is a book by a well-known authority and well translated. Some abridgement has been made in the chapters on Abortion and Extra-uterine Pregnancy. The book is worthy of being bound in something better than paper.

MISCELLANY.

The States May Quarantine.—LANSING, MICH., July 31.—The United States Court has denied the application of the Minneapolis, St. Paul and Sault Ste. Marie for an injunction to restrain the State Board of Health from enforcing its regulations relative to the inspection and disinfection of immigrants at the Michigan border, thus effectually disposing of the objections made to such regulations by the railroads on constitutional grounds and establishing the right of the States to enforce regulations in addition to those of the United States Marine Hospital service.—*Chicago Tribune*.

Texas Medical Journal.—Dr. S. E. HUDSON, has become associated with Dr. F. E. DANIEL, in the proprietorship of this journal. The name has been changed from *Daniel's Texas Medical Journal* to that by which it will hereafter be known of the *Texas Medical Journal*.

Instance of Longevity.—Mrs. Katherine Hernon died at the county almshouse at Lincoln, Ill., July 30, 1893. She was 103 years of age and a native of Ireland. She came to this country during the service of John Adams, second president of the United States, and outlived all her descendants except grandchildren, who neglected to provide for her. She was believed to be the oldest person in Illinois.

North American Practitioner.—Dr. JOHN H. HOLLISTER, for several years editor of the *Journal* has taken the editorial chair of the *North American Practitioner*. Those who know him will need no assurance that the course of the *Practitioner* will hereafter run smooth.

Diphtheria Outbreak in New Jersey.—A serious outbreak of diphtheria has occurred at Hightstown, New Jersey. The investigations of Dr. A. Clark Hunt, medical inspector of the State Board of Health, who arrived on July 25, showed that eighteen of the twenty cases then existing were in families served by a certain milkman, and it was ascertained that a lad in the employ of the latter was suffering from the disease and had been working in the dairy for several days after it had made its appearance. On July 27 the State Board of Health issued a bulletin stating that Shippen Wallace, State chemist, indorsed the opinion of Dr. Hunt in relation to the origin of the outbreak, and that the sanitary condition of the town was satisfactory.

New York City Mortality.—The highest mortality that has been recorded thus far through the summer in New York occurred in the week ending July 22. The number of deaths was 1,257, an increase of 161 over the preceding week, and 214 above the average of the corresponding weeks of the

past five years. The increase was chiefly due to diarrhoeal diseases among children under five years of age; and the death rate for the week presented an annual death rate of 34.61 per thousand of the estimated population. High as this mortality is, it is considerably smaller than that of the intensely hot weather of July, 1892, when during the week ending July 30, it reached the extreme figure of 1,434.

Paper Stockings.—Paper stockings are a new German invention. A Berlin shoe trade journal says that the stockings are made of a specially prepared impregnated paper stock, which, it is claimed, has an extraordinary effect on perspiring feet. The moisture is absorbed by the paper as rapidly as it is formed, and the feet remain dry and warm, while the constant temperature maintained in the shoes is said to be a great preventive of cold.—*Jenness-Miller Monthly*.

To Obscure the Taste.—Gymnemic acid is the active principle of *Gymnema sylvestris*, the formula of which is $C_{12}H_{16}O_8$. It is a greenish-white powder, having a sharp, acid taste; very soluble in alcohol, but slightly soluble in water and ether. When the tongue is touched with it, the taste is completely lost for sweet and bitter. The subjects of the experiment are incapable of perceiving the taste of quinine or of sugar, while that of acid, salty, astringent or spicy substances is completely recognized. Availing himself of this fact, Quirine recommends, before administering bitter remedies, that the mouth be rinsed with a 12 per cent. solution of gymnemic acid in alcohol and water.

To Remove Odors.—The odor of iodoform, creosote or guaiacol may be removed from the hands by washing with linseed meal. Tar water containing oil of wintergreen will remove the odor of iodoform from articles to which it attaches. Powdered coffee will disguise the taste of creosote pills, while burning coffee dissipates the odor of guaiacol or iodoform in rooms.—*Pharmaceutical Era*.

Lunatics in Jail.—The *Texas Health Journal* for July says there are more than one thousand lunatics in the Texas jails, on account of alleged lack of room in the asylums for which a parsimonious legislature has made insufficient appropriations. Who is the Texas Holman?

The Useful Alligator.—The *Pharmaceutical Era* in speaking of "alligatorine" says: It is a French proposition that the fat of the alligator be employed as a basis for ointments. The fat is saponified by alcoholic potash, the soap decomposed by hydrochloric acid, and the fatty acid mixed with cottonseed oil. It is claimed that the metallic salts of this acid are readily absorbed by the skin.

To avoid duplication of payments or complication of accounts, members are respectfully informed that membership dues should be sent to the Association Treasurer, Dr. R. J. Dunglison, Lock box 1274, Philadelphia.

Subscription fees from gentlemen not members of the Association, should be sent to this office. Address JOURNAL AMERICAN MEDICAL ASSOCIATION, 68 Wabash Ave., Chicago.

Wanted, two copies of the JOURNAL of January 2, 1892, to complete volume for binding.

LETTERS RECEIVED.

A. Atkinson, W. D. Philadelphia, Pa.; (B) Brumbaugh, A. B., Huntingdon, Pa.; Bishop, S. S., Chicago; Cleaves, Margaret A., New York; Cooper, E. B., Sunbury, Pa.; Collins, H. L., St. Paul, Minn.; (D) Dunglison, R. J., Philadelphia;

Davis, W. S., Minneapolis, Minn.; (E) Elliott, A. R., New York; Everett, J. T., Wichita, Kan.; Eagleson, J. B., Seattle, Wash.; (G) Griffith & Co., New York, N. Y.; Greene, C. S., San Francisco, Cal.; (H) Heath, F. C., Indianapolis, Ind.; (K) Katharmon Chemical Co., St. Louis, Mo.; King, J. K., Watkins, N. Y.; (M) Marcy, H. O., Boston; Maybury, W. J., Saco, Me.; McBride, J. H., Wauwatosa, Wis.; McGowan, Wm. D., California, Pa.; (N) Newman, R., Arlington, Detroit; (O) O'Gorman, Jas., Baltimore, Md.; (R) Rowell, Geo. P. & Co., New York, N. Y.; Rio Chemical Co., St. Louis, Mo.; Reynolds, H. T., Baltimore, Md.; (S) Smith, Joseph, Kansas City, Mo.; Sawyer, L. K. W., Sparks, Neb.; Smith, F. E., Chattanooga, Tenn.; Stewart, F. E., Watkins, N. Y.; (T) The Sanitarium, Battle Creek, Mich.; (W) Wyman, W., Washington, D. C.; Webster, Geo. W., Chicago; Wyman, Hal. C., Detroit, Mich.; Warner, W. R. & Co., Philadelphia, Pa.; Welch, S. A., Providence, R. I.

THE PUBLIC SERVICES.

Naval Post Graduate Medical School.

The new post graduate school of instruction for surgeons who enter the Navy, established by Surgeon-General Tryon, opened at the Brooklyn Naval Laboratory in charge of Medical Director Wells, the first chief of staff of the institution, assisted by a full corps of medical officers of the Navy as instructors.

Dr. Tryon's object in starting the school is to afford young assistant surgeons who enter the Navy a chance to thoroughly familiarize themselves with certain branches of medicine and surgery which they were unable to study in civil life, and to instruct them in the duties which they have to perform on sea-going naval ships.

The school, which opened August 1 at the Naval Laboratory, begins with two scholars who have recently entered the Navy. This building has long been of little use, and has recently been fitted out and adapted for its new use. Soon after assistant surgeons are commissioned they will be ordered to the establishment, and will be required to perform their duties faithfully while undergoing instruction. The course of instruction will continue for a period of at least three months, and will embrace the following subjects: Chemistry, hygiene and sanitary science, microscopy and microbiology, military surgery and operative work, clinical medicine and hospital work, construction and ventilation of modern ships, examination of recruits and life-saving methods, navy regulations, etc.

The students will be expected to visit the naval hospitals, study and investigate diseases as associated with naval life, and the diseases to which sailors are chiefly susceptible. The course will also embrace the general principles of hygiene, causes of disease, methods of investigation and the duties of health authorities.

The record of young officers at the school will be kept and filed away at the Navy Department for reference when an applicant comes up before the examining boards for promotion, and will serve as a guide in a measure, to selecting officers for certain duties.

After completing the course surgeons will be ordered to sea-going ships well equipped to perform the duties of their new life.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from July 22, 1893, to July 28, 1893.

Capt. LEONARD WOOD, Asst. Surgeon, is relieved from duty at Presidio of San Francisco, Cal., and ordered to Ft. McPherson, Ga., for duty. First Lieut. BENJAMIN L. TEN Eyck, Asst. Surgeon U. S. A., is granted leave of absence for two months, to take effect on or about September 15, 1893, with permission to apply for an extension of one month. Major LORIS M. MATS, Surgeon U. S. A., is granted leave of absence for one month, to take effect when his services can be spared at Ft. Wingate, N. M.

Capt. WILLIAM B. DAVIS, Asst. Surgeon, is relieved from duty at Ft. Sam Houston, Tex., and ordered to Ft. Brown, Tex., for duty, relieving Capt. GEORGE H. TORNEY, Asst. Surgeon. Capt. TORNEY, upon being relieved by Capt. DAVIS, will proceed to and take station at Philadelphia, Pa., as attending surgeon and examiner of recruits at that place.

Capt. LOUIS W. CRAMPTON, Asst. Surgeon, is relieved from duty at Ft. Spokane, Washington, and from temporary duty at Hdqrs. Dept. of the Colorado, and ordered to Baltimore, Md., as attending surgeon and examiner of recruits, relieving Capt. CHARLES B. EWING, Asst. Surgeon.

Navy Changes. Official list of changes in the Medical Corps of the U. S. Navy, for the week ending July 29, 1893.

Surgeon H. J. BARNES, to temporary duty at Naval Station, Port Royal, S. C. Asst. Surgeon A. R. ALFRED, from the "Franklin," and to the "Minnesota."

Asst. Surgeon J. M. MOORE, from Norfolk Hospital, and to the "Franklin," Medical Inspector E. KEESINGER, to duty on board U. S. S. "New York." P. A. Surgeon J. F. TAYLOR, to duty on board U. S. S. "New York."

Asst. Surgeon H. D. WILSON, from the "Minnesota," and to the "New York." Medical Inspector R. H. KIDDER, Medical Director H. M. WELLS, Surgeon FRANK ANDERSON, P. A. Surgeon CLEMENT BIDDLE, granted leaves of absence.

The Journal of the American Medical Association

VOL. XXI.

CHICAGO, AUGUST 12, 1893.

No. 7.

ADDRESSES.

ENTERORRHAPHY; ITS HISTORY, TECHNIQUE AND PRESENT STATUS.

PRESIDENT'S ADDRESS.

Delivered at the Meeting of the Association of Military Surgeons of the National Guard of the United States, Chicago, August 8, 1893.

BY N. SENN, M.D., PH.D., LL.D.

President, Association of Military Surgeons of the National Guard of the United States; Professor of Practice of Surgery and Clinical Surgery, Rush Medical College; Professor of Surgery, Chicago Policlinic; Attending Surgeon Presbyterian Hospital; Surgeon-in-Chief St. Joseph's Hospital, Chicago.

A study of surgical literature brings the conviction that the successful treatment by direct operative intervention of injuries and surgical affections of the intestinal tract is one of the most brilliant achievements of modern surgery. Less than fifty years ago many of the most famous surgeons regarded the direct treatment of wounds of the intestines as a *noli me tangere*, under the belief that nature's resources would prove more successful in saving the life of the patient than the surgeon's efforts in closing the wound by artificial means. The intentional infliction of an intestinal wound by the surgeon for the purpose of correcting mechanical difficulties anywhere in the intestinal canal and the removal of life-threatening affections by operative procedure are subjects which have been seriously discussed and extensively practiced only during the last twenty-five years. It is advisable and profitable during the present time that has witnessed such wonderful advancements in surgery to make occasionally a halt in the restless search for new discoveries and novel operations to take a retrospective view of what has been done in the past in certain departments of surgery that have recently been subjected to such complete revolutionary changes. No part of abdominal surgery has undergone more radical changes than the intestinal suture, and in none is the contrast greater between the ancient and modern methods. I have deemed it advisable on this occasion to give you, in place of a general address, as brief a resumé as possible of the history, technique and present status of enterorrhaphy.

HISTORY AND TECHNIQUE.

The history of the intestinal suture is full of interest to the student of surgical literature. It is replete with stupendous ignorance, clever mechanical ingenuity, patient experimental research, and the careful application of pathological knowledge to the treatment of injuries and diseases of the intestinal canal. From an anatomico-practical standpoint the history of the intestinal suture can be divided into three epochs: 1. ancient; 2. modern; 3. recent. The ancient history extends back from Lambert (1826) to the time of Celsus. The modern history commenced with the researches of Lambert, which proved

that healing of intestinal wounds takes place most constantly and speedily if the serous surfaces are brought and kept in contact by the sutures. The third period was initiated by the introduction of the aseptic suture by Lister, and will necessarily extend far into the future. We have reason to believe that the technique of intestinal suturing remains an unfinished chapter, and that the ideal method of uniting intestinal wounds has yet to be devised.

I—ANCIENT METHODS.

Celsus mentions the intestinal suture, but speaks disparagingly of its use. It is probably on this account that the subject did not receive any attention until Abulkasem (II, 87) again revived it. This author recommended the jaws of large ants with which to unite the wound, and also refers to catgut made of the intestine of the sheep as a suturing material. The oldest suture, and the one to which nearly all of the old authors refer, is undoubtedly the glover's suture. This suture was intended to approximate the cut margins of the intestinal wound in the same manner as any ordinary wound, and was used for the double purpose of preventing the escape of intestinal contents, and of keeping the visceral in close contact with the external wound, consequently the two ends of the suture were brought out of the external wound and fastened in some way upon the surface of the abdomen until the time had expired when it was deemed safe to remove the thread.



Fig. 1. Glover's suture used for uniting wounds of the intestine. AA, the intestine; BB, the wound; C, the lumen of the intestine; D, the thread hanging out; D, the end of the suture, where it is fastened in a knot.

Figure 1 is taken from Heister's Textbook of Surgery, translated by Hollingsworth, 1739, and represents the glover's suture as applied by the ancient surgeons. Roger Jamerius, and Theodorich of Serbia, inserted into the bowl a hollow cylinder of elder over which the wound was united by sutures. The cylinder was used for the purpose of keeping the lumen of the intestine patent. Wilhelmus v. Saliceto (Cerrata, Chir. Venet., 1520, page 107) used a segment of the dried intestine of an animal with the same object in view. Later, he agreed with his colleagues that the best material to assist the suturing would be the dried trachea of a goose or some larger animal, and thus originated the suture of the four masters. The foreign substance was not fastened in the bowel; after its insertion into the lumen the mar-

gins of the wound were united by ordinary interrupted sutures, which embraced the entire thickness of the intestinal wall and the ends of which were left long and were brought out of the external wound.

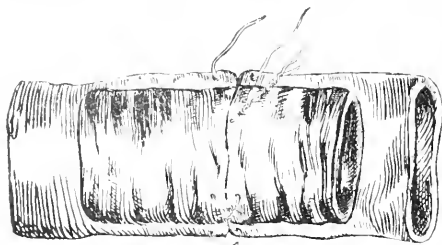


Fig. 2. Suture of the four masters.

The process of the ancients, however, had attracted so little attention that Du Verger, who revived it at the beginning of the last century, considered himself its author. It would not appear, moreover, that it had been frequently made trial of, or that it proved successful more than two or three times.

Du Verger modified the suture of the four masters by including the tracheal cylinder in the sutures as is shown in Fig. 3. Sabatier substituted for the

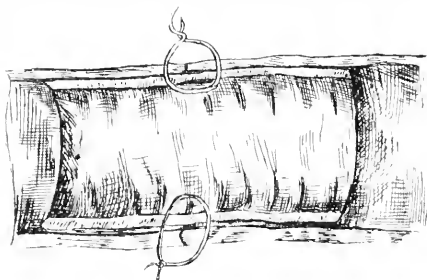


Fig. 3. Suture of Du Verger. Sutures including the tracheal cylinder, trachea a cylinder of cardboard which he besmeared with sweet oil, essence of turpentine, or oil of St. Johnswort.

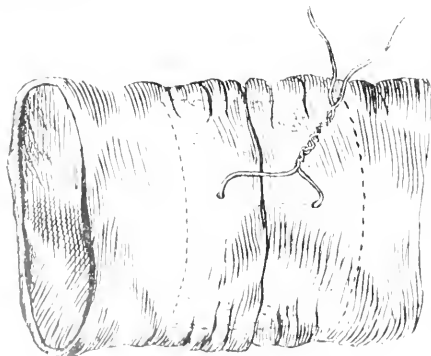


Fig. 4. Suture of Sabatier.

Sabatier used only one stitch in fastening together the free ends of the bowel and the cardboard cylinder, as will be seen by the accompanying illustration.

The four masters used four stitches, Du Verger two, Sabatier one; when Ritsch ("Transactions of the Academy of Surgery," Paris, vol. i) modified the procedure still further by passing the thread from side to side through the center of the bowel and the cylinder, when the ends were twisted and brought out of the external wound.

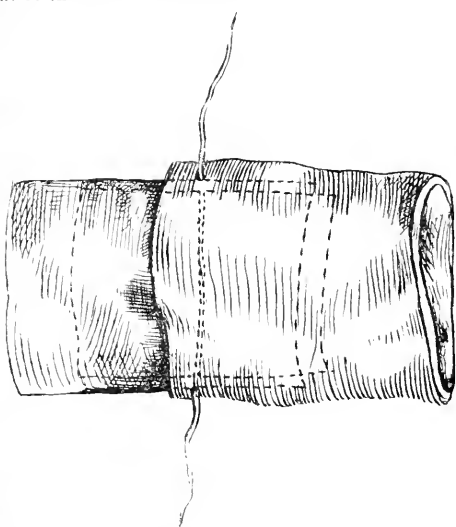


Fig. 5. Suture of Ritsch.

Watson ("Medical Communications," Vol. ii) recommended a cylinder of fish glue. His experiment on a dog proved successful. Ph. von Walther advised a tube of India rubber.

It is not surprising that the methods of suturing heretofore described did not add to the reputation of intestinal surgery, and that many of the most prominent surgeons of that time opposed closure of intestinal wounds by artificial means.

Guy de Chauliac approved of the suture only in the treatment of wounds of the large intestine, for which he recommended the glover's suture. Vigo, Fallopius and Fabricius ab Aquapendente regarded wounds of the small intestines as absolutely fatal.

Hieronimus Braunschweig (Das Buch der Chirurgia, Strassburg, 1497) alludes to Galen and others as opposing the intestinal suture. He is in favor of the procedure and advises the glover's stitch in preference to the ordinary suture. After suturing the intestine he cleansed the part and applied a powder of equal parts of mastich, tragacanth, and gum arabic. He relates a remarkable case which occurred in the practice of Saliceto, one of the four masters. A cavalier of Pavia (Pavia) stabbed himself in the abdomen with a knife in such a manner that the intestines prolapsed. A longitudinal wound of the intestine was found. Master Ottebanus of Pavia was called, who pronounced the injury a fatal one. Owing to the swelling of the protruded intestines he failed in effecting reduction. Saliceto was called in consultation who cleansed the intestines, sutured the wound, enlarged the abdominal opening, reduced the mass and saved the would-be suicide.

In 1686 Richard Wiseman ("Chirurgical Treat-

ises," second edition, London, 1686, p. 372), the great English surgeon, writes on this subject as follows:

"If in such a penetrating Wound the small Guts be wounded, the vehement Pain, continual vomiting of Bile, and dejection of Chyle by the Wound, will discover it; but in that case, the keeping it open to seek the Intestine will be a hard task; and when you have found it, what will it signify, to embrocate all the Region of the Belly with Oil, mastick lumbrie, to dress the wound with saracoticks, and to keep it close and warm with Compress and Bandage. But if the great Intestines be wounded, and the Excrements discharge that way, it may be reasonable to lay open the Wound, and stitch the Gut with the Glover's stitch, sprinkling it with some of the aforesaid Agglutinatives; and reducing it back, stitch up the external Wound of the Belly, as hath been said."

It appears that more than fifty years later the consensus of opinion among surgeons in reference to the utility of the direct treatment of intestinal wounds had not undergone any material change if we rely on another eminent authority of that time. Heister in his classical work on Surgery (Hollingsworth's Translation, 1739) cautions not to suture intestinal wounds smaller in diameter than a goose-quill, after which he continues:

"But large Wounds of the Intestines, though they seldom admit of Cure, are to be stitched up with the Glover's suture, before the Intestine is returned. To perform this, you should be provided with a fine Needle threaded with Silk, an Assistant should take hold of one part of the Gut, with a fine piece of Linen well aired before the Fire, whilst the Surgeon should hold the other part in his Left hand, and sew up the whole wound after the Glover's manner, leaving very small spaces between each Stitch, to wit—a little more than a mathematical line. The last Stitch should hang out about a foot out of the Abdomen, by which the Silk may be drawn out when the Intestine is healed."

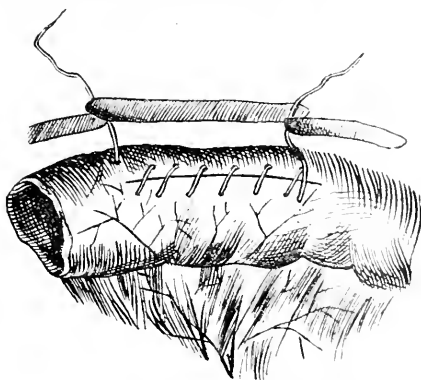


Fig. 6. Heister's method of applying the glover's suture.

After alluding to several other kinds of sutures, he gives his estimate of the value of suturing intestinal wounds: "But, to say the truth, Experience shows us that very few are saved, whatever Suture is made use of." In complete transverse wounds he advises the formation of an artificial anus.

Purmann (Feldscherer, etc., Frankfurt u. Leipzig, 1730) in his military surgery recommends suturing with silk or catgut, using the continued or glover's stitch. The catgut prepared from the intestines of sheep he immerses in wine over night before using it. He also refers to the shoemaker's stitch, but in his own practice always resorted to the glover's suture. In the after-treatment he advises mild cathartics and turpentine injections.

Mr. Samuel Sharp, "A Treatise on the Operation of Surgery," etc., London, 1769 gives the following directions in the use of the glover's suture:

"Upon the Supposition of the Intestine being cut off in such a manner as to require the Operation, the Method of doing it may be thus: taking a straight needle with a fine Thread, you lay hold of the Bowel with your left hand, and sew up the wound by the Glover's stitch, that is by passing the Needle thro' the lips of the Wound, from without outwards all the way, so as to leave a Length of Thread at both Ends, which are to hang out of the incision of the Abdomen, then carefully making the interrupted Suture of the external wound, you pull the bowel by the small Thread into Contact with the Peritonium, in order to procure an Adhesion, and tie them upon a small Roller of Linen. Tho' I think it would be more secure to pass the Threads with the straight Needle through the lower Edges of the Wound of the Abdomen, which would more certainly hold the Intestine in that Situation. In about six days, it is said the ligature of the intestine will be loose enough to be cut and drawn away, which must be done without great force, in the Interim, the wound is to be treated with superficial dressings, and the Patient to be kept very still and low."

During the close of the first decade of this century Zang (Darstellung blutiger heil kunstlerischer Operationen, etc., Wien, 1818) entertained the most extreme pessimistic views in reference to the value of the intestinal suture as is evident from the following sentence: "Every intestinal suture is a mighty procedure in a highly vulnerable organ, and therefore a dangerous, yes, a very dangerous undertaking." As the most convincing proof of its harmful action, he claimed that the mortality following its use was much greater than when the process of repair is left to nature's resources.

The bad results which followed suturing of intestinal wounds in the hands of the ancient surgeons as well as the observation made that occasionally cases recovered without any aid on the part of the attending surgeon, led the way to the most conservative treatment. It was generally conceded that spontaneous recovery occurred when the visceral wound was in such a locality that no extravasation occurred into the peritoneal cavity, and the wound became adherent to a serous surface, notably the parietal peritonium. Spontaneous recovery from complete transverse wounds of the intestine by adhesion of the margins of the proximal end to the external wound was observed by Hildanus, Blegny, Dionis, Palfyn, Job. Maur, Hoffmann, Seebacher, Vater, Chesseliden and others. This induced surgeons to imitate nature's processes by bringing the intestinal wound or the ends of the divided bowel into the external wound, in which position the wounded intestine was fastened by passing a thread through the mesentery, and fastening it upon the surface of the abdomen. This operation was first performed successfully on a dog by Blegny (Zodiac. Gall. An. 2, p. 143). Schacher (Programm Publico, Leipzig, 1720) reported the first successful operation of this kind on man. Verdus and von de Wyl were opposed to the intestinal suture and advised the formation of an artificial anus, especially in cases of transverse wounds.

It is probable that Paracelsus was the first to propose this method of treatment. Palfyn rejected all kinds of intestinal sutures and advised that in all wounds of the intestine easily accessible, the visceral wound should be brought in close contact with the external wound and the intestine held in this position by a thread passed through the mesentery until the intestine became firmly adherent to the abdominal wall.

Palfyn's method of fixation of the intestine against the abdominal wall is illustrated by Fig. 7.

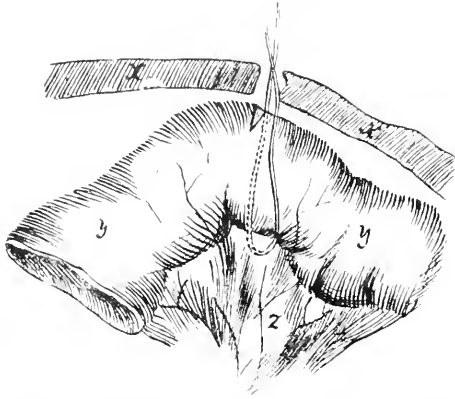


Fig. 7. Palfyn's method of treating intestinal wounds. *a*, Thread passed through mesentery and surrounding the bowel. *y*, Intestine. *z*, Mesentery. *b*, Abdominal wall.

As the traction by the mesenteric ligature must have caused narrowing of the bowel, Palfyn's method was modified so as to obviate this difficulty by passing the needle and thread twice through the mesentery and bringing both ends of the thread out through the external wound on each side of the bowel as is shown by Fig. 8.

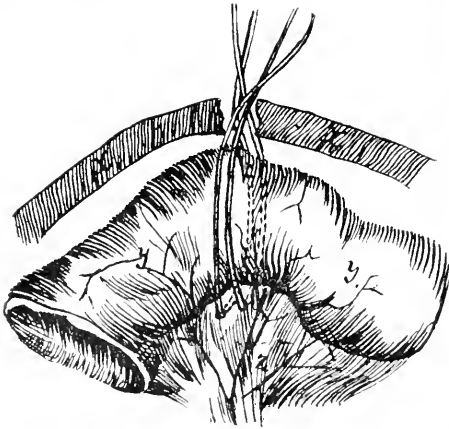


Fig. 8. Modification of Palfyn's mesenteric loop.

De la Peyronie's ("Mem. de l'Academ. de Chirurgie," T. III, 1783) method differed somewhat from Palfyn's, in that he stitched the bowel at the same time to the margin of the external wound. Other surgeons dispensed with the mesenteric loop entirely and fastened the injured part of the bowel to the inner surface of the abdominal wall by a suture which embraced both lips of the visceral and parietal wounds.

In complete transverse wounds of the intestine Benj. Bell recommended that each end of the bowel should be fastened to the corresponding margin of the external wound by an interrupted suture.

Reybard ("Mémoires sur le traitement des anus arti-

ficiels, des plaies des intestins et des plaies pénétrantes de poitrine," Paris, 1827) maintained that



Fig. 9. Fixation of injured bowel to abdominal wall by a single suture.

the principal object of the intestinal suture is to bring the visceral wound in contact with the inner surface of the abdominal wall and the external wound, thus securing healing of both wounds by adhesions, and acting on this supposition he devised an exceedingly ingenious plan in accomplishing this

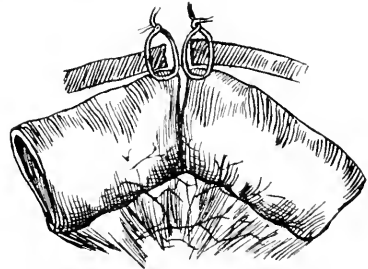


Fig. 10. B. Bell's method of attaching the visceral to the parietal wound.

result without the use of sutures. In longitudinal and incomplete transverse wounds he resorted to the use of a thin oiled plate of light wood, twelve to fifteen lines in length, and four to six in breadth, to which two pieces of thread were attached.

Each thread is armed with a needle when the plate is inserted into the bowel through the wound, and the needle with the thread attached is passed through the entire thickness of the abdominal wall and brought out on the surface near the margin of the external wound. When both threads are in place they are tied together in such a manner that the small plate of wood presses at the same time the two lips of the intestinal wound against the sides of the abdominal wound, which latter it also at the same time keeps hermetically closed. When the adhesion of these different tissues appears to have become sufficiently firm (usually the third day), the threads are cut; the little plate of wood is released and passes away with the stools.

There can be no question that the intentional formation of an artificial anus in the treatment of in-

testinal wounds, so strongly advocated by Scarpa ("An. Chir. Abh. über die Brüche," Leipzig, 1802, p. 280; translated by Seiler from the Italian), and many of his contemporaries, yielded much better results as a life-saving measure than the old-fashioned suture. We have reason, however, to believe that in many instances in which life was saved the artificial anus remained permanently, constituting a great annoyance, and often an additional source of danger throughout the balance of the lifetime of the survivor. The great mortality attending this procedure and this remote sequence undoubtedly aroused surgeons to devise new methods of suturing. So firmly had the opinion gained ground that intestinal wounds could not heal by direct union that v. Walther (System der Chirurgie, Freiburg, 1851), as

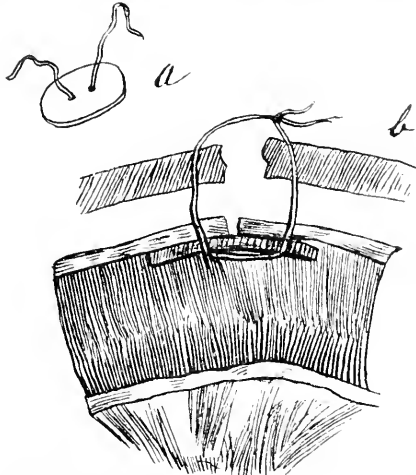


Fig. 11. Reybard's method. a, Plate of wood with two threads; b, plate in situ and fastened to abdominal wall by a suture including plate wall of bowel and abdominal wall.

late as 1851, asserted that healing always takes place by parietal or omental adhesions. He insists that Larrey was wrong when he asserted the contrary and

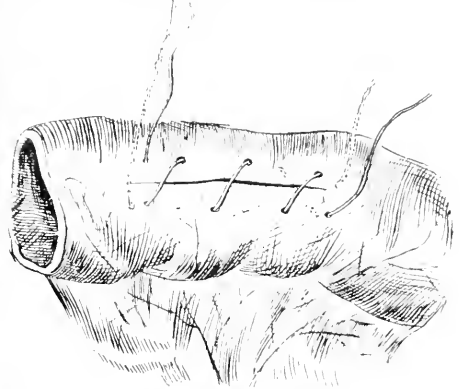


Fig. 12. Larrey's double the glover's suture.

Benj. Bell feared the removal of the suture and objected to the ordinary glover's suture because he believed it produced dangerous narrowing of the lumen of the bowel. He modified the glover's suture in such a manner that he passed the needle from within outward terminating the thread at each end with a knot and cutting the thread short to the knots. He relied on the suture cutting its way into the lumen of the bowel to be discharged with the feces.

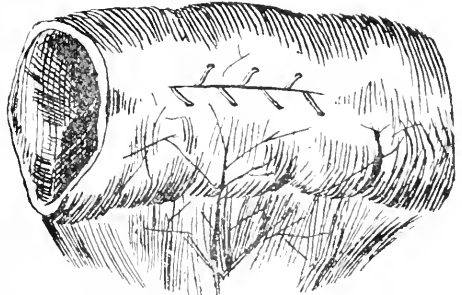


Fig. 13. B. Bell's suture.

Bertrandi and Petit devised the *sutura transgressiva*. It is made by bringing the margins of the wound in contact, passing the needle from right to left, then from left to right alternately and bringing both ends of the thread out of the external wound in order to bring both wounds in contact.

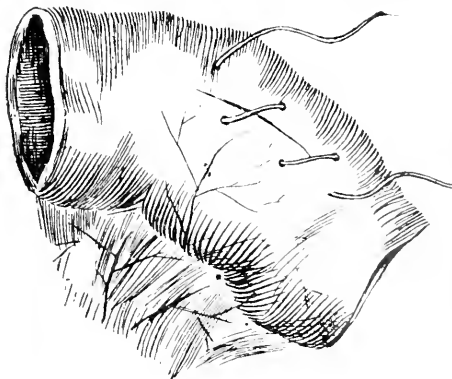


Fig. 11 a. Suture after Garengot.

excuses his mistake by asserting that when he made his observations he did not have the necessary ma-

Le Dran ("Traité des Opérat.," Paris, 1743) takes

and brought them out of the external wound with which to fasten the bowel against the abdominal wall.

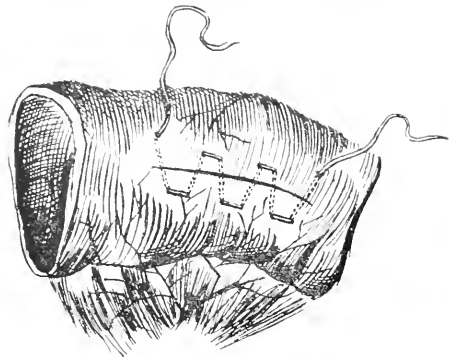


Fig. 14. Petit's sutura transgressiva.

and passes them three lines apart through both margins of the wound. Ties together the ends of the threads of each side and twists the two bundles of threads. The intestine is thereby puckered up and sutures approximated.

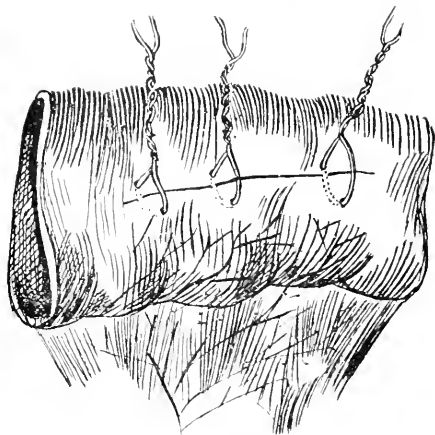


Fig. 16. Richter's method.

Löffler crossed the threads of each suture only once and fastened the ends upon the surface of the abdomen.

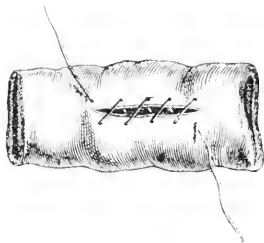


Figure 14 a.

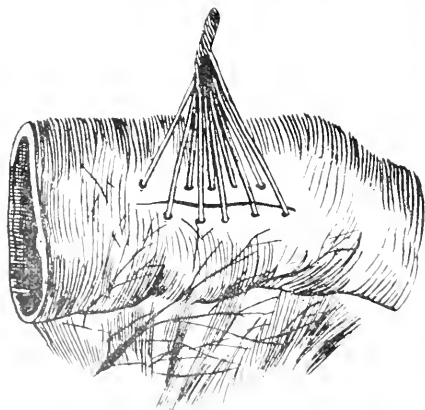


Fig. 15. La Dran's method.

He claims that by this procedure the intestinal wound is greatly diminished in size, and often heals without leaving a fistula: at the end of four to six days the threads are untwisted and removed. Richter twisted each suture separately without tying it

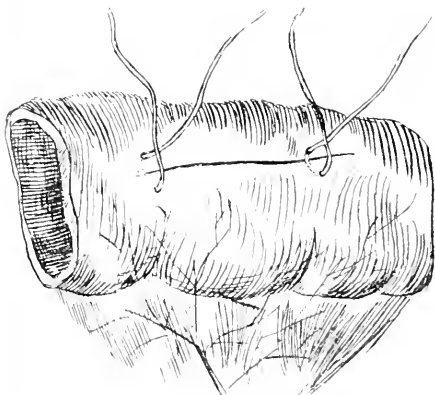


Fig. 17. Löffler's method.

With the exception of the suture devised by B. Bell, all of the modifications of the glover's suture were intended to anchor the visceral wound opposite or in the external wound and were removed as soon as the intestine had become firmly adherent, that is, in the course of four to seven days. In many of the cases in which life was saved by this kind of surgery a fistulous opening remained, which in those days it was found difficult to remedy. With a view of preventing this unpleasant remote complication surgeons commenced to unite the ends of the bowel in complete transverse wounds by invagination. The first trials were extremely crude, and the results correspondingly disastrous. Ramdohr recommended invagination as a means of uniting the ends of the intestine in complete transverse wounds as early as 1730. Having under treatment a soldier in whom

the continuity of the intestinal tube had been destroyed, he proposed to insert the upper into the lower end, to fasten them together in this position by means of one point of suture, then to reduce them and leave them in the abdomen, fastening the bowel to the abdominal wall by the suture. His patient recovered. As he died some years after of some other affection, Ramdohr being thus enabled to examine the condition of the parts, removed the portion which had been formerly divided, and sent it to Meibius, who took occasion to show it to Heister, which latter upon the strength of this, made experiments of the same operation on dogs, but without success.

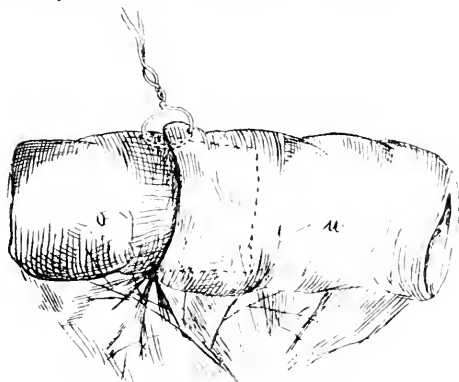


Fig. 18. Ramdohr's method of invagination. O, upper end; U, lower end.

The method of Ramdohr, which has been eulogized by some, rejected as impossible or dangerous by others, admitted as very ingenious by Louis, and made trial of in a great number of instances since it has been known, does not appear to have succeeded but in a very small number of cases. Louis aimed to improve Ramdohr's method by detaching the mesentery from the upper end to the extent of the intended invagination for the purpose of guarding more effectually against disinvagination.

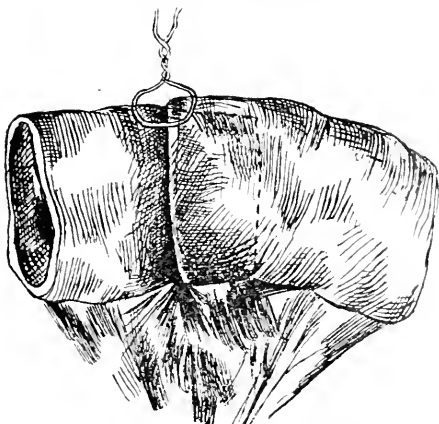


Fig. 19. Method of invagination of Louis.

Benj. Bell inserted a solid cylinder of tallow into the upper end of the bowel before making the invagination,

and fastened the bowel with two rows of interrupted sutures which included the entire thickness of both intestinal walls at each cut end of the bowel.

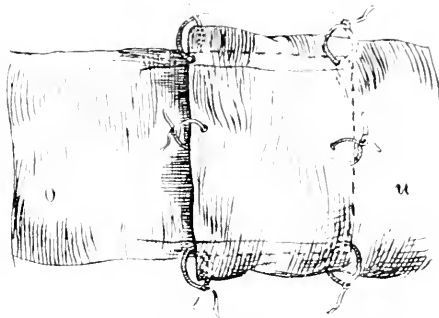


Fig. 20. Benj. Bell's method of invagination.

Chopart and Desault, recognizing the difficulties encountered in making the invagination, lined the upper end of the bowel with a cylinder of cardboard which was included in a single ligature passed through the bowel from side to side, when both ends of the thread were passed with a needle in the lower end from within outward, when the invagination was effected by making traction upon the threads and the invagination maintained by fastening the threads upon the surface of the abdomen.

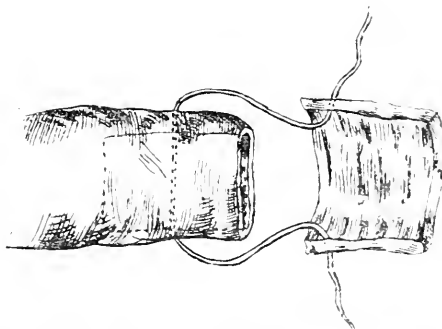


Fig. 21. Chopart and Desault's method of invagination in complete transverse wounds.

These authors applied the same principle of treatment to incomplete transverse wounds of the intestine. The upper margin of the wound was transfixed by a single suture transversely from within outward, when the ends were passed with a needle through the lower margin from within outward and tied, making thus the lower margin overlap the upper, bringing in contact its mucous surface with the peritoneal surface of the upper.

As all these methods had the common fault of approximating mucous membrane with peritoneum, it is not difficult to understand that none of them survived the practical test for any length of time. The seriousness of this technical mistake was first pointed out by Richerand. The researches of Bichat have shown that mucous membranes do not contract adhesions with each other; and that adhesive inflam-

mation takes place most surely and speedily between serous surfaces.

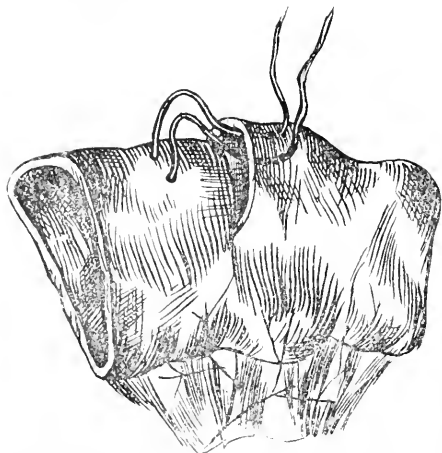


Fig. 22. Chopart and Desault's method of uniting transverse wounds of the intestine. a, suture in place; b, suture tied.

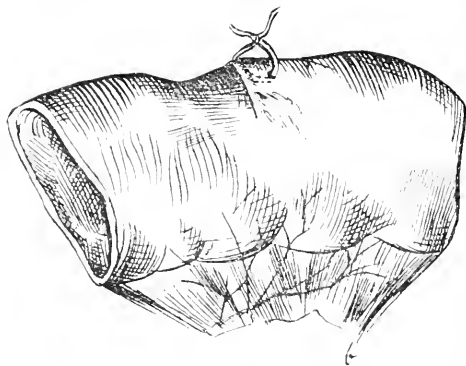


Fig. 22 b.

Travers ("An Inquiry into the Process of Nature in Repairing Injuries of the Intestines," London, 1812) experimented with the old suture including all of the tunics of the bowel, but cut the threads short to the knot and did not fasten the intestine against the abdominal wall as had been the general custom up to that time. He found that the intestinal wounds in animals thus treated usually healed. The sutures cut their way through the tissues in the direction of the lumen of the bowel and passed away with the feces. He placed the sutures very closely so as to secure ample mechanical protection against the escape of fluids, while Astley Cooper placed them much farther apart, using only a sufficient number to prevent fecal extravasation. In small wounds and limited gangrene Astley Cooper made a small cone on the affected side of the bowel by seizing the wound or gangrenous patch and applied a ligature of fine silk around the base. The ligature cut its way into the bowel during the time the defect became sealed by plastic lymph. The necrosed mass and ligature escaped into the bowel through the defect made by the ligature.



Fig. 23. Astley Cooper's method of dealing with small wounds and circumscribed gangrenous patches.

II—MODERN METHODS.

The researches of Richerand, Bichat and Travers prepared the way for Lembert to institute a complete revolution in the application of the intestinal suture. Until his time the discovery that adhesions take place most rapidly between serous surfaces was ignored in the use of the intestinal suture, and if success followed the surgeon's efforts the result was attributable less to the suture than the circumscribed plastic peritonitis, the product of which buried the sutures and sealed the wound by a mass of plastic lymph. To Lembert is conceded almost by universal consent the credit of having established the modern doctrine concerning the healing of intestinal wounds. As is the case in all great discoveries, claimants for priority were not wanting. Jobert ("Arch. Gén. de Méd.," T. iv, p. 73) has claimed this honor; Faure ("Arch. Gén. de Méd.," T. x, p. 474) alleges that when he was a pupil of the Hospital of St. Louis, he had proposed before the year 1820, the approximation of serous surfaces in intestinal wounds. Denans ("Soc. Méd. de Marseilles," 1826) also mentions that the suggestions of his process were made without knowledge of the work done by Lembert and Jobert. Lembert claims that he published his first paper on this subject in 1825. ("Bull. de Ther.," T. ix, p. 325). Denans began his experiments in 1823, but they were not published until March, 1824, and the Archives for January of the same year, contain a description of the process of Jobert. There can be no question that through the labors of Lembert the new doctrine gained a firm foothold and was promptly adopted, not only by his countrymen, but by the surgeons in England and Germany. Lembert's technique and practice brought about a sudden transition from the ancient to the modern methods. Since his time a great variety of methods have been proposed with a common object in view; to bring into apposition the serous surfaces of the margins of the wound.

Lembert's work initiated the most important era in the history of the intestinal suture. He must always be regarded as the founder of modern successful intestinal surgery. The technique of intestinal work is still open to improvements, but the great principle inculcated by Lembert to rely on the serous coat in procuring early and permanent adhesions will never be rejected.

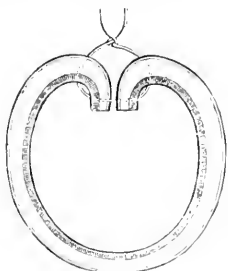


Fig. 21. Lembert's suture.

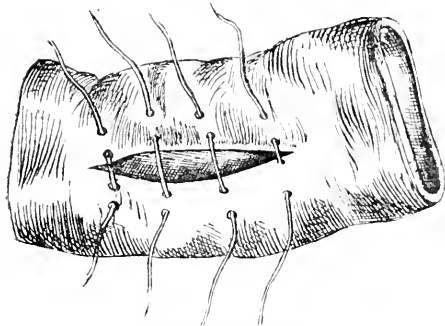


Fig. 25. Lembert's sutures in place.

His first paper on this subject was published in 1826. (*Répertoire Général d' Anatomie et de Physiologie pathologique*, T. ii. 3. 1826). He used interrupted sutures of fine silk, and cut the threads short to the knot, making no provision for fastening the bowel against the abdominal wound. The point of the needle is introduced upon the external surface of the intestine at the distance of two or three lines from the margin of the wound; he penetrates through the tissues as far down as the mucous membrane, brings it out at one or two lines distance from its place of entrance; applies the needle with the same precautions upon the external surface and into the tissues of the opposite side. He places the sutures about three to four lines apart, and when they are all in place commences to tie from one end, turning the margins of the wound carefully toward the lumen of the bowel with a probe.

After completion of the suturing the part presents externally a linear depression with a corresponding

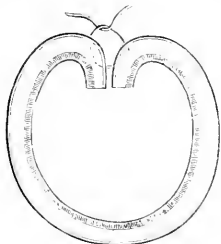


Fig. 26. Jobert's suture.

ridge on the inner side. This method secures serous approximation to the extent of space included by the sutures. The sutures become encysted and do

not cut their way into the lumen of the bowel. Lembert's suture has been variously modified at different times. Jobert included in the suture the entire thickness of the wall of the bowel.

Breidenbach tied the knot on the inside of the lumen of the bowel.

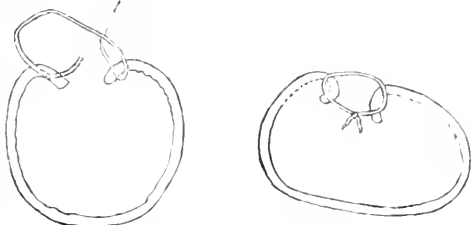


Fig. 27. Breidenbach's suture.

Dupuytren made the Lembert stitch in the form of the continued suture.

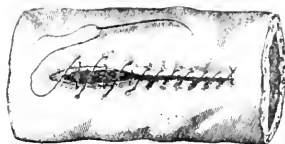


Fig. 28. Dupuytren's suture.

Dieffenbach included in the suture only the peritoneal coat.

Gély (*"Recherches sur l'emploi d' un nouveau procédé de suture contre les divisions de l' intestin,"* Paris, 1844) armed each end of the thread with a needle. A loop is formed by transfixing the serous and muscular coats at one end on each side of the wound about 4 mm. from the margins of the wound, grasping about 5 mm. of surface. The needles and threads are then crossed and similar stitches taken and the process repeated until the opposite angle of the wound is reached, starting with the stitch at the subsequent point of exit of the needles. By making traction on the threads the margins of the wound are neatly inverted and only one terminal knot is required.



Fig. 29. Gély's suture.

According to Nélaton the advantages of this method are: that the sutures close the wound hermetically and that the thread can escape into the lumen of the bowel.

Blatin's modification of Gély's method consists in using only one needle and two threads of different color, first sewing with one and returning with the other, avoiding the punctures made by the first needle.

Emmert's ("Lehrbuch der Chirurgie," Stuttgart, 1862, p. 232) method of suturing intestinal wounds consists of a series of double Lembert sutures as is well illustrated by Fig. 30.

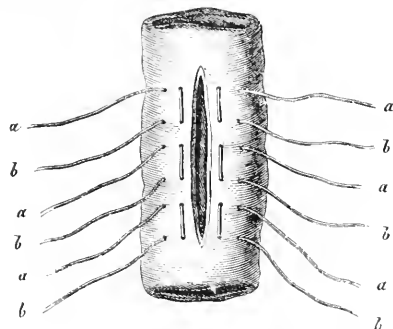


Fig. 30. Emmert's method.

When the sutures are all in place the corresponding threads on each side are tied and the margins of the wound are carefully inverted.

A very strange method of closing intestinal wounds was devised by Bouisson. Two insect pins of the length of the wound are pushed through the tissues parallel to and about 2 mm. from the margins of the wound. The pins are pushed in and out from the surface of the intestine in the same way as in making a continued suture. A ligature is passed under the free parts of the pins on each side at different points, and as they are tied the margins of the wound are inverted and approximated. All the threads are brought out of the external wound. On the third or fourth day the pins are withdrawn, thus releasing the ligatures which are also removed. Lembert's principle of uniting serosa to serosa was first applied in making the invagination suture by Jobert. ("Mémoires sur les plaies du canal intestinal," Paris, 1827). He modified Ramdohr's method by turning in the edge of the lower end before making the invagination, thus bringing serous surfaces in contact for adhesion. The invagination is made by inserting two sutures at opposite points in the upper end and passing the ends with a needle through the inverted margin of the lower end a few lines apart. By making traction upon the sutures invagination is effected and maintained by tying the sutures.

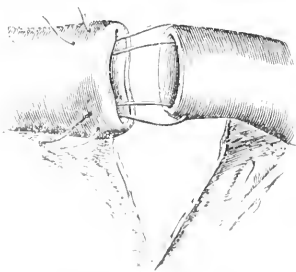


Fig. 31. Jobert's invagination suture.

Jobert's suture has had an extended trial in restoring the continuity of the bowel in the treatment of complete transverse wounds, and has yielded fair

results. The most objectionable feature to it is the fixation suture, which being composed of unabsorbable material must finally cut through the tissues which it includes before it can escape into the bowel, a process which is necessarily attended by no inconsiderable risk of extravasation and its consequences—septic peritonitis and death.

Schmidt, Thompson and Travers had observed the singular phenomenon, viz., that if a thread is applied around a small perforation of the intestine, it soon sinks into it as into a depression, in such a manner as to reach gradually the interior of the canal and to become entirely free there, at the same time that the serous coat or surface of the bowel is united behind it, and blended with a layer of plastic lymph as if intended to fill up the opening which, but for that, would have been left. Still more, Travers has found that if the entire caliber of the intestine is strangulated, the peritoneum of the upper portion adheres so rapidly to that of the deeper tissues, that the septum formed by the strangulation soon becomes gangrenous, and is detached and drawn in the direction of the lower part of the bowel in such a manner that the tube ultimately becomes perfectly re-established. Utilizing these facts as a basis, Amussat ("Casper's Wochenschrift f. d. Medicin," 1834, No. 44), made use of invagination and circular constriction in re-establishing the continuity of the intestinal canal.

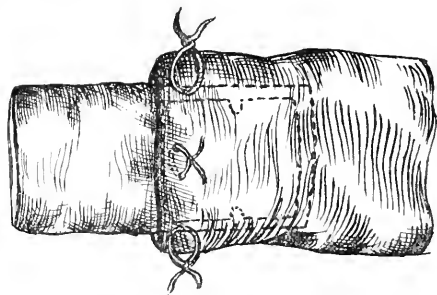


Fig. 32. Amussat's method of invagination and circular constriction. a, invagination; b, circular constriction.

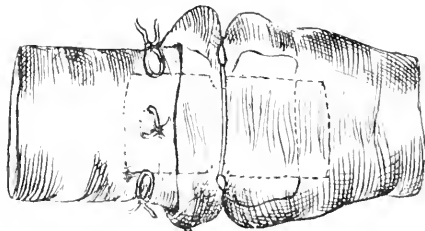


Fig. 32 a.

In order to maintain the patency of the bowel he inserted a hollow cylinder of elder into the upper end before making the invagination. This cylinder had a circular groove in the center. The invagination was maintained by a few sutures. A thread was then tied firmly around the bowel at a point corresponding with the circular groove. As soon as the string had cut its way into the bowel the cylinder

was released and passed away with the feces, while the serous surfaces on each side of the groove made by the string became adherent.

Choise ("Thèse de Paris," 1837, No. 322), experimented on animals by inserting into the upper end a piece of the trachea of an animal, and after invaginating this into the lower end tied a ligature firmly around the invaginated portion. The ligature soon ulcerated through into the bowel, adhesions between the approximated serous surfaces formed in the meantime, and the ligature and tracheal ring escaped with the feces. The experiments on lower animals were successful. He later substituted a piece of cork for the trachea and obtained similar good results.

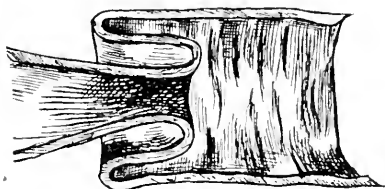


Fig. 33. Bécéard's procedure. *a*, Invagination; *b*, circular constriction.

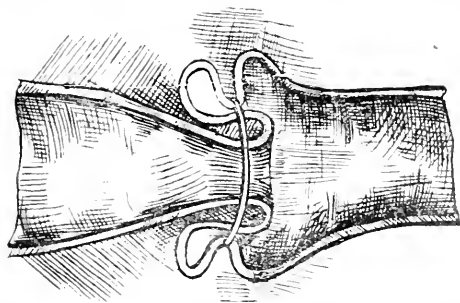


Fig. 33 *a*.

Bécéard obtained the same results in his experiments on animals without the use of a cylinder.

After making the invagination he constricted the bowel by tying a thread firmly just below the margin of the ensheathing tube. Zang (op. cit.), detached the mesentery from the upper end to the distance of an inch, and invaginated this part into the lower end after turning in its margins. The invagination was maintained by a mesenteric suture which grasped both sides, the threads of which were brought out of the external wound and fastened so as to hold the invaginated part in the ventral wound. Various efforts have been made at different times to dispense with intestinal sutures by substituting for them some other kind of mechanical support. One of the earliest attempts in this direction was made by Denans ("Recueil de la Société roy. de Méd. de Marseille," l'Année. 1, 1826), a surgeon of Marseilles. The procedure is an exceedingly ingenious one. In effecting an end-to-end union in the treatment of complete transverse wounds or after resection, he introduces into each end of the bowel a ring of silver or zinc, over which he inverts the margins of the ends of the bowel and connects them by a slightly smaller but wider ring of steel which is cut longitudinally, the

margins overlapping so that it can be made smaller by pressure, and exert the necessary peripheral pressure to hold the other two rings firmly together. The central ring is compressed with a pair of strong forceps when it is first inserted into the upper end of the bowel, then into the lower, when the two rings are approximated over it, thus grasping firmly the inverted margins all around. The serous surfaces outside of the grasp of the rings become adherent, the inverted margins, subjected to pressure between the rings slough, the rings are released and pass away with the stools.

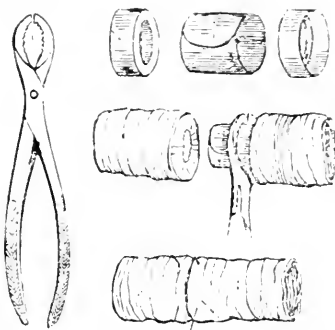


Fig. 34. Method of Denans. *aa*, Rings for bowel ends; *b*, connecting steel spring ring; *c*, upper end of bowel containing ring and proximal end of connecting ring; *d*, lower end of bowel containing ring, margin of bowel turned inward; *e*, two ends joined together; *f*, forceps to aid in the insertion of middle ring.

In his first experiments the connecting piece was a perfect ring, and in order to prevent separation of the ends of the bowel he used two points of suture, as will be seen in the illustration (*e*). Later ("Noté à l'Acad. de Méd.," 1838), he used the steel spring ring for the connecting part and dispensed with the sutures. His experiments on animals proved very successful. Guersant reported a successful case. Nélaton admires the perfection of the mechanism of this method, but makes the serious objection to it that the rings are not always at hand when needed, and that the passage of such a large foreign body is a matter of difficulty and might lead to fatal complications.

Baudens modified Denans' method by using a single cylinder with a deep transverse groove in the center and two rubber rings. The inverted margins of the bowel ends were fastened upon the cylinder by the rubber rings pressing in opposite directions towards the center of the groove on the outer surface of the cylinder. The inverted margins subjected to

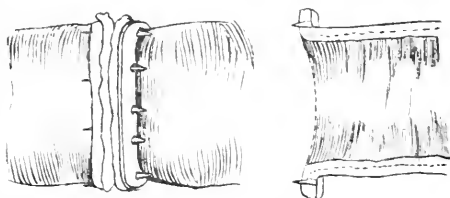


Fig. 35. Method of Henroz. *a*, One end of bowel with ring in situ; *b*, ends joined together between the two spiked rings; *c*, ring showing spikes and perforations for spikes of opposite ring.

the elastic pressure sloughed and came away with the cylinder and rubber rings.

Honroz clamped the two ends of the bowel together between two rings, each supplied with a number of sharp metallic points which transixed the mucous membrane, and by taking hold in perforations in the ring on the opposite side held the rings together and fixed the bowel ends.

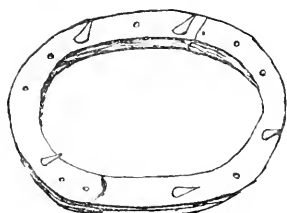


Fig. 35.

The great objection to this method is that the margins of the ends of the bowel were not inverted; union was effected with the mucous membrane turned outward, consequently it must have proved a failure even in experiments on the lower animals.

Somewhat similar mechanical contrivances that I have described above in the end-to-end approximation of the intestine have been devised in the treatment of longitudinal and incomplete transverse wounds.

Beranger-Feraud ("Des diverses méthodes de réunion des plaies intestinales," Paris, 1870), invented a clamp which he regarded as being especially applicable in the treatment of longitudinal wounds.

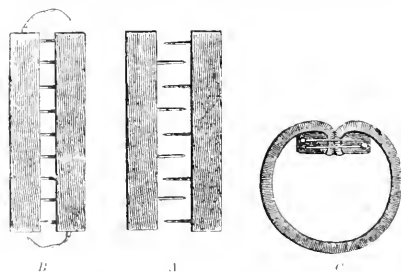


Fig. 36. Beranger-Feraud's cork clamp suture. a, clamp ready for use; b, clamp closed; c, clamp in place holding the serous surfaces of the inverted margins of wound in contact.

Two quadrangular prisms of cork 6 mm. in thickness and as long as the wound are prepared. Fine insect needles are pushed through these pieces of cork about 6 mm. apart, in such a manner that the heads well pushed into the cork are covered with sealing wax. One of the prisms is inserted into the wound, and the points of the pins are made to penetrate the entire thickness of the intestinal wall near the margin of the wound from within outward. After the other prism is in place, the serous surfaces are brought in contact by pressure from without against the prisms, so as to bury the points of the pins in the opposite piece of cork sufficiently deep to insure adequate pressure. The included parts slough away with the clamp; meanwhile adhesions form between the approximated serous surfaces outside of the clamp. For the purpose of giving greater security the two

pieces of cork can be fastened together in addition by a curved pin as is shown in Fig. 36, b.

Bohrick ("Med. Vereinszeitung," 1850), described another kind of clamp suture. The clamp is made either of sheet lead or a thin strip of silver the length of the wound. The metal strip is folded in the center in its long axis like the cover of a book, before it is inserted into the bowel through the wound. The margins of the wound are then inverted and engaged between the two leaves of the clamp, when by pressure from without the clamp is closed sufficiently firm to fix the parts included securely. Adhesions form in a short time on the surface outside of the grasp of the clamp, the included parts slough and escape with the clamp. The greatest objection against all the substitutes for the intestinal sutures that have been mentioned, is that a foreign body is left in the intestinal canal which necessarily constitutes an additional source of danger, because spontaneous elimination is attended by many difficulties and risks. In this regard the experimental results are not directly applicable to man. The intestinal canal of dogs is much shorter in proportion to the size of the body than that of man, and the muscular coat is much more developed. Dogs are reckless eaters, and for this reason they have been supplied with an intestinal canal that can dispose of foreign bodies of large size and most dangerous forms. This is not the case in man, hence leaving a foreign substance of any considerable size in the intestinal canal of man is fraught with danger.

That Lambert's method of treating intestinal wounds and its many modifications did not give universal satisfaction, becomes evident from a paper published by Privat in 1846. ("Bull. de Thérapie," Sept., 1846) Under the title of *Autoplastie* he described in this paper a new method of dealing with intestinal wounds which he successfully applied in a case of penetrating wound of the abdomen complicated by four intestinal wounds. The wounds were first sutured and fastened in the abdominal wound by mesenteric loops. The sutures tore through on the second day, when he fastened over each wound an adjacent intestinal loop. On the seventh day three of the wounds were closed and the intestine was returned into the abdominal cavity. The fourth wound was not quite closed and was retained in the external wound. It closed later and the patient made a perfect recovery. He is of the opinion that intestinal wounds can be healed more readily by covering them with an adjacent healthy loop than by suturing. It will thus be seen that in spite of great improvements over the ancient methods, the progress made did not answer the practical demands.

III—RECENT METHODS.

The second great improvement in intestinal suturing was the introduction of the aseptic suture by Sir Joseph Lister, nearly a quarter of a century ago. We can readily understand that the old septic suture was the direct cause of death in many cases in which the operation was faultlessly performed. Lister taught us to use aseptic material for the sutures and to apply the other principles of antiseptic surgery in the management of intestinal as well as other wounds. The adoption of this method of wound treatment removed a frequent source of septic peritonitis and added much to the success and rapid development of intestinal surgery. The aseptic suture in aseptic

tissues no longer constituted a source of danger. Under this plan of treatment absorbable sutures were removed by absorption, unabsorbable material became encysted without causing harmful irritation. The catgut suture that met at first with such a warm reception by surgeons in the treatment of intestinal wounds has been gradually displaced almost completely by the aseptic silk suture, so that at present but few surgeons rely upon it in the treatment of an intestinal wound. Czerny (*Sammlung Klinischer Vorträge*, 1881, No. 201) added another row of stitches to Lambert's sutures. He wished to approximate not only the peritoneal surfaces, but also the margins of the mucous membrane in order to prevent escape of intestinal contents between the parts brought in apposition by Lambert's stitches, and to place the parts in an ideal condition for repair.

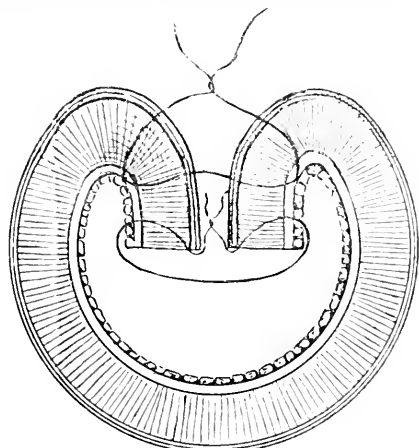


Fig. 37. Czerny-Lambert suture.

Czerny's modification of Lambert's method consists in uniting first the mucous membrane by a row of stitches, which, with the exception of the last one or two, are tied on the mucous surface. These stitches ulcerate into the lumen of the bowel, while the superficial or Lambert's stitches become encysted. In all cases in which two rows of stitches are used in closing a wound or in performing circular enterorrhaphy, this method is usually practiced. If time permits, this method is safer than any of the single row methods.

Gussenbauer devised a figure-of-eight suture which was intended to accomplish the same objects as the Czerny-Lambert suture.

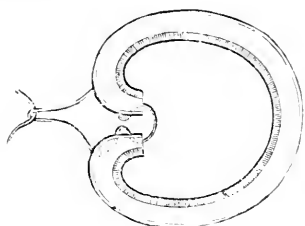


Fig. 38. Gussenbauer's suture.

It is much more complicated than the Czerny-

Lambert suture, and does not bring the parts in apposition as accurately, and for these reasons is seldom employed. In circular enterorrhaphy Wollf's sutures the mucous membrane from the inside of the bowel, brings the serous surfaces in contact by Lambert's stitches, and, if necessary, applies over these a continued suture of fine silk or catgut.

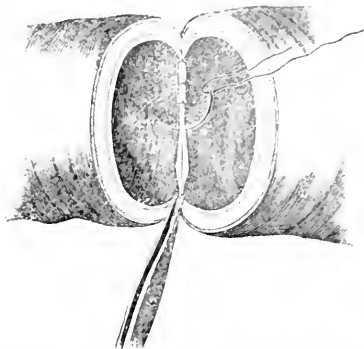


Fig. 39. Wollf's suture. a, Deep suture; b, superficial suture.



Fig. 39 B.

Madelung (*Verh. d. Deutschen Gesellschaft f. Chirurgie*, 1881) used in circular suturing small discs of cartilage made from the costal cartilage of a calf, with which he aimed to secure better approximation between the serous surfaces than by the unaided suture alone.

Bishop (*Medical Chronicle*, September, 1885) has devised and successfully employed in the lower animals an ingenious, and in his experimental work a satisfactory suture. It is a kind of interrupted shoemaker's stitch introduced on the mucous side, each suture loop being tied on alternate sides of the line of junction.

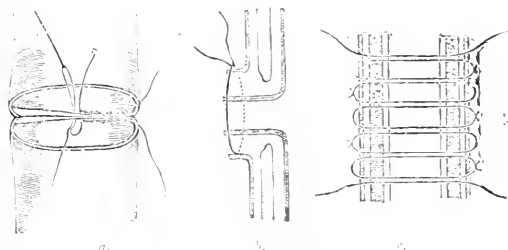


Fig. 40. Bishop's suture.

The stitches are all on the mucous side of the bowel, and as they tend to produce too much narrowing of the bowel the method will never receive the sanction of the practical surgeon.

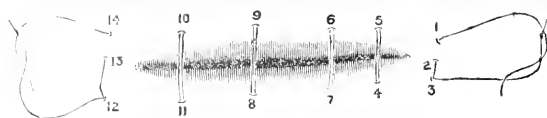
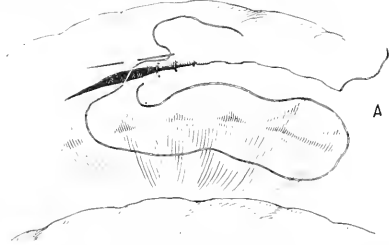


Fig. 43. Greig Smith's modification of Appollito's method.

Greig Smith's modification of Appollito's suture consists in doing away with the necessity of placing a foreign body in the intestines to which the end of the suture is attached. Smith credits this suture with giving wonderfully good apposition.



H. W. Cushing ("Right Angle" Continuous Intestinal Suture. *Medical and Surgical Reports of the City Hospital of Boston*, 1889) has still further modified Appollito's method, and has perfected it to such an extent that it has become one of the sutures that is entitled to general recognition. The first stitch is knotted as soon as a hold upon the bowel has been obtained, and the right angle stitches are now commenced. The thread is then carried to and fro across the wound, and is finally knotted at the opposite side of the wound. The author of the exceedingly interesting pamphlet from which these facts are gleaned says: "The most satisfactory results are obtained in the human intestine by placing the points of puncture one-eighth of an inch apart, and by burying the suture to the same extent in a direction parallel to, and three-sixteenths of an inch distant from the wound edge. The suture terminates in the tough, fibrous submucous layer, and is not intended to involve the mucous membrane or penetrate the intestinal cavity. Each part of the suture should be drawn tight, so as to accurately appose the wound edges before the next is set."

Halsted's (*International Journal of Medical Sciences*, October, 1887) plain quilt suture is a compromise between Emmert's and Cushing's suture.

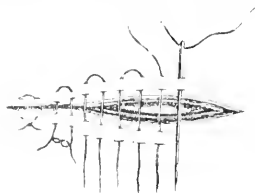


Fig. 45. Halsted's plain quilt suture.

He places great stress upon the importance of including in the sutures a few of the firm fibers of the submucous coat, which he has studied so carefully and described so well. He claims for this suture that it does not strangulate the tissues so much and

obtains a firmer hold than the Lembert stitch. It is, however, a more time-consuming procedure than the ordinary method by Lembert stitches and more confusing to the inexperienced surgeon. The mucous membrane has always been in the way of the surgeon in dealing with intestinal wounds. Moreau and

Poutard excised the prolapsed mucous membrane before suturing, in order to prevent the interposition of this structure between the peritoneal surfaces and to secure a wider surface of healing. Kummer (*Verhandlungen d. Deutschen Gesellschaft für Chirurgie*, 1891, p. 121) has carried this procedure farther and under the name of submucous resection of the intestine, he describes a form of circular suturing in which a circular strip of the mucous membrane half an inch wide is excised on each side prior to bringing the parts in apposition by sutures.

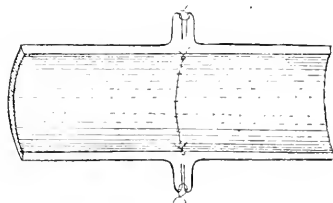


Fig. 46. Kummer's method of circular suturing.

The mucous membrane is sutured separately on the inner side of the bowel; the remaining part of the bowel wall appears in the form of a ridge, which after inversion of the peritoneal surfaces is sewed separately. The lumen of the bowel is not narrowed at the seat of suturing, and an extensive area of wound surface is included by the sutures. The method, however, is objectionable as it necessitates a maximum degree of traumatism and consumes too much valuable time.

Chaput ("Congrès Français de Chirurgie," 1889) does not excise the whole mucous membrane, as just described in Kummer's method, but removes only the epithelial lining by scraping. The mucous membrane is everted and a circular strip one centimetre wide on each side is denuded with a sharp curette. In sewing them together he brings in contact the scraped surfaces and covers the line of suturing with omentum. The invagination method, after scraping off the lower end in a similar manner, yielded such bad results in his experiments on dogs that it was never tried on man.

Robinson (*Annals of Surgery*, 1891) described a new method of end-to-end suturing. A rubber tube from four to six inches long is inserted into the proximal end and stitched around the edge. The mucous membrane of the distal end is dissected off with curved scissors and then everted for about one-half inch. The proximal is then invaginated into the distal end, so that the peritoneal surface is in contact with denuded mucous membrane. A row of stitches around the circumference of the distal end, which, however does not penetrate the lumen of the proximal bowel, completes the operation.

M. E. Connell (*Medical Record*, September 17, 1892) has made some very interesting experimental investigations in circular enterorrhaphy with a special view of reducing the number of stitches and knots.

After a circular resection the cut ends of the bowel are placed in position represented by Fig. 45 *a*, and the first or tight suture is inserted, as shown by *b*. After tying this suture the parts will represent the appearance as in *c*. In making the second or loose suture, the needle is inserted from without inward through the wall of the bowel, at the convex end,

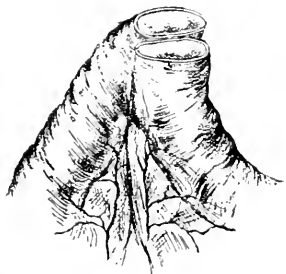


Fig. 45. Connell's suture for circular enterorrhaphy.

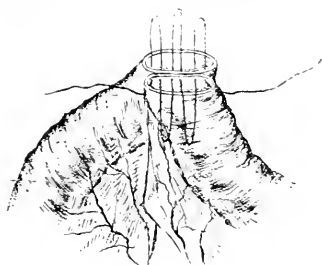


Fig. 45 B.



Fig. 45 C.

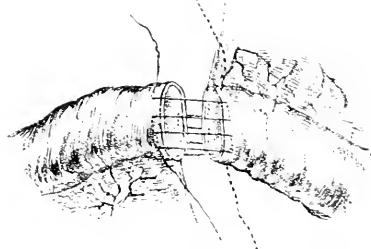


Fig. 45 D.

and passed out again on the same side; it is then crossed over the cut edges to the opposite wall, and a stitch is taken through all the coats about three-sixteenths of an inch in length, parallel with the

margin of the cut edges: it is now passed back again and a stitch is taken as before. This is repeated until enough stitches have been taken when the needle is brought from within outward through the mesenteric end. When this suture has been inserted, and before it has been drawn tight, it appears as in *d*. When the suture is tightened the margins are inverted and the serous surfaces approximated.

Mauunsell, of New Zealand, ("A New Method of Intestinal Surgery,"—*American Journal Medical Sciences*, March, 1892), has devised a method of circular suturing in imitation of nature's processes in the spontaneous cure of an invagination.

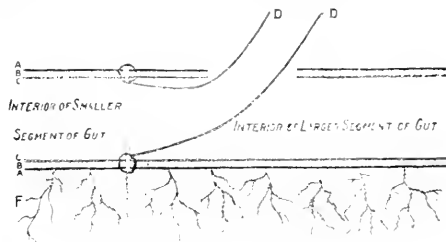


Fig. 46 A. Longitudinal section of gut showing AA, peritoneal coat, BB, muscular coat, CC, mucous coat, DD, temporary sutures passed into bowel and out through longitudinal slit made in larger segment of gut, FF, mesentery.

The two ends of the bowel are brought together with two temporary sutures passed through *all* the coats of the intestine. The long ends of these sutures are left intact. One is placed at the mesenteric attachment, and the other at a point directly *vis à vis*. These sutures are used later in effecting invagination. On the side on which the temporary invagination is to be made the bowel is incised to the extent of an inch and a half, on the convex side parallel to its long axis, as is shown in Fig. 46 *a*.

The edges of the longitudinal slit made in the bowel, which begins about an inch from its cut end, should be well turned in and brought together with continued suture of Lembert's stitches. By this simple device, the perfect union by suture of a complete transverse section of the bowel, with its circumferential peritoneal surfaces in exact position and all knots of the sutures on the inside, can be accom-

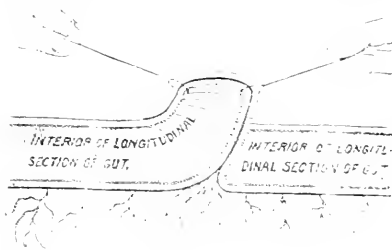


Fig. 46 B. Mauunsell's artificial invagination and circular suturing.

plished. From diagram *b* (longitudinal section of intestine, showing the relative position of the different layers of the bowel invaginated at the longitudinal slit) it may be seen that the peritoneal surfaces are in accurate apposition all around. While an assistant holds the ends of the temporary sutures, the surgeon passes a long, fine, straight needle, armed

with a stout horse hair or a very fine silkworm gut through both sides of the bowel, taking a good hold of all the coats. The suture is then worked up from the center of the invaginated intestine, divided, and tied on both sides. *In this way twenty sutures can be placed rapidly in position with ten passages of the needle.* (See diagram *c*.) The temporary sutures

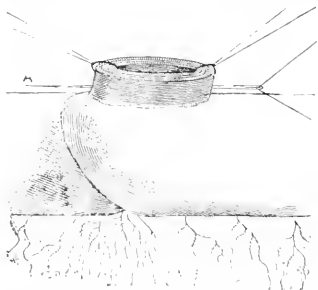


Diagram C. Invaginated gut, showing the two peritoneal surfaces in juxtaposition all around. A needle passed through both sides of the bowel, including all the coats, introducing two sutures with one passage of the needle.

are now cut off short, and the sutured ends of the bowel painted with Wölfler's mixture of alcohol, glycerin and colophonium, and dusted over with iodoform. The bowel is then pulled back. The longi-

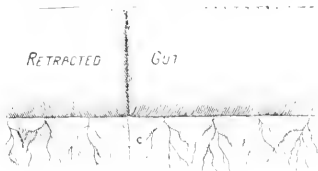


Diagram D. Appearance of bowel after completion of operation.

tudinal slit in the gut is well turned in and closed with a continuous suture and painted with Wölfler's mixture and iodoform powder. This method of suturing has yielded excellent results in experiments on animals and recommends itself for a careful study to every surgeon. A serious objection to this method is the additional wound through which the temporary invagination is made.

M. L. Harris ("Circular Enterorrhaphy: A New Method,"—*Chicago Medical Recorder*, September, 1892) has devised a new method of circular enterorrhaphy which in dogs has given excellent results. The distal end of the bowel is denuded of its mucous membrane for the distance of one and one-half to two centimetres with a sharp curette. The upper end is then invaginated into the lower in such a manner that the serous surface of the upper end comes in contact with the denuded submucous layer of the lower.

Three ordinary round sewing needles of a good length are threaded with fine sterilized silk. The first needle is made to transfix the thickness of the lower or denuded end of the bowel just to one side of the mesentery and at the inner limit of the denudation. It is not drawn clear through, but only until the point projects from the caliber of the bowel a little beyond its free edge. The point of the needle is made to pick up a bit of the other end of the

bowel, transversely, just to one side of the mesentery and very near to its edge, Fig. 47.

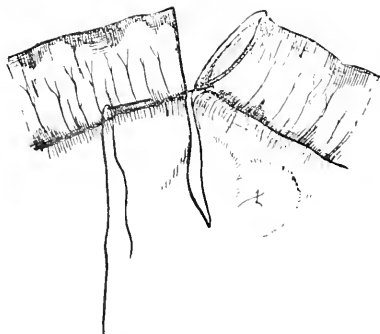


Fig. 47. Circular enterorrhaphy according to Harris. a, invagination suture.

Now, by drawing the needle back a little and using it as a lever by turning it around its point of transfixion in the lower end, it will be readily seen that the upper end, on this side, is invaginated into the lower end as far as the part is denuded of its mucous membrane. The point of the needle is then pushed on through the lower end from within outwards a short distance in a line transversely from the first point of entrance, where the needle is left temporarily, transfixing the bowel and holding that part of

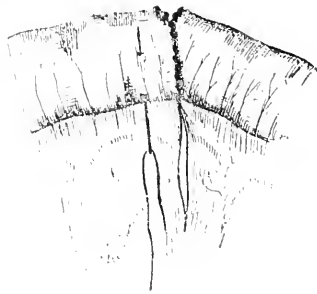


Fig. 47 B.

the upper end invaginated. Fig. 47, b, (b, partial invagination.) The same process is repeated with the second needle at a corresponding point of the bowel on the opposite side of the mesentery, while the third needle is used similarly at the part of the bowel opposite to the mesenteric attachment. As will be observed (Fig. 47, c), there are two rows (c, operation completed) of sutures around the bowel,

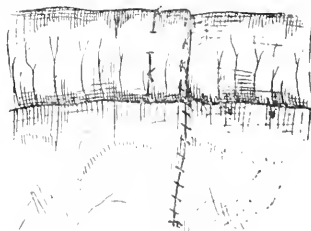


Fig. 47 C.

one at either end, thus permanently keeping the opposed surfaces in accurate contact regardless of the varying caliber of the bowel. It is the first row of sutures around the invaginated end to which the success of the method is due, and it was because Chaput failed to recognize it in his invagination method that his operation was a failure and every one of his animals died. Harris is of the opinion that it is not material in which direction the invagination is made when this method is employed. Although all of the animals operated on by this method lived and the specimens obtained later showed excellent results, I cannot but believe that any method which deviates from the principles established by Lembert is a step in the backward direction, and that few if any surgeons will have the courage to deviate from them when called upon to assume the responsibilities of such operations on his fellow-beings.

The tendency has recently been toward the employment of some kind of an aid or substitute for sutures in effecting an end-to-end union of the intestine. Senn ("Intestinal Surgery," Chicago, 1889, p. 168), has modified Jobert's method of invagination by substituting catgut for silk for the invagination sutures and by lining the upper end of the bowel with a flexible rubber ring. The operation is described as follows: "The upper end of the bowel which is to become the intussusceptum is lined with a soft pliable rubber ring made of a rubber band, transformed into a ring by fastening the ends together with two catgut sutures. This ring must be the length of the intussusceptum, from one-third to half an inch; the lower margin is stitched by a continuous catgut suture to the lower end of the bowel, which effectually prevents the bulging of the mucous membrane, a condition which is always difficult to overcome in circular suturing. After the ring is fastened in its place the end of the bowel presents a tapering appearance which materially facilitates the process of invagination.

distance from the mesenteric attachment, and the second suture on the opposite convex side of the bowel. During this time an assistant keeps the opposite end of the bowel compressed to prevent contractions and bulging of the mucous membrane. The needles next are passed through the peritoneal, muscular and submucous coats at corresponding points about one-third of an inch from the margin of the opposite end of the bowel, and when all the needles have been passed an assistant makes equal traction on the four strings, and the operator assists the invagination by turning in the margin of the lower end evenly with a director

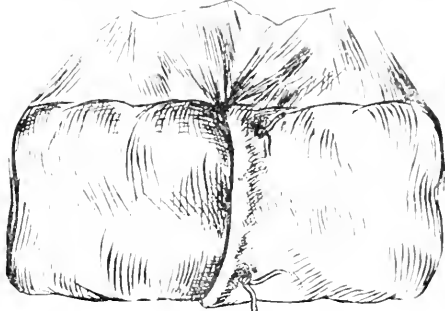


Fig. 47.

or probe, and by gently pushing the rubber ring completely into the intussusciptions. The invagination is accurately made, the two catgut sutures are tied only with sufficient firmness to prevent disinvagination should violent peristalsis follow the operation. The invagination itself effects accurate, almost hermetical sealing of the visceral wound. The intestinal contents pass freely through the lumen of the rubber ring from above downwards, and extravasation from below is impossible, as the free end of the intussusciptions secures accurate valvular closure. After a few days the rubber ring becomes detached, and by giving way of the catgut sutures is again transformed into a flat band, which readily passes off with the discharges through the bowels. The invagination sutures of catgut are gradually removed by substitution on the part of the tissues, hence the punctures in the bowels remain closed either by the catgut or by the products of local tissue proliferation; and thus extravasation is prevented."

Neuber used a hollow cylinder of decalcified bone with a deep groove in the center as an aid in circular enterorrhaphy. (Fig. 49, a.)

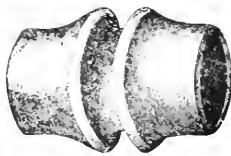


Fig. 49. Neuber's method. *a*, hollow cylinder of decalcified bone; *b*, longitudinal defect in bowel, showing location of cylinder, sutures, and catgut ligature.

"Two well prepared fine chromicized or juniper catgut sutures are threaded each with two needles. The needles are passed from within outwards, transfixing the upper portion of the rubber ring and the entire thickness of the wall of the bowel and always equidistant from each other; the first suture being passed in such a manner that each needle is brought out a short

After suturing the mucous membrane according to Wölfler's method so far that only an opening is left large enough to insert the cylinder, this is introduced in such a way that the transverse groove cor-

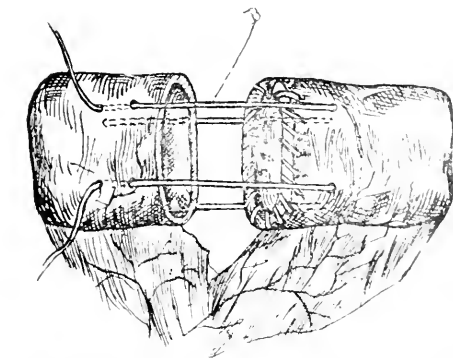


Fig. 48. Senn's modification of Jobert's invagination method. *a*, upper end lined with ring, invagination sutures in place; *b*, lower end; *c*, invagination completed, sutures tied.

responds with the line of suturing when the serous surfaces are brought in contact by Lembert sutures. In order to fasten the united bowel securely upon the bone tube, a catgut thread is passed with a round needle through the mesentery, and tied around the bowel with sufficient firmness to press the margins of the sutured ends of the bowel into the groove. (Fig. 49, b.) This method has been employed in a number of cases with good results.

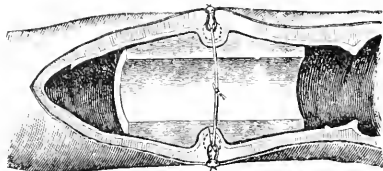


Fig. 49 B.

One of the most recent devices to take the place of sutures in restoring the continuity of the bowel in complete transverse wounds is the Murphy button. (*New York Medical Record*, December 10, 1892.) It is an exceedingly ingenious appliance, but its mechanism as far as uniting the ends of the bowel is concerned is no improvement upon the rings employed

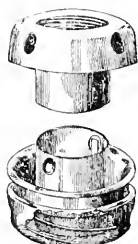


Fig. 50. Murphy's button.

by Denans more than half a century ago. In both methods the margins of each end of the bowel are compressed and strangulated by the instrument with the intention of causing gangrene, and the resulting union is accomplished by adhesions between the serous surfaces outside of the grasp of the instrument. Both methods have also this in common, that a large foreign body is left in the intestinal canal which may become a source of danger on its way to the distal end of the alimentary canal. There is substantial ground for the two pertinent questions propounded by Henry Morris (*International Encyclopedia of Surgery*, 1884, p. 944) in commenting on the procedure of Denans: "Who would venture to leave the intestine in this manner in the belly? Who would guarantee that the metallic tubes would not perforate the intestine?" Any instrument, suture or ligature used in effecting the continuity of a wounded or divided bowel that produces gangrene must be looked upon as a source of danger. It is impossible to effect an aseptic necrosis in the interior of the bowel, and dead tissue inhabited by pathogenic microbes always constitutes a source of danger. It is easy enough to produce gangrene, but we are powerless in limiting its extension in this locality. The limited area of living tissue brought in contact outside of the rings of Denans

or the Murphy button will not always prove adequate in the protection of the peritoneal cavity against perforation and its immediate result—septic peritonitis. I have knowledge of a number of cases in which the parts approximated by the Murphy button were found completely separated at the post-mortem examination. As a means of end-to-end union of the intestine, the Murphy button is certainly inferior to Denans' procedure or the method that will be next alluded to, because the lumen of the connecting part is not large enough as a temporary outlet for the intestinal contents above the seat of operation. The size of the button is also a very serious objection. I have operated for intestinal obstruction produced by a gallstone less than an inch in diameter which had become impacted in the lower end of the ileum, and other surgeons will recall similar instances. Keen (*Annals of Surgery*, June, 1893) gives the post-mortem record of a case of malignant disease of the colon in which an anastomosis was established by using a Murphy button one inch in diameter. The patient survived the operation forty-seven days. The anastomotic opening had become reduced one-half in size by contraction during this time. In a postscript he says: "The button should be abandoned for intestinal or gastro-intestinal anastomosis."

If this warning of so eminent a surgeon foreshadows the final verdict of the profession in regard to the use of the button for anastomotic purposes it will never come into use in end-to-end approximation.

A few days ago I received an interesting brochure from Adelbert Ramaugé, professor of surgery in the medical faculty of Buenos Ayres, entitled "Enteroplexie," a paper which he read at a meeting of the International Medical Congress of South America, January 20, 1893, and which received the first prize, a gold medal, from the Peruvian government. In this paper I find the description of an instrument which is intended for the same purpose as the Murphy button and which bears a strong resemblance to it.

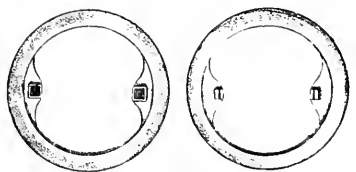


Fig. 51 A.



Fig. 51 B.



Fig. 51 C.

Fig. 51 A. Ramaugé's method of end-to-end approximation. a, platinum rings, front view; b, platinum rings, side view, showing male and female connecting parts; c, rings joined together; d, longitudinal section of bowel, showing position of rings and included parts.

Its mechanism as far as the end-to-end approximation is concerned is the same as that of the button.

The rings are made of aluminium. The connection between the rings is made by two instead of one part. This is a decided advantage, as the size of the temporary outlet is thereby increased. As the rings are composed of aluminium, they are much lighter than the button, and for this reason less likely to

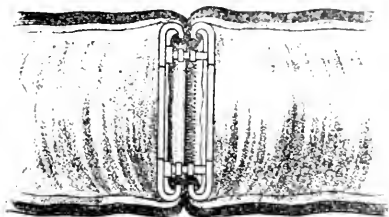


Fig. 51 D.

become arrested on their way through the intestinal canal. The objections which have been made against Denans' rings and the Murphy button otherwise apply with equal force to this procedure.

The revival of intestinal anastomosis by Billroth and Senn has opened up a new field for experimentation with different kinds of sutures and their substitutes. The author ("Intestinal Surgery," Chicago, 1889) made many operations on dogs by suturing the two visceral wounds which were intended to form the anastomotic opening by the Czerny-Lembert method, and notwithstanding that the greatest care was exercised in carrying into effect the antiseptic details, and with a view of a perfect technique, nearly 50 per cent. of the animals died, either from the immediate effects of the operation or from complications resulting from the operation. For the purpose of gaining time and doing away with the evil accruing from too many sutures, and finally with the intention of securing a greater surface of approximation of the serous surfaces and complete rest for the parts, it is

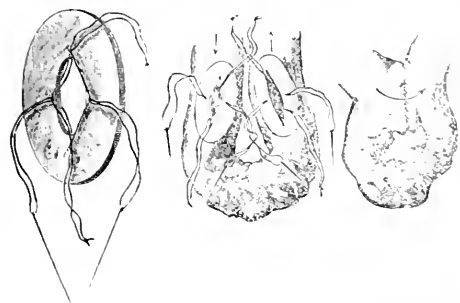


Fig. 52. Senn's method of performing intestinal anastomosis. *a*, perforated decalcified bone plate with sutures attached; *b*, plates inserted through longitudinal slit in bowel on each side of operation; lateral ligatures passed through margin of wound on each side; the four approximation sutures tied, cut short to the knot, and serous surface over margins of plates sewed together with continued suture.

intended to unite, he substituted for the sutures approximation plates. The idea was suggested to him by Dr. M. E. Connell, superintendent of the Milwaukee County Hospital. The first experiments were made with plates of wood, lead, gutta serena and other indestructible substances, nevertheless nearly all of the animals recovered. The material for the plates that was found the most useful after many trials was decalcified bone. The appearance of the

plates and their method of use in making an intestinal anastomosis are well shown in the accompanying illustration taken from the last edition of Esmarch's "Chirurgische Technik."

The serous surfaces included between the plates are scarified for the purpose of securing early and firm adhesions. The plates furnish the necessary mechanical support until firm adhesions have formed when they disintegrate and pass away in fragments. The two lateral sutures fall into the lumen of the bowel. The mistake was first made in operations on man in making the perforation in the plate and the longitudinal wound in the bowel too short, hence the anastomotic opening was too small from the beginning. For gastro-enterostomy and intestinal anastomosis, I now use moist plates (kept between glass plates in an antiseptic solution) with a perforation at least three inches in length and make the visceral wounds correspondingly long. Since I have adopted this change, I have had no trouble with the anastomotic opening. Different kinds of material have been substituted for the decalcified bone. Abbe and Matas used catgut rings, Brokaw segmented rubber ring, Robinson rawhide and segmented rubber plates, Davis catgut mats, Stamm cartilage plate, Shrively and Simonson chromicized gelatin plates, Bawbarn potato plate, von Baracz Swedish turnip plate, and a French surgeon has recently proposed plates made from shavings of the hoofs of horses. H. Littlewood (*The Lancet*, April 16, 1892) has suggested a modification of Senn's plates, with the idea of doing away with the four stitches attached to the upper and lower margins of the apertures of the plates, of performing the operation more quickly and of ensuring a good opening between the two pieces of the intestine.

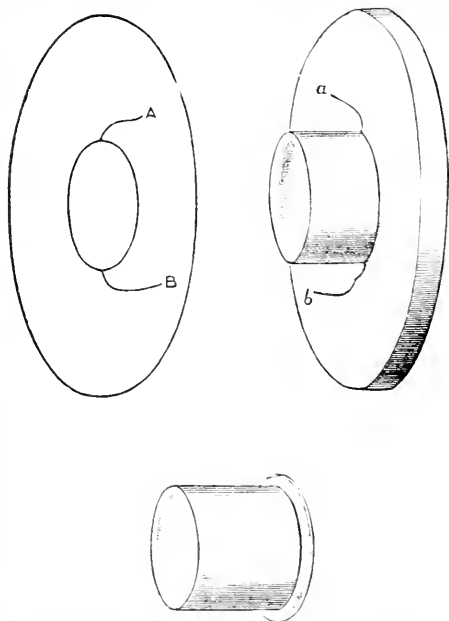


Fig. 53. Intestinal anastomosis after Littlewood. *a*, decalcified bone plate, central opening for connecting tube; *b*, decalcified bone plate with connecting tube inserted; *c*, connecting cylinder.

The suggested modification is to fix a tube of decalcified bone (*c*) into the aperture of one of the plates (*b*). This should be made to accurately fit into the aperture of the other (*a*); by this method the two plates could be held together, and the two parts of the intestinal walls between them brought evenly into contact with each other. He suggests that it might be well to have a piece of fine silk attached to each of the ends of apertures (as marked *A a*, *B b*, in diagrams *a* and *b*), so that by tying *A a* and *B b* together greater security would be made. The intestinal walls around the margins of the plates should be attached by a few sutures.

Willy Sachs (*Centralblatt f. Chirurgie*, October 4, 1890) has described a very similar modification. He proposes the use of an appliance resembling in form a sleeve stud, perforated in the middle. This is made up of two decalcified bone plates fixed together, yet separated to a small extent from each other as far as the uniting portion immediately around the central portion. A longitudinal incision having been made in each of the opposed portions of intestine, each disc is inserted into the intestinal canal on either side, and the intestinal anastomosis is thus readily and speedily established. Sutures are then applied through the serous coat on each side wherever there is a tendency to protrusion of the mucous membrane. He tested this method so far only on rabbits.

A. W. Mayo Robson ("A Method of Performing Intestinal Anastomosis by Means of Decalcified Bone Bobbins,"—*British Medical Journal*, April, 1893), uses a contrivance very similar to that of Sachs' which he calls decalcified bone bobbin. He has used this method with success in two cases.

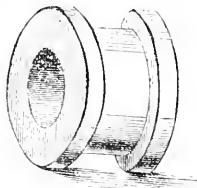


Fig. 54. Robson's decalcified bone bobbin.

In making an intestinal anastomosis, each end of the tube is inserted into the bowel through a longitudinal incision and fastened to the connecting portion by a continued marginal suture. After this has been done on each side the serous surfaces are united by superficial sutures.

IV—PRESENT STATUS.

Enough has been said on the history and technique of the intestinal suture to show how much study, time, ingenuity and experimentation have been expended in its perfection, and yet the task has not been completed. The search for new sutures and their substitutes at the present time is sufficient proof that perfection has not been reached. Deviation from the legitimate path of investigation has done much towards retarding genuine progress. In this light must be viewed all attempts to ignore the principles established by Lembert and the employment of such foreign substances in the intestinal canal as means of approximation that necessarily produce gangrene, and of sufficient size to constitute

an intrinsic source of danger. In the treatment of longitudinal and incomplete transverse wounds suturing by Czerny-Lembert sutures yields the best results. If time is an important factor a single row of Lembert stitches will answer the purpose. About six sutures to the inch are required. Halsted's advice to include in the stitches fibers of the firm sub-mucous coat is important and should never be ignored. As a rule the line of suturing should be transversely to the long axis of the bowel in order not to encroach too much upon its lumen. Fine aseptic silk and ordinary sewing needles are to be employed. The inner row of sutures must include all tunics of the bowel with the exception of the peritoneum; the outer all of the tunics minus the mucous membrane. The inner sutures ulcerate through into the bowel, the outer become encysted. Interrupted sutures are safer than the continuous, but in prolonged operations and when the patient is feeble, the latter can be substituted for the former as a time saving measure. Extravasation during the operation is best prevented by digital or elastic compression on each side of the wound. The latter is made by passing a piece of fine aseptic rubber tubing through an opening in the mesentery made with a piece of hemostatic forceps, and tied around the bowel sufficiently firm to prevent escape of its contents.

If the bowel is completely divided its continuity can be restored with the greatest degree of safety by circular enterorrhaphy or invagination by the author's method. The latter is not applicable in operations for intestinal obstruction, as in that case the upper end of the bowel is larger than the lower into which the invagination must be made. Before suturing is commenced each end of the bowel should be beveled at the expense of the convex side, as advised by Madelung many years ago, as by doing so there is less danger of the sutures causing a dangerous degree of stenosis and the liability to marginal gangrene on the convex side is also greatly diminished thereby. If the lumina of the bowel ends are unequal in size, the obliquity should be greatest on the side of the small end. Circular suturing is performed in the same manner as suturing of incomplete wounds. The greatest care is required on the mesenteric side, as it is here where perforations occur most frequently. After applying the deep row of sutures the first Lembert stitches are applied on each side of the mesenteric attachment in order to secure serous approximation in this locality. The Lembert stitches must be tied only with sufficient firmness to approximate the serous surfaces without subjecting the included tissues to harmful linear compression. Puncturing of visible vessels should be avoided as much as possible. The mesentery is sutured in such a manner that it will aid in holding together the sutured end. Senn ("Intestinal Surgery," Chicago, 1889) has proposed and practiced omental grafting as a valuable aid in circular suturing. This additional protection against perforation and peritonitis is especially indicated when the tissues at the place of suturing have undergone pathological changes in consequence of intestinal obstruction or inflammation. A strip of omentum about an inch wide and long enough to cover the entire circumference of the bowel is used for this purpose. Prior to planting the graft the serous surface of the bowel half an inch from the line of sutures on each side is scarified, and the under surface of the graft is dealt

with in the same way. The graft is fastened by two catgut sutures on the mesenteric side, including the mesentery and both ends of the graft. The stitches are made parallel to the mesenteric vessels. The grafts become firmly adherent within a few hours, and in the course of one or two days are vascularized by new vessels growing into them from the scarified surface of the bowel. If any internal aids to circular suturing are used they should be composed of absorbable material and employed in such a way as not to produce marginal gangrene, and with a central opening large enough to allow free fecal circulation. I cannot but regard mechanical supports made of metallic substances as dangerous. The objections made to them do not apply with equal force to the decalcified bone tube of Neuber, the sleeve button of the same material, of Sachs and Littlewood, and the bobbins of decalcified bone of Robson. These appliances merit a trial and will undoubtedly be improved upon in the future.

Lateral anastomosis as a surgical procedure has a great future. I still remain partial to the use of decalcified bone plates as a substitute in part for sutures. Abbe has discarded the use of his catgut ring and now advocates long incisions and suturing. If the plates are made with an oval perforation three inches in length the same object is realized in a much shorter time and with a greater degree of safety. I never had any faith in rings as a means of approximation. The plates bring into accurate contact large serous surfaces and serve at the same time as splints for the injured part. They serve the double purpose of sutures and splints. The other appliances of decalcified bone that have been enumerated may answer the same purpose as the anastomosis plates, but with none of them can the pressure to which the included margins of the visceral wounds are subjected be regulated with the same degree of certainty, and none of them approach so near the function of splints. I have no doubt that future experiments will result in the discovery of other and safer appliances that will be vastly superior to anything I have mentioned, and that if they do not abolish, will at least greatly limit the present field of the intestinal suture.

ORIGINAL ARTICLES.

A CASE OF CHRONIC GLANDERS, WITH RECOVERY.

Read before the Section on Surgery and Anatomy at the Forty-fourth Annual Meeting of the American Medical Association.

BY BAYARD HOLMES, B.S., M.D.

CHICAGO, ILL.

ABSTRACT.

This paper begins by showing that the bacillus malleus is the prime etiological factor in glanders;

That glanders is allied to the chronic infectious diseases, and its normal host probably one of the domestic animals;

That the bacillus is an obligate parasite of its host;

That it resembles morphologically the other bacterial parasites that produce chronic infectious diseases in man, especially tuberculosis and leprosy;

That the occurrence of glanders in man is rare, and that it presents itself in two forms: one acute and rapidly fatal, terminating as a rule inside of

two or three months at the farthest, the other chronic, from which the patient may recover after one, two, four or five years of disease;

That the occurrence of glanders is usually due to the association of man with domestic animals, or persons suffering from the disease.

CASE.

The case which I have to present was referred to me in April, 1889, by Dr. Holdsburg, of Granville, La Salle county, Illinois, with the following history: The patient, Charles Mason, was a well-developed young man twenty-two years old. He had always been well and strong and had lived on a farm all his life. He worked on the farm all the time, except when in school, since old enough to be useful. In December, 1889, one of his horses was taken sick, became stiff and lame, had "running from the nose" and loss of breath, and died at the end of a week. The mate to this horse became sick and had several sores, which the patient dressed and took care of during the month of December. Sometime during the middle of December the left finger became sore and was treated by Dr. Holdsburg, who pronounced it a felon. It was very painful, but there was no adenitis or lymphangitis, and no rise of temperature or chill. Before the felon was entirely healed five foci appeared in five different parts of the body—one at the elbow, one at the vertex, and one on the right side of the lower maxilla, one in the right thigh and one in the right calf. Three of these foci were open when I first saw him. The one on the lower maxilla and the one in the calf were still unopened. These foci appeared almost simultaneously about the first of January, 1889, and within three weeks after the beginning of the so-called felon. They each began with a sharp stinging pain, much like a bee sting, with deep swelling and little or no edema and redness. When I saw the patient first the temperature was 100 and the pulse 92. The history showed that there had been no rise of temperature, and no other symptom of acute sepsis during the three and a half months from the beginning of the explosion, the first week in January, to my first observation on the 12th of April. The patient was then somewhat reduced in weight, but not emaciated. He was walking on crutches; the right leg was flexed on account of the swelling below the soleus. The skin over the focus on the right maxilla was thinning from pressure atrophy, but there was no edema or redness such as is found about staphylococcus abscesses. The same observation was made on the calf. The open abscesses on the elbow, the vertex and the thigh, presented somewhat the appearance of tubercular abscesses, but with this difference: the abscess wall was covered with a firm, hard, almost shot-like, bright red granulation, and the exuding secretion was sanguinolent. The diagnosis of a suppurative disease was excluded by the absence of edema and redness, of proximal adenitis and by the persistent absence of chills and rises of temperature. The possibility of tuberculosis was considered and the diagnosis rested between glanders and tubercular infection, with a strong preponderance in favor of glanders, both on account of the atypical appearance of the granulations and the history of the case. The indication seemed to be for immediate and vigorous operative interference.

Having provided myself with the assistance of Dr.

Frank S. Billings, D. V. S., who was well acquainted with glanders in domestic animals, operation was undertaken under the strictest antiseptic precautions—first to secure from the unopened focus in the leg uncontaminated pus for inoculation in guinea pigs for diagnostic purposes, and second, to mechanically remove the infected tissues. After opening the skin with the cautery a small amount of pus was taken up as it welled into the cautery wound and immediately inoculated into two guinea pigs and three rabbits. These animals were isolated and the two guinea pigs developed the typical orchitis, and the two rabbits died between three and four days after the inoculation of glanders septicemia. The *evidence* of the focus was completed through a larger cautery wound which opened the infected area from an inch and a half below the popliteal space the lower third of the tibia. It was impossible to say exactly where the infection lay, but it seemed to be in the fascia separating the bundles of the soleus and gastrocnemius. After *evidence* with the sharp spoon, the cavity was swabbed out with a saturated solution of zinc sulphate. It was then packed with iodoform gauze, wet in a saturated solution of iodid of potassium. The other foci were treated in the same way, with this addition: that those foci connected with the bones, three in number, had the *evidence* or chiseling extended to the removal of the bone sequestrum and the immediately adjoining healthy bone. Five operations were performed during the first anesthesia.

There was never any rise of temperature and little inconvenience to the patient from these operations. The wounds healed with exceeding slowness and usually required from three to six *evidences*, though the one in the jaw which was operated upon under the most favorable circumstances healed during the week following the first operation.

The patient became so well acquainted with the symptoms of the localization of the infection that he would call my attention to a spot in which he had felt the characteristic sting and subsequent pain. I marked these points with ink and after anesthetizing the patient, cut down upon them and either removed them as I would a tumor, or cauterized the focus extensively with the actual cautery and treated it by the open method. In this way during two years and a half, the patient was anesthetized twenty times, and new foci were opened or old ones scraped out. Only one case of adenitis was observed and this was treated by excision. The number of foci was *fourteen*, namely:

1. The primary focus on the left middle finger.
2. The right thigh.
3. The front of the tibia.
4. The right forearm.
5. The right lower maxilla.
6. The vertex.
7. The right groin, an adenitis.
8. The right popliteal space.
9. The right gluteal region.
10. The left gluteal region.
11. The left calf.
12. The right calf.
13. The recurrence in right tibia.
14. The front of the right thigh.

It seems to me that this case is worthy to be reported because the history is good, the diagnosis was confirmed by inoculation experiment, and recovery

has followed rational and persistent surgical procedure. An additional interest is to be taken in the case because of its rareness, and because it was difficult at first to say that it was not tubercular explosion.

AN ORIGINAL METHOD OF RESTORING THE ALVEOLAR ARCH IN ANTERIOR CLEFT OF THE HARD PALATE AND OF CORRECTING THE DEFORMITY OF THE ALA NASI IN HARE-LIP.

Read in the Section of Surgery and Anatomy, at the Forty fourth Annual Meeting of the American Medical Association.

BY JOHN A. WYETH, M.D.
NEW YORK.

The operation I desire to submit to your consideration is intended more perfectly to correct the deformity of the lip, and more particularly of the nose, in anterior cleft of the palate and alveolar arch.

It is a common experience that after plastic work on the soft parts in cases of complete hare-lip and cleft palate, which brings the lip into satisfactory position, the *ala nasi* of the affected side still remains misshapen, flat and sunken. The *ala nasi* rests normally upon the nasal margins of the superior maxilla.

If the maxillae are normal, and the alveolar arch in front complete, each *ala nasi* rests upon a bony surface and foundation on the same plane, and the two are naturally symmetrical. If one is deficient, the nostril of that side sinks down and out of line just as the corner of a house sags when the underpinning is not high enough. The operation of *advancement of the anterior portion of the upper jaw on the short side* is designed to build up the foundation.

In certain cases of anterior cleft the inter-maxillary process is adherent to one side (the long side), and projects in a clumsy fashion usually to the front and upwards. In these cases the old method of bending or forcing this misplaced process over to the short side and holding it in contact until union is secured, completes the arch and gives a suitable foundation for successful plastic work on the nostril and lip.

When, however, the inter-maxillary process is absent or largely deficient we find one *ala nasi* resting upon a normal portion of the alveolar arch on one side, while on the other it recedes from one-half to one-quarter inch, resting upon the imperfect maxilla and alveolar process. In four such cases I have devised and carried out successfully the following procedure:

About one-quarter inch from the edges which are to be brought into apposition, a hole is drilled through the bone and a strong silver wire carried through, ready for being tightened. The edges are now freshened by slicing off the mucous membrane lining the bone with a strong scalpel or scissors. With a strong pair of straight scissors in very young infants, or a bone cutter the alveolar arch and maxilla of the short side is divided about half way of its length and at a right angle to the dental surface. By introducing a very strong cord of silk or wire into this fissure, and making strong traction forward on this, the undivided portion is fractured and the loos-

ened part, by tightening the silver suture previously introduced, is brought forward, where it is firmly anchored by twisting the wire.

Since the nutrition of the bone in its new position is derived temporarily from the adherent soft parts, these are not disturbed until the bone unites in the new position. From six to eight weeks should elapse before plastic work on the lip and nose is undertaken.

By advancing the bone in this manner, the anterior segment of the alveolar arch is completed and the *ala nasi* of the two sides rest on the same plane.

Of course the plastic work on the lip and nose must be skillfully done, but the principles here are well established and well known, and it would not become me to take more of your time with these. It is, however, well enough to dwell on the importance of early operations, always within the first years of life, and preferably within the first early weeks after birth, provided that the *nutrition of the patient is good or can be improved by forced feeding*; then, as soon as the patient is sufficiently improved.

When these cases are left to the sixth or twelfth year the muscles of the *ala nasi* on the short side are partly paralyzed from disuse, and the nostril can scarcely be made to look as well as its fellow.

A NEW METHOD FOR THE RADICAL CURE OF VARICOSE VEINS.

Read in the Section of Surgery and Anatomy, at the Forty-fourth Annual Meeting of the American Medical Association.

BY ERNEST LA PLACE, A.M., M.D.

PROFESSOR OF SURGERY, PATHOLOGY AND CLINICAL SURGERY IN THE MEDICO-CHIRURGICAL COLLEGE AND HOSPITAL; SURGEON TO THE PHILADELPHIA HOSPITAL; SURGEON AND PATHOLOGIST TO ST. AGNES HOSPITAL, PHILADELPHIA

Varicose veins of the lower extremities are among the most persistent and tormenting afflictions of adult age, not only because of our comparative ignorance of the absolute causes of the condition in the majority of cases, but especially because in the few cases where the cause can be clearly made out, it is almost a matter of impossibility to remove it. Varicose veins are produced either by an increased blood pressure within the veins, or by a diminished resistance of the vessel walls, or both. Whatever be the special cause, the eventual result is nearly always the same—a permanent state of dilatation and consequent thinning out of the walls of the veins on account of the sluggish circulation and increased blood pressure. We know how this condition reaches its climax in a rupture of the vein, giving a serious hemorrhage on the one hand, or if the affected vessels be capillaries, the varicose ulcer is the result. It would be useless to go farther into the pathology of the condition than saying that the initial stage of the trouble is a trophic disturbance, sometimes hereditary and sometimes acquired. The vessels being practically in an aneurismal condition, the question underlying the rapid and effectual cure resolves itself into the principle of cure of an aneurism. This we know to be beyond discussion; the complete obliteration of the dilated blood vessel by mechanical means, by chemical means, or physical means, or two or more of these combined. Inasmuch as varicose veins are not only dilated but lengthened and thrown into loops and curves, the aneurismal tumors which result offer a very extensive area for the application of the various methods of obtaining the

obliteration of the veins. The walls become immensely thickened because of the migration of white blood corpuscles that have subsequently built fibrous tissue, so that there is no tendency for these vessels to contract; the skin has become irritated and eczematous, and at last the whole limb becomes more or less affected.

Of the various forms of palliative treatment we will say but little, as this appeals directly to our common sense and might be consistently adopted as an accompaniment of whatever form of radical treatment is used. All, however, consist in prescribing rest and some form of external support.

Of the radical means, the choice lies between acupuncture, ligature and excision.

In *Acupuncture* a flat needle is passed under the vein and a figure-of-eight thread is applied over the ends. This is done at short intervals, hoping to obliterate by coagulation the intervening section of vein. This procedure is tedious, complicated, very seldom accompanied by success, and exposes the limb to dangers of sepsis and embolism.

The *Ligature* is made by a small incision over the vessel and an aneurism needle passed around it threaded with catgut. This is done above and below the varicose spot and the ligature cut short.

Excision.—Excision is done in practically the same way. The vein is carefully dissected out, and being ligated above and below, the intervening portion is excised. Where any great length of vein is involved this is of course impracticable.

Molliere (211, March 30, 1890), employs a solution of 1 part of iodine, 9 of tannin and 200 of water, of which he injects a few drops directly into the veins with a view of producing coagulation. Riard (100, Oct. 30, 1890). Phelps also advocates the multiple ligature of varicose veins being, however, fully aware of the strictly local effect, and of the recurrence of the condition. Goodwin (2, Oct. 5, 1889), advocates the injection of $\frac{1}{2}$ minim of carbolic acid into varicose veins, an Esmarch tube having first been applied above. Patterson (2, Sept. 25, 1890) after placing harelip pins, injects perchloride of iron. All of these methods are painful, tedious and so strictly limited in their application that complete relief would necessitate the same procedure over the whole area of dilatation, which would overtax the endurance of a patient.

Recognizing the deficiencies of these modes of treatment, we proceeded to treat the condition in a manner that would remedy it at once. The two great channels that drain the superficial venous circulation of the leg are the internal or long saphena and external or short saphena veins. These and their tributaries are the vessels affected in the varicose condition. The lack of support, or any other cause act simultaneously upon every branch of the vein. The long saphena vein commences in a minute plexus on the dorsum of the foot; it ascends in front of the inner ankle and inner side of the leg, behind the inner margin of the tibia. It drains all the anterior surface of the leg and the whole circumference of the thigh.

The external or short saphenous vein drains the posterior portion of the leg and empties into the popliteal vein between the two heads of the gastrocnemius muscle. This being the case it occurred to me that if obliteration of the varicose veins was the essential factor in the cure, it might be possible to

obliterate all the surface venous circulation by ligating the long saphenous vein at the saphenous opening and the short saphenous vein between the heads of the gastrocnemius. Blood stasis must necessarily follow and a certain amount of oedema. Elevation of the limb, and gentle compression with raw cotton and a flannel bandage soon overcomes this. Rest in bed adds the final requirement to what seemed to me *a priori* the ideal mode of obtaining a wholesale obliteration of all the varicose veins of a limb, hence the cure.

The first case operated upon was a very stout gentleman 54 years of age, who sustained a fracture of the left leg while in the army, and soon afterwards developed varicose veins in both legs accompanied by a varicose ulcer in the left leg. For twenty years this condition had existed and on the 12th of October, 1891, cocaine having been injected about the saphenous openings in both thighs the long saphenous vein was ligated. The vein can be found very easily, immediately under the integument and superficial fascia, one and one-half inches below Poppart's ligament and one and one-half inches from the inner side of the thigh. The vessel is isolated and a silk or catgut ligature applied. The incision need not be more than one inch in length. A suture closes the wound, and it is finally sealed with a film of cotton and iodoform and collodion. The same operation was performed upon the short saphenous vein by making an oblique incision about two inches below the center of the popliteal space. The vein is generally distended and presents itself in the area that is thus exposed. These two veins were then ligated after the above fashion in our patient. There was immediately a hardened and distended condition of all the varicose veins, which were quite tortuous. A snug cotton compress and bandage was applied from the leg to the upper femoral region and the limbs slightly elevated upon pillows. The operation was not accompanied by pain and at no time subsequently but a sense of *tightness*, as he expressed it, all over the limb. On the third day the bandage was removed to observe the changes. The veins stood out plainly with a hard nodular appearance, easily comparable to a rope under the skin. All about them was a yellowish-green coloration much resembling what occurs in an ecchymosis which is being absorbed; and which no doubt was due to some red blood corpuscles that had exuded through the distended stomata of the veins and which on disintegrating left their hematin in the tissues. In two weeks the patient was allowed to rise. The dressing had been renewed every three or four days, and no change or symptoms could be observed except a gradual hardening of the veins and simultaneous diminution of their size. At the end of the second week the patient felt quite relieved and walked about with comfort. The small ulcer on the left leg healed very kindly, after being curetted and covered with iodoform gauze. Since then, this patient has been engaged in superintending a coal mine near Scranton, Pa., and has lately written me that he feels perfectly well.

Of the sixteen other cases which it has been my privilege to treat, six had the operation performed on both limbs in immediate succession and ten on one limb only. Five were women and eleven were men. Whether the varicose condition was small or extensive the same operation was performed in each

case, and each time anæsthesia was obtained with a 4 per cent. solution of cocaine. The progress of each case was remarkable and constant, *except one*, presenting an almost identical course with the first case related. At no time was there any elevation of temperature. Eight of these cases were operated upon before my class in the Medico-Chirurgical College of Philadelphia, six at the clinics of the Philadelphia Hospital and five in private practice. Of those operated upon in the Philadelphia Hospital the one exceptional case mentioned above deserves special description:

The patient was about 45 years of age, a blacksmith. Having performed the operation several times before the class, I proceeded to operate upon this patient without further remarks and, making the usual incision, I failed to find the saphenous vein. The varicose condition was entirely limited to the right leg. I sought a long while for the saphenous vein without success, and was compelled to abandon the treatment of this case by this method, having concluded that there must have been an anomaly in the course of this vessel.

Of the sixteen patients successfully treated, I am in the position of hearing now and then from but seven of them, and last week they were still satisfied with their condition.

If these results are maintained indefinitely, and there seems to me no pathological or anatomical reason why they should not, we think that this is a distinct advance over the other method of treating this painful condition—methods which do not deal with the whole condition at once but are applied more directly to such portions of the veins as are distinctly varicose.

The advantages claimed for this method therefore are, first, it deals with the cases of varicose veins at wholesale; second, the operation if *aseptic*, is harmless, easy, and with the help of cocaine, painless; third, it achieves that principle which we know underlies the cure of all aneurismal or varicose conditions, viz: an ultimate obliteration of the impaired blood vessel. This is reached by coagulation of blood and gradual absorption of the coagulum, while sufficient white blood corpuscles have exuded during the period of distension to subsequently build fibrous tissue which will contract upon the obliterated vein; fourth, until now we are not aware of any relapse; fifth, a cure seems apparent in from two to three weeks.

DR. WYETH of New York—This seems to me an operation of considerable merit. But it has occurred to me that the writer neglected to call attention to the dangers of mistakes in diagnosis, as we well know this condition is often due to a compensation after obliteration of the femoral or popliteal. If in such a case we were to ligate the long saphenous, gangrene would be produced. I think it well to call attention to that point.

DR. LA PLACE—I thank Dr. Wyeth for his suggestion. Of course we wouldn't operate until we had decided the positive nature of the case. The surgeon is supposed to have previously studied the case and to have established the rationale of the treatment.

The Charitable Japanese.—Out in Japan the doctor never thinks of asking poor patients for a fee. A proverb among the medical fraternity of Japan reads: "When the twin enemies poverty and disease invade a home he who takes aught from that home, even though it be given to him, is a robber."

THE TREATMENT OF BLENNORRHOEA NEONATORUM.

Read before the Illinois State Medical Society, May, 1892.

BY ROERNE BETTMAN, M.D.

Professor of Ophthalmology in the Chicago Post-graduate Medical School; Oculist and Aurist to the Michael Reese and Cook County Hospitals; Attending Surgeon to the Illinois Charity Eye and Ear Infirmary; Professor of Ophthalmology and Otology in the College of Physicians and Surgeons, Chicago.

When we consider that from 20 to 40 per cent. of our blind must attribute their affliction to blennorrhoea neonatorum, we are forced to admit one of two things: Either the treatment is not understood or it is not intelligently carried out by a great number of physicians.

Our medical journals during the last decade teem with articles devoted to curative and prophylactic measures of this disease.

Every physician at this date has been sufficiently impressed with the importance of employing preventive treatment and of the gravity of blennorrhoea neonatorum.

Notwithstanding these long continued and oft repeated instructions as to the method of treatment, numerous children are still deprived of their vision. Many cases of blennorrhoea are lost.

I have lately seen, in consultation at my office, about a dozen babies where one or both cornea were destroyed when brought to my notice.

An analysis of these and numerous other cases sent to me by physicians have convinced me that the majority of practitioners and a number of oculists are yet unacquainted with the therapeutic measures in force. Many of my colleagues had followed as they informed me, either in person or by letter, the instructions as laid down in various textbooks devoted to this subject.

The routine treatment where any was attempted was the following: Frequent cleansing of the eyes with a weak solution of boric acid, cold applications to the lids, local applications once daily to the under surface of the lids of a solution of nitrate of silver varying in strength from $\frac{1}{2}$ to 2 per cent. Instillation of atropine as soon as ulceration of the cornea appeared and then consultation with the specialist before and after perforation of the cornea.

I have made it a special point to read critically the chapter devoted to blennorrhoea in a number of textbooks and essays, and will here record the views of a few.

Noyes (edition 1890 says) as soon as the secretion grows a little thicker and the swelling of the lids grow less, so that they can be everted, we are to resort to nitrate of silver in varying strength of from 1 to 2 per cent. (gr. v and x to 3i).

This is not to be dropped between the lids because it will endanger the cornea. Later on he recommends the use of the mitigated stick by skillful hands, "in the later stages of the disease when papilliform swelling is extreme and the secretion is very thick."

In gonorrhoeal ophthalmia he also advises the use of a 1 or 2 per cent. solution. He discounts strong solutions in these words: "Formerly much stronger solutions were in vogue but they are not to be recommended, except in extreme cases, viz: 4 per cent."

Edward Meyer of Paris (edition 1887) recommends nitrate of silver 8 grs. to 1, but has preference for the

mitigated stick; the same treatment holds good for gonorrhoeal ophthalmia.

C. E. de Schweinitz 1892, also favors the use of a 1 or 2 per cent. solution. In severe cases the mitigated stick and even the solid pencil of nitrate of silver may be employed, great care being taken to neutralize the excess with a solution of common salt.

With reference to gonorrhoeal ophthalmia, he is quite decided in his utterances: "At the proper stage nitrate of silver is the best remedy. It is rarely necessary to employ it in a strength greater than ten to fifteen grains to the ounce, but when granulations of the conjunctiva become exuberant the mitigated or solid stick at times alone will control the process."

Schweiger of Berlin, recommends local application of $\frac{1}{2}$ per cent. solution of argentum nitricum at first, then later 2 and 3 per cent. He deprecates the use of the mitigated stick fearing the cicatrices it might produce.

Saemisch, Vol. 4, Graefe and Saemisch Handbuch der Augenheilkunde, has written an exhaustive treatise on this subject. He also favors weak solutions of silver nitrate first and in aggravated cases the stick. He emphasizes the fact that the latter application be made to the retrolarsal fold only.

Fuch's instructions are rather meager; he mentions only the 2 per cent. solution of silver nitrate which is to be applied twice a day when the discharge is profuse.

Theobald Woods, (Reference Handbuch of the Medical Sciences) advocates a solution varying in strength from 2 to 4 per cent.

Schmidt-Rimpler's views almost coincide with those already given of the various writers here and abroad, regarding the strength of silver nitrate to be applied to the inner surface of the lids. The large majority are contented with a 2 per cent. solution and the mitigated stick in the extreme cases.

Solutions of this strength when used by competent hands will usually answer the purpose. The directions are not ordinarily explicit enough for the general practitioner. They suffice for a specialist who can take a great deal for granted.

Gentlemen, you will agree with me that a certain amount of skill is required to evert the lids and much more is requisite to bring the upper retrolarsal fold to view. Therein lies the solution of the problem. The remedy must be brought to bear on the cul de sac, that lax conjunctival tissue full of folds which is reflected from the upper lid margins on to the eyeball.

Two per cent. solutions applied to the tarsal part of the lids will not answer the purpose in most cases.

The practitioner makes the application to this part of the conjunctiva with the conviction that he has conformed to the rules laid down by writers. Soon the cornea becomes affected and the specialist is called in.

The use of the mitigated stick is a dangerous remedy to the inexperienced. If not carefully applied sloughs may result causing great loss of tissue and formation of cicatricial bands.

Again, it has been my experience that a 2 per cent. solution is often not nearly strong enough to control the purulent discharge. I have repeatedly treated neglected cases when nothing weaker than a 10 or 15 per cent. solution would answer the purpose.

The main object of this paper is to emphatically

denounce the idea which prevails among the fraternity, that a 2 per cent. solution of silver is a specific for all cases of blennorrhœa neonatorum.

The erroneous impression is largely due to the meager instructions of the textbook writers, and to the fears which have been instilled into the minds of physicians through teachers, of the deleterious action on the cornea of a stronger solution than that of 2 per cent.

These precepts have fallen on fertile ground and have so imbued the mind with the dangers attending a strong solution of silver nitrate that even a weak one is used with trepidation.

The treatment of this disease does not only consist in using nitrate of silver, but in knowing when and how to use it.

To understand this more fully we must briefly consider the various stages and forms of blennorrhœa. Two great varieties are recognized: The mild type characterized by a slight muco-purulent discharge and little swelling of the conjunctiva; and the other more severe form showing profuse discharge of creamy pus associated with a severe swelling of the conjunctiva and lids.

Both have a first stage of conjunctival congestion and swelling with no purulent discharge, and a second stage which only then exists, when a purulent secretion is established beyond a doubt.

The milder form of the trouble is readily controlled by cold applications to the lids and in the second stage by the instillation of saturated solutions of boracic acid every two hours, and a daily application to the everted lids and cul de sac of a 1 or 2 per cent. solution of silver nitrate.

The more virulent form requires more energetic measures. During the first stage caustics *must never be employed*; they are absolutely injurious to the swollen glistening conjunctiva.

The physician must content himself with explicit directions to the nurse to cleanse the parts every hour or two with a solution of bichloride of mercury 1 to 5,000, and a saturated solution of boracic acid. Cold cloths taken from a cake of ice must be placed on the eyes day and night and changed as soon as warm. A point of great importance is to warn the attendant not to injure the cornea with pipette or brush. If the cornea is denuded of epithelium the least degree, a means of entrance is opened to the germs which rapidly multiply and cause ulceration of the tissue. When the purulent secretion begins then, too, begins the active work of the physician. The child's head must be taken between the knees, covered with a towel, the lower lid everted and the cornea covered with the upper one.

It is wiser to begin with the application of a 2 per cent. solution of nitrate of silver. This must remain in contact with the conjunctiva until it changes to a milky, bluish appearance. The excess of fluid is then removed with a brush dipped in water. If the solution employed should be a stronger one, it will be well to neutralize it by washing the parts with a weak solution of salt water.

The upper lid is treated in the same manner, the cornea being protected by the drawn up lower lid.

Of paramount importance is the retroartificial fold. The rolls of swollen conjunctiva in this seat of danger must be conscientiously cleansed and similarly treated.

If this strength of nitrate of silver solution does

not decrease the amount of discharge a stronger 6 per cent. must be employed the next day, and so we must be guided as to the strength of the application by the quantity of secretion.

I have frequently employed in dangerous cases, in rapid succession an 8, 10 and 15 per cent. solution and feel convinced that the energetic employment of these powerful measures, and these alone saved the cornea.

If great chemosis exists at the corneo-scleral margin, no delay in scarifying these parts should be countenanced. Prompt, decisive action is essential in the various stages of this disease.

The use of caustics is not recommended oftener than once every twenty-four hours, because it requires that length of time for the tissue changes to be effected.

Vaseline has of late years been much employed as a valuable lubricant to the inflamed conjunctiva, and as facilitating the removal of the secretion from the folds of the mucous membrane.

As soon as the swelling visibly subsides and the discharge decreases I invariably employ hot fomentations; my object now being to hasten the elimination of broken down material and to favor a more rapid resolution. The hot applications are made two hours in the morning and two in the afternoon, the instillation of antiseptic measures being continued in the meantime. Ulcerations of the cornea require the additional use of atropine and in case they are of a progressive character, application of a 95 per cent. solution of carbolic acid to the surface of the ulcer or the actual cautery.

A paper of this nature would hardly be complete were not mention made of the well known preventive measures. I am often astonished at the indifference shown by the profession to these thoroughly tested and efficient means.

The statistics of the largest hospitals in the world have proved their use beyond a shadow of a doubt. I will not tire you by repeating this long list of tables but will content myself by assuring you that the percentage of infection of the eyes of newborn children has fallen in institutes, where these measures are systematically enforced, from 5 and 10 per cent. to a fraction of 1 per cent.

My friend Dr. Mitchell, kindly compiled the obstetrical cases which were found in the Cook county hospital during a period of five years from 1883 to October, 1888, 1,232 cases. Only two cases of blennorrhœa neonatorum are recorded. During most of the service Houseman's method only was employed and it was found sufficient.

Houseman's method which consists of vaginal douches of a 1 per cent. solution of carbolic acid or a weak solution of bichloride before labor is a simple way of rendering the genital organs aseptic.

Every prospective mother should be instructed as to this method by her accoucheur. A double precaution is Crede's method. A single drop of a 2 per cent. solution of nitrate of silver is to be instilled into the eyes of every newborn child.

I feel confident that we specialists would be called to attend fewer cases of blennorrhœa neonatorum if these rules were universally enforced, and I am equally convinced that fewer cases of ulceration and loss of the cornea would ensue if the use of a stronger solution of argentic nitricum at times were advocated by teachers and writers.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, IN CLUDING POSTAGE
PER ANNUM, IN ADVANCE, \$7.00
SINGLE COPIES, 10 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
NO. 635 WABASH AVE., CHICAGO, ILLINOIS.

All members of the Association should send their Annual Dues to the
Treasurer, RICHARD J. DUNGLISON, M.D., Lock Box 1274, Philadelphia, Pa.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or Local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Dunglison, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues and subscription for THE JOURNAL. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

SATURDAY, AUGUST 10, 1893.

THE AMERICAN MEDICAL ASSOCIATION.

We publish in another column a very interesting and convincing argument from the *Medical News*, which shows the necessity that now exists for organization, and gives conclusive reasons why the AMERICAN MEDICAL ASSOCIATION should constitute the central rallying point. At the Milwaukee meeting the ASSOCIATION gained 273 new members, and there is no reason why the membership should not steadily grow throughout the year. The fact is self-evident that if the medical profession of this country wish to have power and influence in all matters in which they are interested they can only accomplish it by organization.

Membership in the ASSOCIATION can be secured at any time, and the door is wide enough for all qualified members of the profession to enter. The splitting up into myriads of small societies is to be deplored, as one of the surest means of disorganization. The regular local, State and National societies surely afford a field broad enough for the full exercise of professional ability, however great, and the greatest men America has yet produced in the medical profession have been the founders and promoters of the AMERICAN MEDICAL ASSOCIATION. Let the active, restless spirits of to-day show what they can do in the arena made famous by the giants of the past.

PHYSICIAN'S CERTIFICATE REQUIRED FOR
SALE OF OPIUM.

In order to hedge about as much as possible the retail trade in opium there was in 1889 an order, or ordinance, passed by the Board of Supervisors of the city and county of San Francisco providing, among other things, in substance, that it should be unlawful for any apothecary or any person whatever to sell to any person in the city and county of San Francisco any opium, except upon written prescription or written order of a practicing physician, and only upon

the day of the date of said prescription. It also provided that every person, selling opium, must keep a book and record therein, the name, the name, age, sex, color of the person receiving the same, the name and quantity thereof, as well as the name of the physician, and the name and residence of the patient, and that there should be attached to the bottle or parcel containing the article the name thereof, together with the name of the physician, the name of the druggist or other person who sold the article and his place of business. The prescription or order is required to be dated and signed by a physician, who must be a graduate in medicine with a diploma from a regularly constituted medical institution, and must contain the name and residence of the patient and the residence or office of the physician. Violation of any provision of the order was made a misdemeanor, punishable by fine, not exceeding five hundred dollars, or by imprisonment not exceeding six months, or by both such fine and imprisonment. This order or ordinance the Supreme Court of California has under date of July 15, 1893, just pronounced constitutional in the case of Hong Shen, notwithstanding that there was a State law which had for its object the regulation of the sale of poisons. The principle so settled is very important and should be given wider application.

PRISON REFORM.

That there is need of prison reform in many States of our Union is evident from a glance at the statement of Dr. P. D. SIMS of Chattanooga, published elsewhere in our columns. A mortality of 10 per centum is a frightful one, and it is especially lamentable as Dr. SIMS points out, when the statistics show that under another system the mortality was only 15.1 per 1000.

The lease system, by which the convicts are leased or "farmed out" is responsible for this great outlet to convict life. One can not muster much sentiment for the woes of a hardened criminal, but the humanities, and a decent and proper self-respect should induce all communities to take measures to insure proper hygiene in all prison establishments. This can only be done when such establishments are managed by the State. When managed by a lease the system can only result in poor service, much needless suffering and wretchedness. The horrors depicted by Dickens, as witnessed in the cells of those condemned to solitary confinement are as nothing when compared with the condition of the poor wretches consigned to the unfedling hands of the State contractor, who rewards or punishes, feeds or starves, according to his scared conscience, if he have any, or his cruel cupidity, if he have no conscience.

The commercial side of the question has too long governed in such matters, and it is pleasant to see

that, when the medical profession speaks at all in the localities where these abuses prevail, its voice is uniformly given on the side of humanity.

A CASE OF MORAL LYNCHING.

To judge from the cases reported in the daily press, an epidemic of lynching has recently affected certain sections of the country—material lynching in which the body of the accused and summarily condemned individual has been scourged, hanged, perforated with bullets or burned, as dictated by the inhuman whim of mobs whose brutal action make us shudder at the idea of sharing with them our common humanity. In view of the arraignment of Dr., or to give him his official title, COLONEL AINSWORTH, for his alleged participation in the manslaughter of the unfortunate victims of the Ford theater disaster, we are inclined to inquire if the epidemic aforesaid has not spread to the capital of the nation and if this arraignment is one of its manifestations.

In one at least of the material cases referred to, no sooner was the act accomplished than the discovery was made that lynch law had been too precipitate and a guiltless victim hurried to eternity. This suggests at least a halt for inquiry in the case of Dr. AINSWORTH. Now that the thirst for a victim has been satiated by his indictment and arraignment, there is time to overlook his unpopularity with his clerks, to cease the news-paper cry for a sacrifice, and even to consider whether our legal formalities culminating in this arraignment were wholly uninfluenced by that popular clamor which was so insistent at the first inquest that its proceedings were annulled, nominally on the ground of lack of jurisdiction on the part of the presiding officer.

The facts as developed are as follow: No man has a better record as an executive officer than Dr. AINSWORTH. Part of Dr. AINSWORTH's force of clerks had to work in a building so badly lighted that gas had to be burned in some part of it every day. It was evident that electric lighting would remedy this, and AINSWORTH, as any other progressive man would have done, made inquiry into the feasibility of introducing the needful plant. The proposition was referred to that bureau of the War Department which has charge of all supplies and improvements. This bureau, as is customary, advertised and more than a dozen men investigated the building with the view of undertaking the work, and every one of them offered to undertake it. Not one of these practical workmen suggested that there would be danger to the building. The contract, as is usual in such cases, was given to the lowest bidder; but not until Dr. AINSWORTH had so far interfered with the routine methods of the contracting bureau as to make private inquiries into the standing and reputa-

tion of the particular contractor. Having learned that he had been for many years engaged in such work, and that he was held in good repute by contractors and builders intimately acquainted with him, the contract was approved and the work commenced. AINSWORTH has been blamed for not furloughing his men while the alterations were in progress, but it must be remembered that none of the contractors who had investigated the building and bid on the work made any suggestion of danger in connection with it.

The accident happened and every one became very wise; but before its occurrence there was no thought of danger. Washington was horrorstruck when the ghastly news was passed from mouth to mouth; something had to be done, and the arraignment of the chief of the office, among others implicated in the responsibility, has been the result. Was it a case of moral lynching?

HEALTH OF CHICAGO.

During the month of July 2,924 deaths occurred. The annual death rate per 1,000 was 21.64, and the number of deaths under five years was 1,775. Of these, cholera infantum caused 665, a greater number than by any other disease, while there were also 452 deaths by diseases of the abdominal cavity. The other chief causes of death were phthisis, 186; pneumonia, 79; diphtheria, 58; cancer, 56; typhoid fever, 55, and bronchitis, 55.

In the month of June 1,942 deaths occurred, and the annual death rate was 14.79, and the number of deaths under five years, 766. The chief causes of death were phthisis, 193; pneumonia, 141; bronchitis, 90; diphtheria, 71; typhoid fever, 60; cholera infantum, 56; cancer, 87; cerebral meningitis, 52.

In comparing the mortality of the months of June and July, it must be borne in mind that the death rate of June is always low; in fact, the health generally is better than any month of the year. Occasionally, however, when there is a marked increase of temperature the latter part of the month, the death rate increases and becomes higher than that of December. It will be observed that in June the highest mortality is among the diseases affecting the respiratory organs in adults, while in July, with a higher temperature there is a great increase of diseases affecting the alimentary canal, and infantile life.

For the week ending August 5 the total number of deaths was 646; under 5 years 394, and the annual death rate per 1,000, 21.32.

Compared with the month of July there is a marked decrease in the number of deaths, especially of those under five years. The mortality here is always the highest in July and August. For the last five weeks

the health of the city has been good, taking into consideration all the factors that influence life, and at this time it is exceptionally good. There is also less than usual tendency to diarrhoeal disease, and a less marked prevalence than usual of the ordinary contagious and infectious diseases. The cause of the present health status is undoubtedly owing to the fine weather that we have had during the period under consideration. While it is true that for a short time the temperature was high, the average was lower than usual. There is no doubt that the effluvia of the Chicago river at one time had its effect upon life. The mortality from typhoid fever is still in excess. How long the present excellent condition of the health will last cannot be told.

A CRAZY PHYSICIAN.

DR. ROBERT LINCOLN WATKINS, of New York City, had himself inoculated with the tubercular bacillus, in the form of pure culture of the microorganism obtained from phthisical sputum. This was done at the Loomis Laboratory attached to the University of New York. DR. WATKINS also ingested a considerable quantity of the same culture. He has subjected himself to these experiments as an evidence that tuberculosis does not depend solely on the introduction of the bacillus tuberculosis into the human system. He believes that a healthy person, that is a person whose blood does not contain the so-called "third corpuscle," is absolutely immune to the bacillus. He has repeatedly examined his own blood and never having found the dangerous corpuscle, he has determined to put his theory to the test in his own person. Control experiments on one or more guinea-pigs were made with the same virus, in the belief that the animal or animals will, within six weeks, become manifestly tuberculosed, while he himself will be in unimpaired condition. If the accepted theories of the profession hold good in this case, twelve weeks from the time of the inoculation of DR. WATKINS will see him the victim of induced tuberculosis. But even this condition will give the experimenter little uneasiness, for his theory also comprises the curability of that disease when it is combated early. This is accomplished by the eradication of the "tubercular blood corpuscle," or hematoblast, from the blood.

This is not the first time that DR. WATKINS has fended with death. In 1892, while in Paris, he was inoculated at the Pasteur Institute with a culture of the spirillum of cholera. He rapidly developed intense choleraic symptoms and for a brief time was seriously ill. This condition was overcome and on the following day the adventurous experimenter was as well as before.

DR. WATKINS is reported to be an exceptionally robust person, and if he remains well it may devolve

on him to meet arguments to the effect that he is immune to the tubercular bacillus for other reasons than the absence of the so-called tubercular corpuscle from his blood. He has already been brought face to face with statements of some of his colleagues who claim to have repeatedly found the third corpuscle in the blood of persons who were not then or at any subsequent period the subjects of tuberculosis.

PROFESSOR SENN'S ADDRESS.

We publish elsewhere PROF. SENN'S address at the opening session of the Association of Military Surgeons of the National Guard. As will be seen, DR. SENN has chosen a scientific rather than a general topic for his address. He has produced the most complete historical research yet compiled on the subject of intestinal suturing, and an examination of the accompanying illustrations will dispose of many an inchoate claim of priority. The engravings from the old masters brought out afresh by PROF. SENN exclusively in the JOURNAL will, we are sure, interest every reader, and in reading the other portions of the address, the ASSOCIATION members will once more have a pleasant reminder that their own JOURNAL is in the front as a gatherer of medical news.

ASSOCIATION NEWS.

The Disorganization of the American Medical Profession.—"Did you attend the meeting of the American Medical Association at Milwaukee?" was asked of a physician a few days ago. "O, no! I do not train with that sort of a crowd," was the unexpected reply. This attitude of mind was hopeless, and the suggested Dundreary proverb concerning the kind of a bird that "flocks all alone by himself," was useless.

But this attitude of mind is one that two bodies have to look to a bit. The medical profession, as a whole, will sooner or later give it a sharp answer, and, whether this answer be spontaneous or compelled, another somewhat important body, called "the body politic," will have a very decisive word to say about it.

The disease is evident; it is a rebellion of the members against the whole body; it is an exaggeration of individualism, a democracy so rampant that factionalism has become easier than union. We are, it is true, in the full-tide of political democracy, but we have not yet reached socialism or anarchy. We still abide politically in representative government and, at least since 1861 in the rule of the majority. But in medicine we seem to think no organization necessary, and that professional individualism, factionalism, or anarchy is our natural state. There is even a touch of pride in docking by oneself or with a half dozen like-minded self-flatterers.

Have we, then, no common duty, such a duty as can only be performed by the profession acting and speaking as a whole? If not, then of course there is no logical or valid answer to individualism. But to ask the question is to answer it with a ringing "Yes, we have such duties, and we are disloyal if we say we have not."

But viewed simply as a professional matter, a little family affair with which, *pro tempore*, it may be admitted the lay world has no concern, what about this indifference to organization and this refusal of corporate duty? It is

plainly a question of self vs. the medical profession; it is, frankly, nothing more than professional rebellion.

It is smiled over and talked about as an open secret that the formation of so many select and membership-limited societies of specialists has been motivated by other reasons than dissatisfaction with the American Medical Association. It is said that they are not to be viewed as corporate protests against the "politics" and "the methods" of that, or indeed of any possible general organization, but that they are attempts to divide the consultation practice of the country among the limited number of fortunate members. This may be untrue. It is not for us to decide, but the action certainly permits the suspicion to arise, and the way to allay it is not to continue the contemptuous indifference to, and utter neglect of, some common organization.

It may also be noted that there is no evil more evident, no evil more universally deplored by rational medicine than the evil of medical sectarianism. But what bouffé logic, to complain of the homeopathic, eclectic or Kneipian crank and sectarian, while scorning general organization, and manufacturing factions and special limited societies, even within the regular profession. So long as the profession does not shake itself together and present to the public the spectacle of a united body of men agreed upon all the essentials of medical practice, just so long will that profession not command the respect of the world, and just so long will it be unable to accomplish its proper and destined work. To-day we are powerless to cause medical schools to be conducted for the sake of medicine instead of for the sake of the proprietors and professors; we are powerless to crush the hideous "patent" and proprietary medicine business; powerless to get "medical" newspapers conducted for medicine instead of for the advertiser; powerless to bring about the nationalization of health; powerless to prevent the needless and useless one-fourth of all deaths and the one-half or more of the sickness that is such an enormous tax on the commonwealth and cripple of all social energy. And why this powerlessness? Simply because of medical sectarianism, professional disorganization and anarchy.

There are numberless reasons that might be brought against the individualist and his neglect of professional organization. Sooner or later the common sense, or the sense that should be common, of the mass of physicians will recognize the fact that there is or must be such a thing as professional interests and duties, and that members of the profession must be held to an acknowledgment of them. Then will there be a quick ending of the factionalist and egotist. In every civilized country of Europe there is such organization and accountability. Even barbarous Russia regulates and stigmatizes the trade in patent medicine that free and civilized America sends to her in shiploads!

It was the witty saying of a wise man that democracy is only making pi, and certainly medical democracy is the absurd of pi-making. Professional self-interest and the public interest stare at us from every aspect of life and work. There is no intelligence or corporate strength in this disunion. It is our duty to unite and to encourage *esprit de corps* by organization. Factionalism is an *esprit de corps*, if the bad pun may be pardoned, and professional rebellion must be stigmatized, if not punished.

Considered simply as the largest medical organization in the United States, the American Medical Association offers the most suitable and the most probable gravitational center to which must gather the subordinate elements and groups. If not to your liking, it is not very liable to become more so by your non-membership. Parties, whether political or medical, are not mended by letting them alone. In every large organization thousands of minor differences and individual preferences must be sacrificed. The need of some organization is so great that longer to delay it is vanity and selfishness and whimsicality. There is slowly arising a general medical consciousness—unseen or scorned by the politician and anarchist—a spirit of centralization, a recognition of the duty of unity, nay, of the self-interest of unity. It will be well to reckon with this spirit, because its rule is as inevitable as its coming. There must be an end of this "docking by oneself," this cliqueism, eoterie forming, and limitless pi-making. This attitude of everlasting criticism by the disgruntled is silly and pig-headed. An aroused profession must sweep it aside, or else an aroused public sentiment will sweep an unworthy profession aside. There is even now a plain intimation of such a public condemnation of us in the fact that preventive medicine—the coming greater part of all medicine—is willy-nilly being taken out of the hands of physicians, and is being cultivated by the non-medical scientist. If this shall in fact and com-

pletely come about, it will be our own fault, a plain case of *felix de se*.

The American medical profession has one preëminent and imperative duty before it, to which all other interests and duties must be sacrificed, and that is the duty to organize. —*Medical News*, Aug. 5, 1893.

Query from the Omaha Clinic.—Mr. Hart does not realize that the profession in America has the same view as in England concerning consultation with homeopaths.

He says: "How can we expect to enter into consultation with one whom we believe to be possibly practicing an honest delusion, and yet with whom we must accept the position of a mere solver of riddles?"

The agitation on this point has long since gone by. Here is the question for which the new code men strive: May a regular go with a homeopath to see a patient, or may the latter bring the patient to his office, if the patient is treated according to rational medicine?

It is fair to conclude that when a homeopath needs a regular he needs him badly or he would not call him, and, "as the good of the patient is the sole object in view," this is a strong argument on the part of the new code men.

In the nature of things it appears difficult to frame in words the meaning of this; certainly the Committee on Revision do not put it clearly. And until the new code men say just what they mean it might be as well to keep to the old code, or if they can't say what they mean, and this is best for medicine and the people, then let us have no written code for contention. We want to know next year, at San Francisco, intelligibly, just what we are voting on.

The Hahnemannian View.—The American Medical Association is still at work upon the old subject, a Code of Ethics for a profession whose individual members are not considered gentlemanly enough by confrères to furnish their own code, but are required to be placed in the leading strings of an association to keep them within the bounds of decency and common honesty. The committee on the Code of Ethics, presented at the last meeting of the Association a majority and minority report, neither of which was acted upon. The majority report in spirit recommends the individual conscience as a sufficient code, while the minority have not the same confidence in their brethren and insist that the code with its restrictions and fraternal advice stand as it is. The *Medical Record* in speaking editorially upon the subject says what we most heartily endorse: "We doubt if any good will come from continuing to discuss these questions. We prefer to teach the gospel of virtuousness and let the details be determined by the individual conscience. The individual conscience, we may add, is setting strongly towards consulting with all qualified practitioners who enjoy a reputation for honesty among their fellowmen."

And to this conclusion we presume all sensible men will come at no distant day.—*N. Y. Medical Times* (Homeop.).

SOCIETY NEWS.

The Pan-American Medical Congress.—The program of the Section on Pathology is as follows: Special attention of the profession is called to the practical demonstrations in Pathology, Photo-microscopy and Bacteriology.

One session devoted to a formal discussion on the subject of cancer to be opened by Dr. Wernicke of Buenos Ayres, and, as co-referee, Prof. Allen J. Smith of Galveston. Papers on this subject have been promised by Dr. Joshua M. Van Cott, Honorary President of the section, and Dr. Joseph McFarland of the Advisory Council.

Another session will be devoted to Yellow Fever, the discussion to be opened by Drs. Acosta and Grande of Havana,

Cuba, and as co-referee, Dr. A. J. Amades of Puerto Rico, Honorary President.

One day, two sessions, will be devoted to Practical Demonstrations, as follows:

Dr. James E. Reeves of Chattanooga, of the Advisory Council: Practical Demonstration of the methods in Pathological Histology.

Dr. Wm. M. Gray of the Army Medical Museum: Practical Demonstration of the methods in Photography applied to Pathology.

Dr. J. J. Kinyoun, P. A. Surg. U. S. Marine Hospital service: Practical Demonstration of methods in Bacteriology.

Papers have been promised as follows:

1. Notes on Three Years' Work in the Pathological Laboratory of the Charity Hospital of New Orleans, by Dr. Henry Dickson Bruns of New Orleans.

2. Medical Geography of Puerto Rico, by Dr. A. J. Amades of Puerto Rico.

3. Theories of Inflammation, by Dr. Jose Torres Matos of Havana.

4. On Inflammation, by Dr. E. O. Shakespeare of Philadelphia.

5. On Cholera, Dr. Herman M. Briggs of New York.

6. L'état de Hyperexcitabilité du Nerf Phénique, dans le Beriberi, by Dr. J. B. de Lacerda of Rio de Janeiro.

7. Paludismo, by Dr. A. J. Amades of Puerto Rico.

8. Bacteriological Observations on the Waters of the Harbor of Havana, by Drs. Acosta and Grande.

9. Observations on Malaria, by Drs. Coronado and Madan.

10. Operations of the Anti-rabic Laboratory in Havana, by Dr. Acosta.

11. Abscess of the Liver, by Dr. James E. Reeves of Chattanooga.

12. On Influenza, by Dr. Ramon Guiteras of New York.

13. Observations on the Brains of Feeble-Minded Children, by Dr. Henry W. Cattell.

14. Pathology of Pelvic Inflammatory Trouble, Dr. Joseph Price, Philadelphia.

Papers have been promised, without giving the subject, by Prof. Wm. H. Welch, of Baltimore; by Dr. W. J. Councilman of Boston; and by Dr. G. F. H. Nuttall of Baltimore, and Drs. Wm. Hughes and W. J. Carter of Philadelphia.

John Guiteras, M.D., Executive President, Philadelphia.
David Inglis, M.D., English-speaking Secretary, Detroit, Mich.; L. F. Criado, M.D., Spanish-speaking Secretary, Brooklyn.

Medical Society of Virginia.—Preliminary announcement of the Twenty-fourth Annual Session, Charlottesville, Va., October 3-5, 1893.

The Twenty-fourth Annual Session will convene in Charlottesville, Va., 7:30 p. m., Tuesday, October 3rd, 1893.

Authors must send to the recording secretary titles of papers "at least five weeks before the session—failure in which will relegate any papers to the last day of the session." The secretary classifies titles according to subjects, and assigns the order of their presentation. Half an hour only is allowed for the reading of a paper, "and fifteen minutes for each discussion."

Subject for general discussion is "Chronic Nephritis"; leader, Dr. R. M. Slaughter, Theological Seminary, Va. Parties preparing papers on this, as also on other subjects, should inform the secretary of any notes they may wish made in the circular "Announcement," to be issued a month hence.

Competitors for Dr. Hunter McGuire's prize of \$100 for essay on "Obstruction to the Function of Micturition," as also for Dr. Joseph Price's prize of \$100 for "History of Surgery and of Surgeons of Virginia," must forward their essays to the recording secretary on or before September 20th, 1893. (For particulars, see pages 209 and 210, *Trans. Med. Soc., Va.*, 1892.)

Address matters referring to Medical Examining Board of Virginia to its President, Dr. Hugh M. Taylor, or its secretary (Dr. Benj. Harrison, Richmond, Va.). Examinations will be held in Richmond, September 19, 20th, and 21st, 1893.

Send applications for Fellowship, with \$2 initiation fee, to

Dr. Wm. D. Turner, Ferguson's W. art. 48, of Page county, Va., Chairman, Committee on Nominations and Applicants for Fellowship, etc.

Address other communications according to the character to the president, Dr. Herbert M. Nash, Norfolk, Va.; recording secretary, Dr. Landon B. Edwards, Richmond, Va.; treasurer, Dr. Richard T. Styll, Hollins, Roanoke county, Va.; chairman Executive Committee, Dr. Herbert McGuire, Richmond, Va.; corresponding secretary, Dr. J. E. Winn, Richmond, Va.; chairman Committee Arrangements, Dr. E. M. Magruder, Charlottesville, Va.

Iowa Public Health Association.—THIRD ANNUAL SESSION.—The local Committee of Arrangements desire to announce that the third annual meeting of the Iowa Public Health Association will be held in the city of Davenport, Iowa, August 31 and September 1, 1893, beginning at 10 o'clock a. m., August 31. Headquarters will be at the Business Men's Association rooms in the Masonic Temple.

The following persons will read papers upon subjects of interest pertaining to "Sanitary Science" in its various branches. Other subjects will also be presented for discussion:

Dr. Paschal Davis, Keokuk, Iowa; Rev. J. T. Kempner, M.D., Davenport, Iowa; Dr. Werland, Dubuque, Iowa; Prof. J. C. Shrader, President State Board of Health, Iowa City, Iowa; Dr. George L. Eyster, Rock Island, Ill.; Dr. W. H. Jones, Keokuk, Iowa; Dr. A. W. Morhead, Keokuk, Iowa; Dr. J. M. Watzek, Davenport, Iowa; Dr. C. H. Preston, Davenport, Iowa; Dr. Wm. O. Kulp, Davenport, Iowa; Dr. J. P. Crawford, Davenport, Iowa; Dr. Rosa Upson, Marshalltown, Iowa; Prof. E. L. Boem, Sr., Iowa City, Iowa; Dr. Chas. M. Robertson, Davenport, Iowa; Prof. E. G. Smith, Beloit, Wis.

Paschal Davis, M.D., is president and P. J. Fullerton, M.D., is secretary.

American Dermatological Association.—Program of the Seventeenth Annual Meeting to be held at the Hotel Pfister, Milwaukee, Wis., September 5, 6 and 7, 1893.

Officers for 1893.—President, George Henry Fox, M.D., of New York; vice-president, Henry W. Stelwagon, M.D., of Philadelphia; secretary and treasurer, George T. Jackson, M.D., of New York; council, E. B. Bronson, M.D., G. H. Fox, M.D., G. T. Jackson, M.D., H. W. Stelwagon, M.D., J. C. White, M.D.

First day, Tuesday, September 5, 1893. Business Meeting (with closed doors) at 9:30 a. m.; Report of the Council; Nomination of Officers for the ensuing year; Appointment of Auditing Committee; Proposals for Active and Honorary Membership; Miscellaneous Business.

Morning session at 10:30 o'clock. President's address.

PAPERS.

1. Antiseptic Treatment of Skin Diseases. By Dr. C. W. Cutler.

2. The Principles of Antisepsis in the Treatment of Eczema. By Dr. H. G. Klotz.

3. Cosmetics. By Dr. R. B. Morison.

Adjournment at 4 p. m.

Evening session at 8 o'clock.

4. A Case of Tuberculosis of the Skin simulating Lupus erythematosus. By Dr. W. A. Hardaway.

5. A Case of Rhinoscleroma. By Dr. G. T. Jackson.

6. Atrophia Maculosa Cutis, with a Case. By Dr. W. T. Corlett.

Dr. H. R. Crocker of London, will read a paper on "Lupus erythematosus as an Imitator."

Second day, Wednesday, September 6, 1893. Business Meeting (with closed doors) at 9:30 a. m.; Reports of Treasurer and Auditing Committee; Election of Officers; Report of the Council upon Candidates for Membership; Election of Active and Honorary Members; Selection of time and place of next meeting; Miscellaneous Business.

Morning session at 10:30 o'clock. Report of Committee on Statistics.

General discussion on

1. Pityriasis Rosea: *a*, its etiology; *b*, its relation to ringworm, seborrhoea, eczema, etc.; *c*, its treatment.

2. Dermatitis Exfoliativa: *a*, its clinical forms; *b*, its etiology; *c*, its treatment.

3. What do We Understand by Pemphigus?

Adjournment at 1 p.m.
Evening session at 8 o'clock.

7. A Contribution to the Pathology of Acne Varioliformis. By Dr. J. A. Fordyce.
8. Angiokeratoma. By Dr. J. Zeisler.
9. Subject to be announced. By Dr. M. B. Hartzell.

The Association of Military Surgeons of the National Guard of the United States.

Abstract of the Proceedings of the Third Annual Meeting, held in Chicago, Ill., August 8, 9 and 10, 1893.

FIRST DAY—MORNING SESSION.

The Association met in the upper amphitheater of Rush Medical College, and was called to order by the President, Dr. NICHOLAS SENN of Chicago, at 10 A. M.

In the absence of the Rev. H. W. THOMAS, Chaplain of the Illinois National Guards, prayer was offered by BISHOP SAMUEL FALGOWS of Chicago.

PRESIDENT SENN then introduced the Hon. CARTER H. HARRISON, Mayor of the city of Chicago, who delivered one of his happy and characteristic addresses of welcome.

Dr. TRUMAN W. MILLER of Chicago, addressed the members on behalf of the local medical profession. He said, aside from presenting them with the active scientific work in our institutions, we had to show them in our glorious White City, conceived by the wizard's brain and built by the touch of the magician's wand, exhibits from all nations of the latest appliances, methods and preparations known or used for the advancement of medical and surgical science, and it was with great professional pride that he invited their attention to the exhibits made by the government through the officers of the Army, Navy and Marine Hospital Service, together with those of our universities, feeling that they would be convinced that we were rapidly progressing in scientific investigations. Medical men had always been expected to give a large part of their services for the relief of the human race without a full recognition of their value, but he believed that a well established association of military surgeons would command the respect and a position in military organizations which could be attained by no other means. In every State an effort should be made to advance the standard of its medical staff.

Dr. ALBERT H. BRIGGS of Buffalo, in the absence of Dr. LEWIS W. READ of Norristown, Pa., responded for the Association and thanked the local committee for their warm greeting.

The report of the Committee of Arrangements was then made by the chairman, Dr. CHARLES ADAMS of Chicago. He announced a reception to be given by PRESIDENT SENN in the evening, and a theater party on Wednesday evening.

Mrs. NELSON H. HENRY, of New York, 1st Vice President, then took the chair and PRESIDENT SENN delivered his address. He selected for his subject, "Enterorrhaphy; its History, Technique, and Present Status."

The address was listened to with marked attention, and at its close a vote of thanks was extended to PRESIDENT SENN for his exhaustive and highly interesting résumé of the subject of the intestinal suture.

An executive meeting was announced for the morning of the second day at the United States Army Hospital at the World's Fair grounds. The Association will then discuss the practicability of changing its name to "The Association of Military Surgeons of the United States," and its scope will be enlarged to include the medical staff of the army, navy and marine hospital corps.

Arrangements will be made for an international congress, to be held in this country in 1894. Steps will also be taken to memorialize Congress concerning the establishment by the government of a military medical school.

The Association discussed the feasibility of establishing a military medical journal of the United States. A committee of three was appointed for this purpose to report at the executive session.

A cold collation was served at mid-day in the Presbyterian Hospital adjacent to Rush Medical College.

On motion the Association adjourned to meet at the U. S. Army Hospital at the World's Columbian Exposition, Wednesday afternoon at 2.

In the afternoon, PROFESSOR W. W. KEEX of Philadelphia, (by invitation) gave a surgical clinic, which was largely attended by military surgeons and distinguished physicians from out of town.

In the evening a reception was given by COLONEL SENN at his residence.

(To be continued.)

BOOK NOTICES.

Transactions of the Medical Society of the State of New York for the Year 1893. 8vo, cloth, gilt top, pp. 540.

This handsome volume, one of the best of State Medical Society publications, sets forth in detail the proceedings of the annual meeting held in Albany February, 1893. The society adopted the following resolution in regard to the AMERICAN MEDICAL ASSOCIATION:

"Resolved, That the Medical Society of the State of New York deems it unwise at this time to appoint any committee of conference with the American Medical Association on the subject of Medical Ethics as requested by that distinguished body, but the Medical Society of the State of New York ventures to express the hope that the American Medical Association at no distant day will take such action as will remove the merely technical obstacle to the most cordial cooperation between the societies."

This resolution was signed by Drs. A. VANDER VEER, D. B. ST. JOHN ROOSA, A. WALTER SEITER, HENRY L. ELSNER and GEORGE McNAUGHTON.

The President, Dr. LEWIS S. PILCHER, had spoken very frankly on the subject in his address as follows:

"I have the pleasure of presenting to this society at this time a communication from Dr. William B. Atkinson, Permanent Secretary of the American Medical Association, transmitting a resolution adopted by that Association at its session in 1892, appointing a committee of five who are instructed to meet a like committee from the State Medical Society of New York, and the State Medical Association of New York, for the purpose of adjusting all questions of eligibility of members of the State Medical Society of New York to membership in that Association, and notifying this society that the committee in question had been appointed, consisting of Drs. N. S. Davis of Illinois, John H. Ranch of Illinois, Wm. T. Briggs of Tennessee, Dudley S. Reynolds of Kentucky and Willis P. King of Missouri."

"The evident intention of this resolution was to request that this society appoint a similar committee to confer with the committee named, although the resolution as transmitted does not say so."

"It is difficult to see what purpose such a conference as is proposed could serve. The American Medical Association is very properly its own judge of what shall be the qualifications required of its members. It is a voluntary association, responsible to no one, and may change its standard of admission at will. At its session at St. Paul in June, 1892, it voted that the Medical Society of the State of New York was not entitled to representation in it, because the code of ethics adopted by that society essentially differed from and was in conflict with the Code of Ethics of the American Medical Association. The status of affairs to-day differs in no respect from what prevailed in 1892, save that a year or two later the American Medical Association adopted an explanatory declaration which practically interpreted its own Code to mean the same as the code already adopted by the Medical Society of the State of New York. It did not, however, rescind the vote of disfranchisement adopted in 1892, but on the contrary, at the recent meeting in Detroit, renewed it and extended it to embrace not only this society as an organization, but also all persons who affiliated with it. At this same meeting also, it appointed a committee to report upon a revision of its own Code of Ethics. There is, therefore, no certainty as to what the future Code of Ethics of the American Medical Association will be. It would be highly improper for the Medical Society of the State of New York to assume in any way to dictate or even to suggest to any organization subordinate to it what ethical standard, if any, such an organization should adopt. It must content itself with regulating its own standards, as it now does, suggesting in turn that it is equally indelicate for organizations which have no superlative relation to it to extend advice as to its internal affairs. Practically the relations of the Medical Society of the State of New York to the American Medical Association are the same as those which it sustains to the British Medical Association, the Canadian and Ontario Medical Associations, and to the medical societies of the various adjacent states to which it is in the habit of sending delegates annually, viz., the relations of courtesy and comity. All these medical organizations named continue to receive with due honor and respect the delegates appointed

by this society, and doubtless, whenever the American Medical Association shall signify its desire that this society shall again send delegates to its meetings, such will be sent. The Medical Society of the State of New York, however, must meanwhile be content to do its own work its own way, awaiting the pleasure of the Association's invitation. Nevertheless, since a failure by this society to appoint such a committee is contemplated in the communication from the American Medical Association would doubtless be construed by many, who are still ignorant of the real relations which exist between the two organizations, as displaying factions and quarrelsome spirit, and as a matter of simple professional courtesy I would advise that a committee of five be appointed by this society to meet the committee of the American Medical Association, as requested.

In the course of the discussions which have been provoked by the action of the American Medical Association just alluded to, it has come to the knowledge of your President that many of the physicians in this State are convinced that in view of the present state of general enlightenment prevailing throughout the State of New York, and the advantages which by legal enactment are thrown about the entrance to the medical profession, it would comport more with the dignity of the medical profession, and would enhance the respect in which it is held by the general public, if all specific rules of ethical conduct were added from the by-laws of the State Medical Society, and if the regulation of such matters were hereafter left to the judgment of individual practitioners influenced by the known consensus of professional opinion and local custom in the places where the work of each is being carried on. A considerable number of representative physicians from all parts of the State with whom I have conferred on this point I have found a singular unanimity of feeling on this subject. The only hesitancy which any have expressed has been that it would be well to wait practically until this is already the present status of the profession in this State, to make any movement looking to the formal elision of a code from our by laws, lest it should revive acrimonious discussion and awaken strife that would be detrimental to the higher interests of the profession in this State. By far the greater weight of the opinions which I have been able to elicit has, however, been that no such action would follow, but on the contrary that such action would tend still more to heal old differences and bring together all the elements of the medical profession in this State. Such is also my own mature opinion, and further it has seemed to me that at present, when there is a general revival of interest in the matter of professional ethics, as is evidenced by the discussions which are now going on in the medical journals of the country, and when the question of codes is again unavoidably brought to the attention of this society, that it is a specially favorable moment for taking this final step.

The papers begin with a scholarly presidential address "On the Evolution of the American Surgeon," by Dr. Lewis S. Pileher of Brooklyn. After a brief discussion of the history and general status of surgery as a sort of prologue to his theme, he begins with a sketch of McDowell, refers to Morton's invention of anesthesia by inhalation, and closes by an enumeration of the lasting labors of Mott, Smith, Reid, Gunn, Bigelow, Buck, Davis, Sayre, Taylor, Shaffer, Otis, Marion Sims, Bull, Parkes, Senn, McBurney, Weir, Stimson, Fowler and O'Dwyer. It is perhaps not remarkable that extreme provincialism should omit all mention of Philadelphia, Charleston, Richmond, Louisville, Cincinnati, New Orleans and St. Louis surgeons from his list, but it is singular that Frank Hamilton, Willard Parker, J. R. Wood, E. M. Moore and Gouley should have been omitted. If any two men have made a mark in the surgery of New York, it was surely Frank Hastings Hamilton and Willard Parker. The classics have evidently been well studied by Dr. Pileher, but his work on "American Surgery" is singularly inadequate.

The scientific papers in the volume, which are of exceptional value, have been mentioned in the current medical journals shortly after the time of the meeting and therefore need no further comment.

The Bacterial Poisons. By Dr. N. GAMALEIA. Translated by E. P. HERD, M.D. Paper, 16mo., pp. 136. Detroit: George S. Davis, 1893.

This book includes an experimental study of the putrid poisons, the microbial etiology of putrefaction and of the infections, the discovery of ptomaines, the chemical nature of the bacterial poisons, their origin, and action on animal organisms; besides a chapter each on the poisons of tetanus, liphtheria, cholera, tuberculosis, charbon and glanders. We commend the book, but it should have an index.

Missouri State Medical Directory; containing a carefully revised list of Physicians, Dentists and Druggists, together with the Colleges, Hospitals, Societies and Medical Journals of the State, arranged by counties, for convenience of Society Secretaries. Pocket size, 120 pp., cloth, gold embossing. Published by *The Medical Fortnightly*, 1006 Olive street, St. Louis. Price \$3, postpaid.

A handy directory for all Missourians, and those having

business with them. Such books are always useful to the profession.

Weekly Abstract of Sanitary Reports issued by the Supervising Surgeon-General M. H. S. Vol. vii, Nos. 1 to 53. Washington: Government Printing Office, 1893.

This volume of 870 pages is composed of the weekly numbers of the *Abstract of Sanitary Reports* published by the Marine Hospital Bureau, bound in convenient form and having a copious index.

NECROLOGY.

Dr. David R. Dyche.—Dr. David R. Dyche of Evanston, died in that city Aug. 4th, 1893, from meningitis following a carbuncle of the face. The *Chicago Tribune* gives the following sketch of his life:

Dr. Dyche was of German descent and was born on a farm near Lebanon, Warren county, O., March 11, 1827. He graduated from the Cincinnati Medical College at the age of 25 and began the practice of medicine at Monroe, O., where he remained in practice for twelve years. Early in the sixties the doctor's brother, George Dyche, came to Chicago and opened a drug store. In 1864 he was ill and Dr. Dyche came here to attend to the sick man and subsequently located. The young physician associated himself with Dr. R. M. Bogue and continued for years with him in the practice of medicine. He also went into the drug business, having a store on the corner of Randolph and Dearborn and another on the corner of Madison and Halsted streets. The latter escaped the great fire but the former was burned. Immediately after the fire he began the erection of the block on the northwest corner of State and Randolph streets, where he located and remained in business up to the time of his death.

Dr. Dyche has always taken a prominent part in religious and philanthropic work. He was one of the founders and a member of the Board of Trustees of the Centenary Methodist Church. He removed to Evanston in 1874 and became a member of the First Methodist Church there, and has been a member of the Board of Trustees for several years. He has been a trustee of the Northwestern University for the last eighteen years and also a member of the Executive committee. He was also president of the Citizens League of Evanston, an organization for enforcing the prohibitory liquor law in that place. He was one of the founders of the Illinois College of Pharmacy, established in 1885, and was President of its Board of Trustees till it became a department of the Northwestern University in 1888. Dr. Dyche was married at the age of 30 to Miss Mary S. Boyd, with whom two sons, George B. Dyche and Ald. William Dyche of Evanston survive him.

Dr. Pinneo.—Dr. Timothy Stone Pinneo, author of Pinneo's Grammars and the reviser of the McGuffey Readers, died at Norwalk, Conn., Wednesday, in his 90th year. He was one of the oldest living alumni of Yale. He entered that college at the age of 16, and was graduated from the classical and medical departments with high honors. For a time he practiced medicine in the South, but failing health obliged him to abandon this field and to accept the professorship of belles lettres in Marietta College, Ohio. The last years of his life were spent at the head of a school in Greenwich.

Dr. F. B. Huse.—Dr. Fred B. Huse of San Francisco died Aug. 7, at Wesley hospital, Chicago. He was once a resident of Evanston and was in Chicago visiting the world's fair. An attack of typhoid fever proved fatal.

Dr. Huse was 50 years old and lived in Evanston until

1874. He was graduated from the Northwestern University in 1868 and spent a year or two in European travel. In 1871 he entered the Chicago Medical College and completed the course two years later.

Dr. Henry Cropsey Cooper, a son of Dr. Edward C. Cooper and a nephew of Peter Cooper, died last week at his home in Woodridge, N. J. He was born in 1829, was a graduate of the College of the City of New York and the College of Physicians and Surgeons, and served as a ship surgeon for several voyages on a sailing vessel between New York and Liverpool. He was a practicing physician in this city when the civil war broke out, and entered the Union army as captain in a company of the 7th New Jersey Volunteers. Dr. Cooper was wounded and was a prisoner for a time in Libby prison. After the war he became associated with his cousin Edward Cooper, and Abram S. Hewitt, in various iron works and mining enterprises. Dr. Cooper had a summer home in Woodridge, and at one time lived in Boiling Springs. His death was due to cancer of the stomach. He leaves a wife and one daughter.

Dr. Thomas R. Dupuis, surgeon to the City Hospital of Kingston, Ontario, died June 27, aged 60 years. He was vice-president of the Canadian Medical Association in 1886, and had been since 1871 one of the professors of the Royal College of Physicians and Surgeons, Kingston. He was a member of the Royal College of Surgeons, England. He was a facile writer both in verse and prose, and an eloquent and instructive lecturer.

Dr. Henry Fisher, a well known dentist of St. Louis, died Aug. 2.

Dr. Perkins Bigelow, died at Mansfield, Ohio, Aug. 4, 1893.

Dr. J. D. Seawright died at Frankfort, Mo., Aug. 7.

DOMESTIC CORRESPONDENCE.

An Admonition.

EVANSVILLE, IND., Aug. 2nd, 1893.

To Whom It May Concern:—Boast not, my brother, nor be too greatly elated over your erudition, skill and ability in matters medical, for the facts thou knowest not, are many times more numerous than the facts of which thou art cognizant, and the time is yet when men are greatest according to their ability to conceal their ignorance under the habiliments of learning.

J. B. WEEVER.

Pass Him Around.

BENTON HARBOR, MICH., Aug. 5th, 1893.

To the Editor:—Dear Sir—It may be outside the province of THE JOURNAL to publish "dead cats," but, if you think it worth while I would like to warn the fraternity against one C. H. Warner, who claims to be a poor doctor from Florida going to relations in the North, but his wife being taken sick on the way, his money was used up, and he is unable to go on with his sick wife and three small children. This story seldom fails to secure enough from sympathetic physicians and dentists (whom he also works) to enable him to go on (probably) toward the "Fair."

He refers to Friendship Lodge K. of P. of Gainesville, Fla. for his standing as a gentleman, but there is no such lodge, and the Mt. Vernon Lodge, No. 20 of that city know of no such man. If this is of any use to you and you can save any of the fraternity from becoming swindled.

I am respectfully, WAKEMAN RYAN, M.D.

MISCELLANY.

The Railroads and the Board of Health.—The following is the full text of the decision of the Michigan Circuit Court to which we referred in our last issue:

Circuit Court of the United States, Western District of Michigan, Northern Division, Minneapolis, St. Paul & Ste. Marie Railway Company, vs. Samuel G. Miller et al., Members of and constituting the State Board of Health of Michigan.

On motion for a preliminary injunction before Judges Severens and Sage, the bill sets forth that the complainant, a corporation of the State of Michigan, is and has been for several years past engaged under a traffic arrangement with the Canadian Pacific Railway Company in the transportation of passengers on through tickets from Quebec westward through Canada, and over the line of the complainant's railway to and through the States of Michigan, Wisconsin, Minnesota and North Dakota, also eastward from those States through Canada to Quebec, a large portion of the passengers westward being persons traveling from Norway and Sweden to points in said States.

The defendants it is averred constitute the State Board of Health of Michigan acting under an Act passed by the legislatures of said State, and approved June 20, 1883, entitled an Act to provide for the prevention of the introduction and spread of cholera and other dangerous communicable diseases as amended by an Act approved April 25, 1893. The bill has attached to it as exhibits a copy of such of said acts and of certain rules adopted by said Board purported to be issued under and by virtue of the authority conferred by said Amending Act. It is further averred that said Board acting through its secretary and one of its inspectors, and in pursuance of said rules, is daily detaining and attempting to detain passengers on said Canadian Pacific Railway at the point opposite Sault Ste. Marie, Mich., and prohibiting their entering the State of Michigan until they have undergone the quarantine detention and until the disinfection of their baggage as prescribed in said rules. It is averred that this detention, examination and process of disinfection of baggage is applied to all emigrants irrespective of whether they came from an infected or healthy locality abroad and without regard to their point of destination. It is further averred that all said emigrants and travelers have been before said detention inspected by United States officials detailed for said purpose and that complainant has not received nor permitted to be conveyed within the State of Michigan any passenger, traveler or emigrant coming from any European port through the Dominion of Canada excepting such as have presented a certificate of inspection of the United States Inspector. It is also averred that said Board is threatening to arrest officials and employes of complainant unless complainant shall submit to and comply with said requirements of said Board.

The claim is that the rules and action of said Board of Health are in direct violation of Section 8, Article 1, of the Constitution of the United States, in that they attempt to regulate and prohibit commerce with foreign nations; and that they are also in violation of the treaty made by and between the United States and Norway and Sweden, and now existing; also that they are over and above, and beyond the powers conferred upon said Board by said Act and Amending Act of the Legislature of Michigan.

The bill then sets forth averments of irreparable damages and prays for an injunction.

The motion for a preliminary injunction will be overruled for the following reasons:

1. In *Brown vs. Maryland*, 12 Wheaton 419-433, Chief Justice Marshall recognized that the removal or destruction of infectious or unsound articles was undoubtedly an exercise of the police power of the State, and an exception to the prohibition resulting from the exclusive power of Congress to regulate the operations of foreign and interstate commerce, and he says that laws of the United States expressly sanction the health laws of the State. In the license cases 5 Howard, 504, 576, Chief Justice Taney declares that it must be remembered that disease, pestilence and pauperism are not subjects of commerce although sometimes among the attendant evils. They are not things to be regulated and trafficked in, but to be prevented as far as human foresight or human means can guard against them. In *Crestcher vs. Kentucky*, 141 U. S. 47, Justice Bradley refers to these cases with approval and states with great clearness and force the distinction between the exercise of its police

power by a State and an attempt to legislate upon matters of interstate or foreign commerce, which are exclusively within the power of the Federal government. These authorities render it unnecessary to refer particularly to the cases cited for the complainant. It is sufficient to say that they all relate to State enactments concerning articles of commerce and thence are not applicable here. Moreover, the Quarantine Act of Congress, approved February 15, 1893, expressly recognizes the validity of State laws, and in Section 3 requires the supervising surgeon general of the Marine Hospital Service to co-operate with and aid State and municipal Boards of Health in the execution and enforcement of their rules and regulations.

2. We find nothing in any existing treaty with Norway and Sweden which conflicts with the institution or enforcement by any one or more of the States of this Union of quarantine regulations.

3. We do not deem it necessary to express an opinion whether the provision of the Michigan statute making it a misdemeanor to violate the rules of the State Board of Health, adopted in pursuance of the Act, is constitutional or valid, for we should not, even if we were of opinion that it is unconstitutional, undertake to issue an injunction against criminal prosecution by the State. That the legislature might authorize the Board to adopt rules is, we think, beyond question. Such rules are essential to the proper enforcement of the law.

4. To the objection that passengers from non-infected countries and localities are detained, the answer is that such detentions are in the nature of the case to a certain extent unavoidable, and passengers from such countries and localities may have become properly subject to detention by reason of having mingled with others who could communicate pestilence or disease to which they themselves had been exposed or subjected. An opportunity for separation is indispensable also.

5. The objection that passengers who had certificates from United States inspectors were detained is not tenable. The States may exercise their police power according to their own discretion and by means of their own officials and methods. The inconvenience resulting to emigrants and travelers from being halted and subjected to examination and detention at State lines is of trifling importance at a time when every effort is required and is being put forth to prevent the introduction and spread of pestilential and communicable diseases.

The costs and charges which are incurred in such quarantine inspection may lawfully be imposed on the railway company, as being incident to the business in which they are engaged. The costs of the motion will be taxed to the complainant.

H. F. SEVERENS,
GEO. R. SAGE.

July 29, 1893.

Boston City Hospital.—The city government has appropriated \$400,000 for the improvement of the Boston City hospital. An interview in the *Boston Herald* with the president of the Board of Trustees states that:

"It is proposed, with the accession of this \$400,000 appropriation from the city, to push forward pathological and surgical improvements with the utmost possible speed, and as soon as the East Chester park hospital for contagious diseases shall be finished, the two wards which are now used for diphtheria and scarlet fever can be used for medical cases, thereby giving increased accommodations for about sixty patients.

"During the year ending April 10, 1893, 430 patients were rejected, and during the preceding year 571 patients, or a total of 1,031 patients whose cases demanded admission to the hospital, and who would have been received were it not for the fact that the hospital was full at the time of their application.

"With our new appropriations," continued Mr. Shuman, "we shall complete the East Chester park hospital, and erect a new building especially for surgical operations.

"Our new surgical building will be constructed of non-absorbent material, the floors and tiles of marble, the wall-scotting of marble, the walls of hard non-absorbent finish, and the furnishings and utensils of glass or iron, or other non-absorbent material.

"We shall prepare additional rooms for the purpose of sterilizing at a high temperature not only all the instruments, but all dressings, sheets, towels and the clothing worn by the surgeon and his assistants.

"We shall also provide additional facilities for baths and for disinfecting the operator and his assistants.

"We propose to construct laboratories for the analysis and study of surgical diseases, and several small rooms, so that different surgeons can operate in different rooms at the same time. At present we have only one operating room, and oftentimes several surgeons have to use this at the same time.

"We propose also to arrange rooms where patients can be etherized separately, recovery rooms for the proper classification of cases, also rooms where capital operations can be kept for a necessary time in perfect quietness, with more care and freedom from dust and poisonous germs than consulting rooms for surgeons.

"We shall also erect a mortuary chapel, where religious services may be held according to the religious faiths of the patients who die at the hospital.

"We shall also erect a two-story building for the isolation of surgical cases in separate rooms. At present, the cases of surgical diseases which develop into delirium tremens are placed with ordinary surgical and medical cases.

"We have, moreover, no proper space in which to put the large number of alcoholic cases which, in spite of our rules, we are obliged by humanity to admit.

"I feel confident that when the plans of the trustees are carried out, the Boston City hospital will rank as high as any institution for the amelioration of suffering either in this country or in Europe.

"We have on our staff, Dr. D. W. Cheever, senior surgeon; Dr. H. W. Williams, oculist; Prof. W. T. Councilman, and others.

"The meditated improvements will be consummated with the utmost celerity and dispatch, but it will take the best part of a year before we can complete our present undertakings."

Mortality of Tennessee Prisoners.—Dr. P. D. Sims of the Tennessee State Board of Health, made the following statement in a paper read at the National Prison Association and reproduced in the Tennessee State Board of Health *Bulletin*, July 20, 1893. We are credibly informed that the condition of affairs in North Carolina is much the same as in Tennessee:

"I have been for a number of years a member of the Tennessee State Board of Health. Eight or ten years ago the chairman of our Prison Committee left the Board, and I was made chairman of that committee. I began to investigate the question. It had generally gone along as such matters do, with a careless supervision, but I thought it my duty to look into it, and give it a close investigation. The first thing I did was to investigate the prison reports to see what they were doing. My attention was at once attracted to the great mortality in the prison. We were sustaining a mortality of 77 per 1,000 per annum, while the mortality of some of our branch prisons ran up to 100 per 1,000 per annum. That struck me as being inordinately large, but as I was not conversant with the management of prisons I began writing to various prisons throughout the country for their reports, to ascertain what their mortality was. In this investigation I found the average mortality in all lease prisons to be 60.4 per 1,000, and that the mortality in non-lease prisons was 15.1 per 1,000, exactly one-fourth that of lease prisons. I made up my mind at once that whatever there might be of good in it, we could not afford to maintain the system that was killing four times as many as other systems. We have no right to take men's lives in our efforts to reform them or protect society. Society has a right to protect itself against the evil doer, but the best way to do that is to convert the man or woman from an evil doer into a doer of good; to convert a destructive member of society into a constructive member of society. All of that is lost sight of in the lease system."

A Prophecy.—"Will the coming man use both arms?" asks a scientist. He will if she will permit it.—*London Times*.

Is now a Consulting Surgeon-in-Chief.—Dr. George F. Shady, the editor of the *N. Y. Medical Record*, has been appointed consulting surgeon-in-chief to the hospitals established by the New York City Board of Health.

Will go to Corea.—Dr. Charles H. Irvin of Mansfield, O., has been appointed surgeon to the Presbyterian Hospital in Seoul, Corea. The hospital is quite extensive, some 4,780 cases having been there last year. The building cost the Presbyterian Church \$45,000. Two trained nurses (American) are in charge of the native nurses. The Korean government furnishes the apothecaries' equipment.

Must Not Touch Sweat Shops.—Hereafter the Health Department of Chicago will not interfere in the work of the sweatshop inspectors. Legal advice is to the effect that the department has only sanitary supervision and nothing to do with the employment of children.

Yellow Fever.—SAN FRANCISCO, August 4.—Yellow fever is reported to be raging at Port Limon, on the Atlantic side of Costa Rica, and with such fatal effect that half the population have fallen victims to the dread disease. Among the dead are three physicians who had been sent to Port Limon by the government to assist in checking the ravages of the epidemic. Two deaths from yellow fever were officially announced at Pensacola, Fla., on the 10th.

Must not Cut Horses' Tails.—Largely through the instrumentality of the physicians of Massachusetts, a law has been adopted in that State prohibiting the practice of docking the tails of horses, "unless the same is proved to be done for the benefit of the animal." Whoever shall cause this cutting of the solid part of the tail, or shall assist in doing it, may be punished by imprisonment not to exceed one year, or by fine of not less than \$250. The Society for the Prevention of Cruelty to Animals receives one-half of the fine when the agents of that society are the complainants.

Cholera.—The press dispatches state the progress of cholera as follows:

ROME, Aug. 4.—The *Tribuna* says that from Thursday noon to noon to-day twenty new cases of cholera and fourteen deaths were reported to the authorities in Naples.

ROME, Aug. 6.—It is officially announced that between noon Friday and noon to-day twenty new cases of cholera and thirteen deaths have been reported in Naples and three new cases and one death in Rome.

BUCHAREST, Aug. 6.—Cholera has broken out in the garrison at Soolina.

Signed his own Death Certificate.—Dr. George A. Fischer, a resident of Rochester for twelve years, took his own life by an overdose of chloral hydrate. He left behind him a certificate of death properly filled out, together with the following autobiographic sketch for the benefit of the press reporters:

"George A. Fischer, born at Hanover, January 27, 1848. Graduated from Hanover Lyceum. Volunteered 1866 in Hanover Horse Guards; made officer June 27. After the battle of Sangen-salka served in the same capacity in 1866; Westfalven war 1870. Came to United States in 1873. Lost caste and came down to be an American doctor. Died according to certificate, to be found in desk.

"With kind regards, Yankees. Signed, G. Fischer, No. 31 Heaven, front parlor."

He was a graduate in medicine from one of the institutions of Baltimore. He was subject to periods of depression and despondency that were intensified rather than

relieved by the self-administration of narcotics and intoxicants.

Fast Days Postponed.—A cable dispatch says: "The Pope has directed the Catholic inhabitants of Naples not to fast Fridays as long as the cholera prevails. He fears the physical weakness engendered by fasting might cause the people to be more susceptible to the disease. The meeting of the International Medical Congress in Rome has been postponed until April."

The Ford's Theater Disaster.—During the past week the legal process of investigating the responsibility for the disaster in the old Ford's Theater building, Washington, D. C., by which so many of the clerks of the Record and Pension Office of the War Department lost their lives or were more or less disabled, advanced another step in its progress by the arraignment of four men charged by the jury with having caused the loss of life. These were Colonel F. C. Ainsworth, Chief of the Office; W. K. Covert, Superintendent, and Francis Sasse, Engineer of the building, and G. W. Dant, the contractor who undertook the work of introducing the electric light plant during which the pillars supporting the floors became undermined and part of the three upper floors were thereby precipitated into the basement. The defendants pleaded not guilty to the indictment; but it was stipulated that they might withdraw this plea on or before September 15 and enter any other plea or motion they might see fit. It is understood that under this stipulation they will each hereafter demur to the indictment or move to quash it. The civil standing of Colonel Ainsworth does not appear to affect his position in the service of the government, for although arraigned for manslaughter, and under bail he continues to discharge the duties of his office and to look after the interests of his clerks and of the government just as if no accident had happened on June 9, last.

Change of Address.—Dr. H. E. W. Barnes to Creston, Ia.

THE PUBLIC SERVICE.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from July 29, 1893, to August 4, 1893.

Capt. WALTER D. McCRAW, Asst. Surgeon, is relieved from duty at Camp Pike, Bute, Wyo., and ordered to the Presidio of San Francisco, Cal., for duty.

Capt. RICHARD W. JOHNSON, Asst. Surgeon, will report on or before August 6, 1893, to the commanding officer, Ft. McHenry, Md., for temporary duty at that post during the absence of Capt. CHARLES B. EWING, Asst. Surgeon.

Major ALFRED A. WOODHULL, Surgeon U. S. A., is granted leave of absence for one month and fifteen days, on account of sickness, to take effect on or about August 15, 1893.

Capt. EDWARD C. CARTER, Asst. Surgeon U. S. A., is granted leave of absence for two months, to take effect about August 10, 1893.

LETTERS RECEIVED.

(A) Atkinson, W. B., Philadelphia; (B) Booth, Chas., Low-moor, Va.; (C) Comegys, C. G., Cincinnati, Ohio; Chambers, J. H. & Co., St. Louis, Mo.; Cobb, J. O., Port Townsend, Wash.; (D) Drew, C., Jacksonville, Fla.; Dudley, E. H., Janesville, Wis.; (E) Guiters, John, Philadelphia, Pa.; (F) Howe, Jas. Lewis, Louisville, Ky.; (G) King, Jas. K., Watkins, N. Y.; Kirkpatrick, A. B., Philadelphia; Kenyon, F., Scipio, N. Y.; (H) Laidley, L. H., St. Louis, Mo.; LaPlace, Ernest, Philadelphia, Pa.; (M) Minard, E. J. C., Brooklyn, N. Y.; McCurdy, R. L., Freeport, Pa.; Molley, E. J., New York N. Y.; Murfree, J. B., Murfreesboro, Tenn.; (R) Reed, C. A. L., Cincinnati, O.; (S) Stahley, G. D., Gettysburg, Pa.; Stowell, C. H., Washington, D. C.; Shidler, G. W., York, Neb.; Smart, Chas., Washington; (T) Tracy, Edward A., Boston; (V) Vaughan, Geo. T., U. S. Marine Hosp. Serv., Chicago; (W) Wyckoff, R. M., Brooklyn, N. Y.; Warner & Co., W. R., Philadelphia, Pa.; Weaver, J. B., Evansville, Ind.

The Journal of the American Medical Association

VOL. XXI.

CHICAGO, AUGUST 19, 1893.

No. 8.

ORIGINAL ARTICLES.

A FEW NOTES ON TARSAI AMPUTATIONS— TRAUMATIC AND ARTIFICIAL AMPUTA- TIONS—SUBSTITUTES OR PROTHETI- CAL APPLIANCES FOR LOST PARTS.

Read in the Section of Surgery and Anatomy, at the Forty-fourth Annual Meeting of the American Medical Association.

BY THOMAS H. MANLEY, A.M., M.D.
VISITING SURGEON TO HARLEM HOSPITAL, NEW YORK.

The facilities, the appliances and the aids which the inventions of man and modern science have made available for operating surgeons, have so radically revolutionized the whole domain of surgery that it may now be affirmed, without fear of contradiction, that many of the dogmas promulgated and beyond cavil, as late even as the middle of this century in which we live, have become obsolete and antiquated. The almost lightning rate of American inventions has been a tremendous leveler of traditional doctrines of the near past. American invention has led the whole world, and in every place in which civilization exists, however remote, its impetus is felt. So that the unprejudiced of every clime and every race must concede to the land of Columbus the first and highest place among those nations which have made the world better, softened the hardships of the past, and spread broadcast those blessings which spring from a free, enlightened, liberty-loving and God fearing people.

Without the interposition of any miracles the lame and limbless have been made to walk; the blind, see; the toothless, masticate; the strangling, breathe; the crooked, distorted limbs have been made straight, etc.; but the crowning glory of all, is ours—of transporting the agonizing sufferer, during the torture of surgical procedure into the dreamland of repose and happiness.

Who that has traveled abroad but has observed that our surgical dressings, for profusion and quality, are unrivaled. Our modern operating theater, dietary, sanitary arrangements and nursing are difficult to excel.

But to the subject proper, and let us see at this, the great centennial of America's history, where we are on the question of the most appropriate treatment of those pathological and traumatic disorganizations of the foot, which involve an amputation in its continuity.

Of recent years, since the art of prothesis has reached such an advanced degree of perfection, it would seem from the startling assertions which we hear that, in the future, if we would treat those mangled or pathological conditions which extend into the tarsus with the best advantage to the patient, the entire foot should be sacrificed with the ankle joint included; in other words, that we must

wholly disregard all former rules with reference to preserving all vitalized tissues, when such a lesion exists as heretofore called for a tarsal or medio-tarsal severance.

Let us first hear what a well known manufacturer of artificial limbs has to say on this subject. Mr. Charles Truax of Chicago, at the meeting of the American Association of Railway Surgeons held at Buffalo May 1, 1891, in presenting an essay on this subject said: "In amputations of the anterior part of the foot, it is just as certain, if you remove any of the bones necessary for the maintenance of the plantar arch or sever the plantar fascia, that you will destroy the usefulness of this arch, as it is true that the leaving out of a single stone from the span of an arch will permit it to fall; and whether you perform a Lisfranc's, Hay's, Forbes', Chopart's, the subastragaloid or an osteoplastic operation, you leave your patient a foot that is of no value except to carry weight. In such cases the utility of the foot is either greatly impaired or wholly destroyed, and the portion allowed to remain becomes a useless appendage; worse than useless, as it is in the way of providing for something better. . . . *In an amputation between the metatarsal bones and the point of the toes and middle thirds of the foot, at all the parts save all you can save, and you will, in every case, have done the best for your patients.*"

It may, perhaps, be regarded as a matter of questionable propriety to introduce the views of an artificial limb maker into a discussion on a surgical subject; but after a moment's consideration we can see that this is a fallacy, for it can be readily shown that it is only when the prothetician and the surgeon cooperate, the best interests of the mutilated patient are served. It is a well known fact that in the most of our populous cities to-day many dentists do nothing but extract teeth, while there are others who occupy themselves exclusively in fitting and repairing. Each excels in his own branch. As a rule, when the surgeon amputates a limb and the patient leaves the hospital he seldom sees any more of him, as he has finished his part and turns him over to the prothetician.

Now, generally, when he leaves the surgeon who has sacrificed the limb he feels that the latter is quite through with him, and turns to the artificial limb maker as his natural friend, to provide him a substitute for what is gone. To the latter he now goes also for the rest of his artificial limb as this, in time, shows the need of readjustment, removal or repair. Hence, while the surgeon has the man under his observation for weeks only, the latter seldom loses sight of him for his entire life. Accordingly, the opinions, judgment and experience of those who have given years to the craft of prothesis should not be unheeded; but be duly approved, appreciated, criticised or condemned as occasion requires.

It would seem little less than a barbarous mutilation in diseases of the teeth, when several sound members of the group survive, to wrench them out of their sockets and replace the entire arch by an artificial set; but experience and observation have alike convinced the surgeon-dentist and patient that, in order to secure the best æsthetic effect with the most comfortable and powerful set of grinders, that this sacrifice of healthy structures is often a necessity. Hence, in this instance, theory has to give way for practical demands, and a new art has demanded new conditions. Without doubt, to a certain extent, the same principle will apply to the adaptation of artificial substitutes, in those cases of disorganizations of structure which are limited to the joints of the foot and other parts of the body.

It may be prudent, before we enter on the question of which division of the parts shall be made in the foot, or partial foot amputation to, for a moment glance at the anatomical architecture of this organ, its physiological functions, and the almost total want of analogy between it and the hand.

Roughly speaking, the foot serves but two purposes: 1, as a support to the body; and 2, for carrying the body for locomotion.

In the standing attitude it may be said that the entire weight of the body is transmitted, through the tarso-tibial articulation to the surface of the heel. The plantar-arch, the anterior, tarsal, metatarsal and phalangeal structures while the body is in repose in the upright position serve no purpose except to, in a slight degree aid in the balancing of the body, preserving the equipoise; for it is only in locomotion, walking, running, jumping and similar movements, these are called into active exercise.

Those parts of the plantar surface which come in direct contact with the earth are thickly clothed with an investment which has immense elastic, resilient properties. These consist of a cutaneous covering of great density and thickness, subcutaneous fibro-adipose tissue, the plantar fascia and cellular tissues. Now, it is absurd to talk of substituting any sort of a stump covering which can in any manner whatever, compare with this for its resisting power against pressure or friction. On this point an author imparts a statement which, without doubt, will strike many as astonishing news. He says: "Before entering into discussion on the principles most important to be observed in the construction of a good stump, I desire to call attention to the erroneous impression regarding the wearing of an artificial limb that exists in the minds of many surgeons. This opinion is to the effect that in most cases following amputations in the lower extremity, the weight of the patient, or at least a great portion of it is borne on the stump. It is true that this follows some operations, but it is the exception and not the rule. When a section has been made through a bone no weight can be borne on the end of the stump. Disarticulation, or an osteoplastic operation alone will admit of pressure; There are to-day thousands of patients wearing legs designed by Yankee inventors, where not even an ounce of weight is borne by the end of the stump."

This maker was perhaps a little extravagant when he said that there was not an ounce borne by the end of these stumps; but if he intended to convey the

impression that they sustained no other weight than was necessary to secure an adjustment without wriggling or a swaying motion of it in the sheath of the artificial limb, he was entirely correct, as I am able to testify from my own experience, in not an inconsiderable number of cases.

How, then, in the face of such an allegation, which is well supported, one can by any species of philosophical reasoning advise the deliberate sacrifice of the ankle and the entire foot, when it is diseased or damaged, in any of its areas posterior to the metatarsus, is indeed inconceivable. This is retrogression, and brings us back to the time which antedates anæsthetics and aseptic surgery; when the operator, in order to operate with the greatest celerity and with the least infliction of anguish to his patient, as a common rule always severed the entire foot above the ankle joint for any condition of it rendering an amputation of a part of it necessary. On this subject Mr. Thomas Bryant, in his unrivaled textbook, speaks in no doubtful terms. He says: "In no part of the body has improvement in modern surgery shown to better advantage than in the foot; for in none has so much been done in the way of conservatism. Where formerly amputation of the whole foot was common, now we have Hey's, Chopart's, Sym's, Pirogoff's, the subastragaloid and Hancock's amputations; all founded on the well established position that governs, or ought to govern, in all amputations; viz.: that no more of the body ought to be removed than the necessities of the individual case require; or, in other words, upon the principle of the least sacrifice of the parts. To amputate a foot, when anything else will suffice, in the present age is regarded as almost criminal; and, surgeons generally accept Hancock's well-put question in his valuable lectures. . . . "Can anything be more unphilosophical than to advocate the sacrifice of any bone, or part of the foot, for no other reason than that a particular operation should be performed? We should perform our operation as close to the damaged structures, and preserve as much of the foot as we possibly can with safety to our patient."—(*Bryant's Surgery*, p. 922, Ed. viii.)

Ashurst says, "that Chopart's amputation was particularly studied by the late Mr. Hancock, who found that out of 152 cases but 11 died; a mortality of 7.2 per cent while no less than 120 out of the 126 who recovered had useful limbs. The results in subastragaloid amputations, says Ashurst, are more satisfactory. He cites Stephen Smith of New York, as saying that the Sym's stump is better adapted to an artificial limb than any other. Sym's denounced Pirogoff's amputation; but nevertheless, I have seen most admirable stumps after it, and entertain no doubt of its value. (Ashurst's *En cycl.* Vol. ii, p. 617). There is nothing in the latest American work, the "System of Surgery, by American Authors" on the controversial side of the question; nor is there a line in either of the two great French works, separately edited by Réclus, and by Péan, which have recently issued from the press.

Erichsen, when the foot is so crushed that one cannot with accuracy recognize the living from the dead parts, envelops the entire foot in a carbolic acid solution—1 to 20, and defers amputation until the exact limit of injury can be defined (Erichsen's *Surg.*, Ed. viii, p. 140). Speaking of Sym's amputation, he says: "That by it, the

¹ Amputations in the Light of Prosthetic Science. By Mr. Chas. TRUAX.

patient is spared an amputation of the leg; that it bears an exceedingly useful stump, which constitutes an excellent and useful basis of support. The results in Chopart's amputation, he says, are entirely favorable to the patient; as by the aid of a purposely constructed artificial apparatus he is able to walk, run, and even dance with little, if any, appearance of lameness. He admits that the heel is drawn up in some cases, but quotes from Verneil, who alleges that this complication is almost never seen, except in cases of amputation for disease and that it existed before operation. He never saw it in a primary amputation. Mansell Moulin (*Syst. Surg.*, p. 1380) says: "That the stump left after a Perigoff amputation in many cases is exceedingly good; but that sometimes the stump will tilt forwards against the ground. This can be obviated by dividing the tendo-achillis and suturing the tendons in the periosteum."

The late Dr. A. B. Watson, was not an advocate of Chopart's amputation. In his valuable work on "Amputations and the Principles on which Artificial Limbs should be Constructed and Worn," he there sets forth in his usual clear and energetic style the reasons why he took this position. He is the only author whom I could find, against the medio-tarsal amputation.

In the hand, our aim in amputation or treatment of a limited disorganization is to be guided mainly by two principles: first, to spare what we can, for prehensile purposes, and secondly, for its æsthetic effects. The foot not serving the same physiological function of the hand, and being always covered, the homely, awkward shape of the stump we care nothing about; as the strength and utility of the limb alone concern us.

But, since I have given this subject serious thought and careful study, the question has often occurred to me, "why do those medio-tarsal, or tarsal amputations at all?"

In an active traumatic surgery of more than ten years, and of a mixed pathological and traumatic surgery of the same time, I have never seen a single case which, to my mind was appropriate for a medio-tarsal amputation. I have never performed one. But, there is one principle which, in my practice, has been rigidly adhered to in traumatic disorganization of the upper and lower extremities alike—in any part of them, viz.: first, never to do an immediate primary amputation of any kind; and, secondly, to spare every particle of healthy bone, whenever situated, that we will have ample integument to cover.

The medio-tarsal or the tarso-metatarsal in the subastragaloid amputations all leave a very large stump surface, which necessitates a very extensive area of integumental flap to close in. At the tarso-metatarsal, and in the medio-tarsal junctions, we must have the entire plantar surface up to the webbing of the toes for a flap; else our amputation fails. Now my experience has been, that in those traumatism in which so much of the plantar surface is intact that it preserves its vitality to the metatarso-phalangeal articulations, the metatarsal bones above though extensively fractured, as a rule may be preserved; hence, the body of the foot spared.

It is true, that in not a few cases of smashes of the foot, we are sometimes obliged to make an extensive sacrifice of healthy bone-tissue, when a slough of the skin has over a large area laid bare the underlying parts.

Again, I may repeat that the fundamental principles on which my line of treatment, in all mangle lesions of the foot and other parts is based, has been to spare everything which will survive with comfort to the injured. This principle rests on the humane assumption that we have no right, in order to carry out a theory, to sacrifice a particle of living tissue. If for cosmetic or purposes of increased utility the patient, of his own will, desires a secondary operation after the primary lesion has healed, it may any time be performed. There are other cogent reasons which support this line of action. Among the most important comes the medico-legal aspect of the case.

In the event of a civil suit for damages after certain amputations on the foot the question might, with good reason, arise: would not the patient have had a much more comfortable and useful stump and stronger limb, if no artificial amputation of any kind had been performed?

My own experience in a large number of these cases would incline me to answer this question in the affirmative. For it is a custom with me, which is never deviated from, not to remove any tissues in mangle lesions of the foot, which have not been totally destroyed, by the "traumatic amputation." If, as the mortified parts are detached, the demarcating line is formed and the soft parts retract, parts of living bone project into the hiatus, they should be resected far enough back to permit the integument or cicatrix to fall in, easily over, and enclose them.

A SHORT SYNOPSIS OF TWELVE CASES OF TRAUMATIC AMPUTATIONS ON THE FOOT, WITH ONE ARTIFICIAL AMPUTATION.

With two exceptions these cases all occurred within the past three years. Nine were hospital cases and three in private practice. All were males:

Case 1.—Patient 32 years old, middle size, in good health. An athlete and prize fighter. Crushed, as he was trying to mount the front platform of a street car.

Immediately after the accident he was taken up by an ambulance and brought to one of our principal hospitals. Here, when the foot was examined, he was informed that it must come off above the ankle joint. Took fright at this statement. Sent for a carriage and was brought to a hotel, to which I was called, about two hours after the accident.

On examination of foot it was found that the car wheel had passed obliquely over the outer aspect of the foot, crushing in and extensively shattering all the metatarsal bones, except those of the great toe, and laying widely open the soft, overlying parts.

The foot was thoroughly cleansed, all the bleeding points secured; but nothing cut away at this time. Limb placed in sterilized, copious dressings, bandaged lightly and placed in an elevated position.

There had not been much local pain, little temperature, or constitutional disturbance; the dressings were not disturbed, for four days. At this time everything was removed and parts exposed. All the toes dead except the great one. Great swelling in the toes; and tissues below the swelling black, bloated and bedewed by a free ichorous discharge. There was no foulness to the odor of the discharges. The body of the foot, on the dorsum and plantar surfaces seemed healthy.

Dressings now changed every day. The line of demarcation in a week well outlined. The necrotic tissues by the tenth day were becoming rapidly detached. On this date those parts which merely hung by tendons were cut away. In two weeks all the slough had come away, when it was found that the damage to the foot was limited to the metatarsal bones; all except the first destroyed to a point close to their articulations. The difficulty which now confronted us, was to fill in the breach occasioned by the loss of substance. A medio-tarsal amputation would not do here; hence, it must be an amputation above the ankle joint as had been suggested by the hospital surgeons. But the great toe served no useful purpose where it was; and accord-

ingly adopted that invaluable procedure of M. Guernon-pré of Lille, of *dismounting*, as he designates it; the toe was split along its inner aspect, over its entire length, the nail removed with its matrix, and all the phalanges and its metacarpal bone. Now this large vascular flap was turned into the hiatus, sutured and firmly bandaged. It filled the gap perfectly. Dressings removed in four days. Union entire. After this dressing there was little else to do. He made a rapid recovery; and now with the aid of an artificial apparatus he walks with scarcely a limp. This case and several others of a similar description were exhibited before the surgical section of the New York Academy of Medicine in the winter of 1892.

Case 2.—A young German editor, while dismounting from a train while in motion on a dark night, mistook his footing and had both feet crushed by the wheels. With one, the flange of the wheel cut it in two, crossing over it in a sharp diagonal direction, crushing everything through from the astragalo-scaphoid-articulation and the cuboid bones. This was cut through as sharply as with an ax; the tendons flattened out and torn, yet holding on to the mangled parts anteriorly. This was the left leg. With the right, the damage was not so extensive. Here, the wheel crossed obliquely, clipping away three of the toes and crushing through their metacarpus.

The wounds in this man's case were treated as the preceding. After eleven days the damaged structures were pretty well separated from the healthy. With the lesser injured limb the jutting ends of the uncovered metatarsal bones were cut away with the *rougeur*, sufficiently far back to permit ample covering as the wound cicatrized. About one-third of the surface of the foot was lost on this side. At this time on the left side we had a large, open, healthy granular surface of very large diameter, with nothing to cover it. The heel and ankle joint were perfectly healthy. This man was but 32 years old, in good general health.

Now the question arose as to what was to be done with his right foot, or what was remaining of it?

After a consultation it was decided that as the exposed surface was so large, grafting would be impracticable, and hence, that a Syme's amputation would be the operation which would provide the most useful stump for support and locomotion.

This operation was performed, but on the third day, as it was found that the flap sloughed, an amputation of the leg was performed at the junction of the lower with the middle third. From this he made a good recovery. Two months after, prosthetic appliances were adjusted and he commenced to walk.

Now this was a typical case in which to test the comparative value of a partial foot amputation on one side and its complete sacrifice on the other, at the point in the leg indicated. What has been the result? Simply that there is no comparison in the relative value of the limbs.

It was months before an artificial limb could be borne on the left side. The stump was sensitive, requiring soothing applications and special treatment, and rest at intervals for months; though it had a loose, simple integumental covering. This reminds me that the current teaching that an integumental covering makes the best stump is a fallacy, for I have seen too many cases in which scar tissue when clothing the end of the bone gave the least annoyance and the most comfort. This gentleman with his right foot, which had suffered but a partial amputation, and was well fitted with an artificial contrivance had every comfort.

My only regrets are that I did not make a further effort to spare the other ankle joint, for I now feel that it is only after every other expedient is exhausted we are ever justified in sweeping away this powerful articulation.

Case 3.—Patient a young man of 20, in good health; three months previously in Savannah, Ga., had his right foot cut off through the anterior and middle thirds of the plantar arch by an accident in a saw-mill. An amputation of the entire limb was advised. He would not consent to it, and he came on to New York. In the first institution that he entered here, the same thing was recommended as in the South. But he refused again, when, as he had no means, he was advised to enter the almshouse, as he was a cripple. He went to an uncle in this city who brought him to the Harlem Hospital. On entrance he was hobbling about on crutches. The whole end of his foot was an open ulcer, very painful and freely discharging a sero-purulent material. The edges of the integument were turned in, but there was not enough tissue to cover in the now necrosed ends of the metatarsal bones.

Patient prepared for operation. Limb scrubbed, disin-

fected and swathed in sterilized gauze dressing. He was now etherized. All the diseased protruding portions of bone removed with gouge and *rougeur*, until a healthy, hard, vascular surface was reached. Surface ring of the overlying, torpid integuments cut away. A flap of tissue on opposite thigh partially detached, foot brought up and fixed there by gypsum dressings, with the autoplasmic graft imbedded in the gap. The whole of the graft did not take, but enough contracted adhesion to materially aid in closing in the opening.

Six weeks after this operation patient left the hospital with a useful and serviceable stump of a foot. As he had not walked on it for so long the sole was quite tender; but with the aid of a stick he got along very well. I saw him six months later, when he was working in a livery stable. Now walked well without crutch or cane. As yet, is not able to purchase artificial support. In this case, after final bone resection and union of the integuments nothing of the osseous parts remained in the foot except the tarsal bones. There was never any tendency to retraction of the heel.

Case 4.—This patient, a young man, 26 years old was injured by having his right foot removed by a trolley car wheel. Those electrical cars, because of their increased capacity and carrying part of their motor power within them, are very heavy.

All the toes of foot crushed into a pulp. The distal ends of all the metatarsal bones ground off. It was impossible to define the vital line at time of entrance; hence, we pursued our usual course in this case of traumatic amputation as we do in all others of any description, i.e., we effectually subdued all hemorrhage, dressed, adjusted the limb and waited. After ten days line of demarcation formed, when a large charred, dry plaque of dead integument was thrown off the plantar surface of the foot. Now protruding ends of metatarsal bones removed with the *rougeur*; when the usual dressings were applied.

One month later breach entirely healed, and patient discharged. This man I saw recently. He walks with scarcely a limp and pursues his ordinary occupation of a cigar box maker.

Case 5.—This patient was a boy of 6 years of age, who had sustained an intracondyloid fracture of the left femur. The popliteal artery was destroyed; and before collateral circulation had become well established, all the toes of the foot below, and the soft parts as far back as the tarso-metatarsal articulations, gangrenous.

The sore became infected and the faculty physician advised an amputation above the knee joint; but he has steadily progressed towards recovery; the foot and leg have been preserved, and give promise of doing good service in the future.

Case 6.—These two cases may be considered together. Both were injured by horse railroad accidents. Each had sustained damage to one foot in about the same situation, viz.: at the tarso-metatarsal junction. In both, the same tentative course was pursued, with the result that each—some ten years after injury and one, one year, walks without lameness.

Case 7.—Two years ago a carpenter of middle age came under my care, who had his right foot smashed by a falling piece of lumber. A typical traumatic amputation had been effected through the posterior third of all the metatarsal bones; but, there was a singular escape of the sole of the foot, so that when the slough was thrown off and the ends of the bones resected it was utilized for a flap to close in, the parts. Since the wound healed, by the aid of an apparatus he has made his living at his trade; some stiffness in his gait, but he has a useful supportable stump.

Case 8.—This case came under my observation during a hasty examination. It is incorporated here because it belongs to the family under consideration, though it was not treated by me.

Patient was a salesman three years before in Ireland; had his left foot crushed by a railroad accident. Sir Wm. Stokes of Dublin performed a Chopart amputation on the foot. The result was ideal. He walked without a limp; had a smooth, soft comfortable stump; not the slightest retraction of the heel, and wore no apparatus.

Case 9.—Patient a man of 64, diabetic; had incipient senile gangrene of toes of the left foot; in great pain. He had been in hospital in New York, under surgical treatment; but the persistence of the glycosuria stayed the hand of the operator. Went home to Brooklyn, N. Y., at which place shortly after leaving the hospital, I performed a medio-tarsal amputation on diseased foot. Gangrene set in promptly after operation, when I performed a second amputation at the

junction of the lower and middle thirds of the leg. This wound healed promptly and an artificial limb was subsequently worn; when he returned to his trade of stone-cutter. One year after had gangrene in opposite foot, from which he succumbed.

Case 10.—Patient, a young man, had his foot crushed in an elevator. The foot was tampered with by improper treatment until a general cellulitis and an osteomyelitis occupied a considerable part of it.

When called in to see the case, an immediate amputation was advised, as gangrenous processes were rapidly extending into the ankle. A species of modified Chopart was performed, which had the desired effect in arresting pathological processes.

Wound healed kindly. By the aid of an apparatus he now walks without a limp, and congratulates himself that his whole foot was not amputated.

Case 11.—Patient a hostler; had his foot injured by being crushed under a horse's hoof. Developed suppurative osteomyelitis and sent to hospital. An amputation of the entire foot was recommended. He would not consent to this and was sent home. Here I saw him.

With him, all the toes had to be removed, three of the inner metatarsal bones, and about one-half of the shafts of the two outer.

Plenty of healthy soft parts to cover in the openings. Parts readily healed. The result has been entirely satisfactory. He never could afford an artificial apparatus, and thus far, now nearly two years, has managed to follow his usual occupation without any serious drawback. He is but slightly lame, and being obliged to stand a considerable part of his time, the resulting stump is severely tested.

Case 12.—This I record as one of Chopart's amputations which went badly. The patient, a hearty middle-aged man had his left foot crushed by being struck by a missile of flying rock from a blast. The attending surgeon performed a medio-tarsal amputation. The wound healed by first intention in about three weeks.

He came to me six months after the original amputation, telling me that his limb was useless, as it could bear no weight whatever. After consultation I amputated what remained of the foot and the leg in its lower third. He now wears an artificial limb with comfort.

Case 13.—This patient was not operated on by me. But his case is of interest as showing what can be accomplished with a Chopart amputation with a properly adjusted apparatus. He was 24 years old. Two years before had a Chopart amputation performed for an injury to the foot. He came to me for treatment of a varicocele, when I discovered that he had an artificial apparatus on his leg, and he showed me the stump after completion. He informed me that unless he informed people they never would suspect anything wrong with the limb at all. He said he went to several balls during the past winter and went through all the dances without the slightest trouble.

He was a drummer for a jeweler's house and almost constantly on his feet. Without the artificial elastic adjustment which he wore, he said walking was very painful and difficult.

To my mind one good reason for making amputations low down near the ankle joint in healthy young subjects is, that should a tender, sensitive or painful stump result we can go up with a second amputation, and yet have an ample length of the leg kept for the comfortable adjustment of an artificial limb. When the amputation is at the junction of the lower and middle thirds, a second amputation is much more dangerous to life, and will leave so short a stump, it may interfere with effective prosthesis. How many of those mid-tibial amputations do we see in which the stump can tolerate no pressure of any kind, and locomotion is possible only by bending the knee and strapping a sort of crutch-shaped apparatus to it.

It may be affirmed then with every argument that sound logic can advance, that in lesions, traumatic or pathological of the foot, the principle should be enforced of sparing any portion which will preserve its vitality. Should it be discovered later that, as an aid to prosthesis, another section will render locomotion more effective and comfortable it may be made, but not without an understanding with the patient that this latter expedient may not improve his condition.

DR. QUIMBY of New Jersey—In 1877 I read a paper before this Association describing an operation which is a modification of Pirogoff's and superior in that I do not disturb the cartilages on the extremities of the tibia and fibula. A

great many injuries to the foot are followed, very wrongly by amputation. In this operation I make a curvilinear incision over the anterior portion of the foot, disarticulate the astragalus from the os calcis, saw off the anterior portion of the os calcis, and turn the sawed surface directly up against the cartilaginous surface of the tibia. In many cases I get union by first intention. The whole weight of the body can subsequently be borne upon the stump without the patient limping. There are now in Jersey City two cases still walking about upon whom I operated in 1877, and to see them you would not know that there was anything the matter with the foot, although of course there is no spring to the step. This method has an excellent advantage in the case of a child or youth in that the growth of the bone goes on, as is not the case after a Syme's or a Pirogoff's operation. It is such a simple operation that any surgeon can do it, and it will result in great benefit to the patient. We should not think so much of the beauty of an operation, but of the results. We want conservatism in surgery, and this is one of them.

DR. MACLEAN of Michigan—There is some force in Dr. Quimby's assertion as regards the danger of causing a shortening and a defect in the symmetry of the limb. It is a misfortune if we have to remove the epiphyses in the case of a child, but my experience is that if Syme's operation be properly done there is not much arrest in the growth of the limb; we remove only the cartilage not the epiphysis. I give Dr. Quimby full credit, but so far as I know his operation has had only a very limited trial and I am afraid that in some of those cases there is danger of an inflammatory process taking place in the articulation. Syme's operation has been long before the public and has been thoroughly tested. I have done a large number of them and my experience is that I would be very slow to abandon it for any method yet suggested. When accident necessitates an operation it is the surgeon's duty to do the best he can and he may not be able to do Syme's operation, but when a choice is left it is my experience and that of the profession all over the world that the argument is overwhelmingly in favor of the Syme's. In tubercular disease it is immeasurably ahead of all because it leaves behind nothing to endanger a recurrence of the disease. In conclusion I will say that I have thought the Syme's operation the proper one for the ankle, but if it is to be above the ankle it is better to go near the knee where you will have a choice of two methods of after treatment—that is with an artificial limb or the knee can be bent and not have a long projection behind.

DR. SOMERS of Wisconsin—I agree with Dr. Quimby in all he says; a mucous and a cut surface will unite; it will be found infinitely better than will two cut surfaces.

DR. LISK of Indiana—Another element should enter into the consideration of this subject as well as conservatism; a life is always worth more than a limb. I have had some experience in traumatic surgery, both during the war and afterward in the railroad service, having performed in all over 400 amputations. During the war we abandoned operations about the foot. I remember at Murfreesboro an operation by a regimental surgeon upon the foot of an officer. Healing took place nicely but afterwards, when he went into field service, in riding horseback, irritation of the stump was occasioned by pushing the foot into the stirrup to such an extent that the sufferer was compelled to leave the field, return to the hospital, have an amputation made higher up and obtain an artificial limb.

DR. ROXAN of Kentucky—I have always insisted that all of these operations on the foot, Sir Francis Syme's or Pirogoff's—have their distinct field. Some of my associates insist upon amputation above the ankle; I admit that each of them

should be done according to the indications. I believe there are good results from all of them, but it must be remembered that in Chopart's particularly we are liable to get an ulcerated and an elevated heel. I had never heard of Quimby's operation and am exceedingly impressed by it, and we would certainly get a lengthening of the limb. It will evidently be of value in selected cases. I admit that it is unnecessary in Syme's operation to approach the epiphyseal line, but this line can easily be overreached in young children. Of course there is no excuse in an operator so doing but such a thing will and does happen.

Dr. NEWTON of New Jersey—One case of my own was sufficient to demonstrate to me the advantage of extreme conservatism. A boy about eighteen years of age had both feet frozen. About two weeks afterward I performed a double Hays' operation and kept the patient in bed three months. That was about a year ago and when I last heard from him he was doing well and earning his living at manual labor.

Dr. COOLIDGE of Chicago—One important element that should be recognized in the consideration of this subject is that of the expense of procuring an artificial limb and keeping it in order. For a poor man this is quite an undertaking.

Dr. FERGUSON of Winnipeg—I wish to mention the indications for operations on the foot and below the knee when necessitated by frostbite.

We have a good many cases of freezing, up in our country and amputation is frequently necessary. I have had considerable experience in that line in the past ten years and I always save all I can in front. Hays' and Lisfranc's operations have proven very satisfactory to me, and when I cannot do these I usually do Syme's and have had no occasion to regret it. Dr. Quimby's operation impresses me favorably; it should take a place in surgery, especially in cases of frozen feet and I shall try it.

Dr. MANLEY—My paper was presented chiefly for the purpose of bringing out discussion on the subject. My experience has convinced me that to sacrifice the ankle joint is a very serious matter, and that it is very seldom necessary in traumatic cases. I am not familiar with Dr. Quimby's operation I must confess, not having seen it in the literature of the subject. In reference to the point of preserving the patient's life, I would say that in traumatized conditions of the foot a primary operation should not be made, but we should wait for the line of demarkation to appear.

There is no similarity between surgery in war and in civil life, and what we would do in the one should not be taken as a criterion for proceeding in the other.

The matter of the expense of an artificial limb is a very important point, but no more than one in ten cases ever wear an artificial limb.

ANALYSIS OF ONE HUNDRED AND THIRTY-THREE CASES OF HERNIA OPERATED UPON FOR THE PURPOSE OF RADICAL CURE.

Read before the Section on Surgery and Anatomy at the Forty-fourth Annual Meeting of the American Medical Association.

BY HENRY O. MARCY, A.M., M.D., LL.D.
BOSTON, MASS.

It may be possible that I owe the Surgical Section of the American Medical Association an apology for inviting their attention again, at so short an interval, to the subject of hernia. However, it is not for the purpose of repeating my views which I have so recently presented in extenso to the profession, but the rather that I may analyze a little more carefully

the results of my personal experience, and also that of the distinguished surgeons who have made valuable contributions upon this subject since, and briefly draw therefrom the deductions thus afforded. In my work¹ published last summer, I gave a brief review of 112 operations with the history of seventy-eight cases which I had been able to keep under observation. Of these, there were reported four relapses, and of the four, three had returned within six months from the time of operation. I have re-operated upon two of these with a perfect result. Since this published report I have operated for hernia in twenty-one cases; thirteen were right inguinal, five left inguinal, two femoral, and one omental. In two cases there was a limited breaking down of the wound. Number 133 was evidently owing to infection, and is worthy of brief comment:

Mr. F., aged 23; a strong, vigorous man, but had suffered for years from an irreducible scrotal hernia, made much more painful from the attempt to wear a truss. Section revealed that it was of the congenital variety, and the omentum was firmly adherent to the testicle nearly its entire length. Separation proved impossible without injury to the testicle, and the omentum was sutured across and divided. The operation was conducted in the usual manner, a new tunica vaginalis testis being formed. I dissected the sac to its base, sutured across and resected; closed the parts as usual. Skin wound healed primarily, but ten days after operation there was a slight supuration at the upper portion of the wound. The testicle was not painful, no edema of the scrotum, and the patient was almost entirely free from suffering. Otherwise, the recovery went on satisfactorily.

Number 122 is interesting in that the hernia was of long standing, and breaking down of the tissue followed from the greatly thinned and devitalized condition of the abdominal wall. It was of the irreducible scrotal variety, about the size of an infant's head, incapacitating the patient from active labor. The omentum was everywhere adherent to the sac, and the sac to the surrounding tissue. Little over one pound in weight of deformed omentum was removed. The sac was painstakingly dissected out and the injured, shreddy tissue was cut away. I closed the wound in three layers with the buried tendon suture, sealed with iodoform collodion as is my habit. The patient made seemingly a rapid recovery until quite two weeks later, when the superficial tissues softened in the upper portion of the wound with slight discharge of shreddy material. This was evidently owing to the defective vitality of the parts and not to infection. During convalescence supervened and nearly six months later the report is that the parts are firm and strong.

Number 130 is also worthy of brief detail: A moderate-sized right scrotal hernia has long given suffering imperfectly retained by a truss. An undescended testicle is easily outlined on the left side at site of the internal ring. Otherwise the patient is a healthy man, aged 42, married with a family. I made a new tunica vaginalis testis in the scrotal tissue, having freed it from its attachment at its former site and pulled down the cord. The transplanted testicle was stitched to the base of the

¹The Anatomy and Surgical Treatment of Hernia. D. Appleton & Co.

scrotum with a tendon suture, passing through the connective tissue of the cord just above the testicle. Sutured the newly formed canal closely upon the cord and closed the hernial opening which was direct, admitting the tips of two fingers, from below upward. The reconstructed canal was of normal length, and the wound was sealed with iodoform collodion. Primary union supervened in both wounds except a slight opening at the base of the scrotal wound of the left side, from which in about two weeks a little broken down connective tissue was removed. Testicle gives no suffering in its new situation and the result is very satisfactory. The history of the other cases contained nothing noteworthy.

During the year I have re-operated upon two cases which belong to the series reported last year as cured. As far as now known, there have been six recurrent hernia in the 133 operations and no deaths. No truss has been advised with perhaps a single exception, where the abdominal wall was greatly thinned with slight bulging of the side, but without recurrence of the hernia. A considerable portion, quite one-third of the number have been under observation for ten years or more.

The recent literature of surgery has been exceptionally replete with reports of very many cases, almost without mortality. Perhaps the most noteworthy of the European contributions upon hernia is that of Professor Kocher of Berne.² In his first forty-two cases, covering the period from 1875 to 1886, the result showed a permanent cure in 83.4 per cent. with a recurrence of 16.6 per cent. Of the relapses the inference was that in four out of five of the cases, the hernial ring had not been securely closed. In his more recent report he was able to trace the history of ninety-four patients from the 119 operated upon.

His method of operation briefly described is as follows: Isolation of the sac to its very base with as little damage to the external structures as possible. The cord is not displaced from the canal. The index finger of the left hand is introduced into the canal and a small opening is made laterally from the posterior inguinal ring through the aponeurosis of the external oblique muscle. A pair of slender artery-forceps is passed through this opening and out through the external inguinal ring. The hernial sac is grasped and drawn upward through this opening and energetically twisted. It is then carried down upon the anterior wall of the unopened inguinal canal and held thus twisted by the forceps. "The sutures are passed above the twisted sac, through the oblique fibers of the aponeurosis of the external oblique muscle and the underlying muscular fibers of the external oblique and transversalis through the hernial sac itself, including the ligament of Poupert beneath it. These sutures, five to seven or more, bring together also the pillars of the anterior ring, to which the lower end of the hernial sac is fastened." The modification of procedure peculiar to the author is yet another way of utilizing the peritoneal sac, not very unlike that of Dr. Bryant of New York, which he finds may be recommended in a limited number of cases.

Kocher assumes that it is safe to conclude that four-fifths of all patients operated upon may be rad-

ically cured, that the use of the truss after operation should be exceptional, that not the slightest excavation in the peritoneum about the internal ring should be permitted to remain. He writes: "We know positively enough from our statistics, how a method which in itself is technically perfect, in case of infection amounts to positively nothing." . . . "In this manner a firm and solid pad or roll is secured over the entire length of the inguinal canal, which forms a better dam against the pressure of the intestines than an implanted patch of skin or peritoneum." He uses interrupted buried silk sutures. He emphasizes as of the first importance, the complete obliteration of the infundibulum depression of the peritoneum by the closure of the neck of the sac. It will, however, be seen that he makes no effort to reinforce the tissues posterior to the cord, or to close the deepened border of the internal ring, and thereby restore the obliquity of the canal.

Dr. G. R. Fowler of Brooklyn,³ reviews carefully the subject of operative measures for the cure of hernia and gives the results in thirty-three operations, in which he has used a method of closing the wound of his own devising, "cross suturing" with silkworm gut.

He disposes of the sac by a free dissection quite to within the internal ring, and prefers to close it as the "ideal method" by a line of through and through sutures, in cobble-stitch fashion and resects it. The sac is held tense by an assistant and no portion of it is to be permitted to occupy the internal ring. Dr. Fowler strongly advises the method of Bassini, modified by Postempski in the disposition of the cord. This is to displace the cord towards the median line after having completely freed it from the canal, and attaching it by loose loops of catgut to the abdominal wall beneath the skin.

Dr. Fowler prefers to make a new internal ring by the dissection of the aponeurosis of the external oblique, for a distance towards the median line sufficient to permit the placing of the spermatic cord in this its new location, as far as its length will allow. In this he follows Dr. Halsted of Baltimore. The sutures are about three-eighths of an inch apart and a sufficient number are employed to close completely the wound, no drainage being used. The sutures are left in for at least three weeks. The advantages claimed for this method are forcibly put by the author as follows: "Under all circumstances in which a recurrence is favored or produced, the direction of the force is from within forwards and downwards. When the cord is made to assume a course upwards and then inwards before making its descent in the direction of the scrotum, nothing short of the patient standing on his head will favor the entrance of a portion of intestine alongside of the cord and permit it to follow its course. It may be said that the weight of the testicle will tend to straighten the cord finally; this is true to a certain extent, but the manner of placing the sutures here described will prevent this for the reason that the cord is held away from the line of incision by being placed entirely outside of these, independently of the chromicized catgut loops which fasten the cord in its new position; second, the cross-suture secures in the approximation of the edges of the divided layers separately all the advantages of the buried catgut

² *Annals of Surgery*, Dec., 1892, p. 505.

³ *Annals of Surgery*, May, 1893, p. 16-27.

sutures; being removable at will, it presents none of the disadvantages arising from the uncertainty as to the length of time which the latter may be depended upon to hold securely."

Dr. Fowler never permits a patient to sit up even in bed for the first six weeks following the operation, believing profit is often obtained by prolonging the stay in bed a fortnight longer. He considers an operation for the radical cure of hernia which requires a patient to wear a truss subsequently not worthy the name.

Dr. Halsted of Baltimore, in the May number of the *Annals of Surgery*, contributed a valuable article upon the radical cure of inguinal hernia in the male. His method is essentially that of Bassini and consists in a free dissection of the parts; lifting of the spermatic cord out of the canal and closure of the conjoined tendon to Poupart's ligament behind the cord, thus reinforcing the posterior border of the canal by the union of the parts by means of a double interrupted silk suture, "the mattress suture." He makes the incision sufficiently free to expose completely the parts, closes off the peritoneum by a line of interrupted silk sutures and forms a new internal ring. In order that the ring may be made as small as possible, he isolates the vas deferens and blood vessels of the cord and excises all but one or two of the veins. He closes the skin with superficial sutures without drainage and very properly emphasizes the importance of approximating the tissues with as little constriction as possible. More recently he has closed the external wound by the use of a continuous buried skin suture of silk without knots, which is withdrawn after one or two weeks.

In advocating the advantages of his method, Dr. Halsted writes: "To reproduce the equivalent, anatomically and physiologically, of the inguinal canal is I believe impossible. Moreover, we do not know that nature has made the best possible provision against hernia in providing, as it does, for the passage of the cord through the abdominal wall. Bassini's operation, although essentially the same as my operation, is different in some respects. First, Bassini always brings the cord through the muscles at the internal abdominal ring. The point out to which I transplant the cord is determined, as I have said, by the condition of the muscles; second, Bassini does not excise the superfluous veins. I believe that it is advisable to reduce the size of the cord, as much as is practicable; third, in Bassini's operation the cord lies posterior to the aponeurosis of the external oblique muscle; in mine, between this aponeurosis and the skin. To secure for the cord the position which Bassini recommends, an additional row of stitches is required."

Dr. Halsted reports his experience in extenso in fifty-eight cases. His first operation is dated June 6, 1889. There has not been a single recurrence in his cases where primary union supervened. He mentions six recurrences due to imperfect conditions of the wound.

In the same number of the *Annals* is an extremely interesting paper, entitled, "Observations upon the Mechanical and Operative Treatment of Hernia, at the Hospital for Ruptured and Crippled," by Drs. Bull and Coley. It includes the analysis of over 9,000 cases of hernia, or affections simulating hernia, up to Sept. 30, 1892. The portion of the article devoted to the mechanical treatment is worthy of

especial study, but is of course foreign to the present discussion. The operative treatment is of exceptional interest, since it marks a radical change of methods hitherto employed at this hospital, and reverses in large measure the previous views of Dr. Bull which have been so widely quoted as demonstrating that operative measures, by whatsoever method attempted in order to effect a cure, usually resulted in failure. During fifteen months, forty cases were operated upon without a death, and in thirty-eight of these absolute primary union supervened. In reference to the suture material I quote: "The kangaroo tendon was also used in nearly all of the buried sutures in the Bassini operation and it has given the greatest satisfaction. The wounds have all healed by first intention, and there has been no tendency to the formation of sinuses as frequently occur when silk is used, and to a less extent with silk wormgut. The kangaroo tendon and the ox peritoneum seem to fulfill all the requirements of a buried suture in a hernial operation." . . . "The propriety of operation has been amply justified by its slight mortality and its incontestable benefit in cases of strangulated and irreducible hernia. Even after relapse the majority of these patients find themselves better than before the operation. The reappearing protrusion is smaller than the original rupture and a truss is worn with greater comfort. An exception is to be noticed only in a few cases of relapse after the open method, or in those where, after other procedures, prolonged suppuration has followed.

These considerations lead to the conclusion that all open methods of operation, after which the wound is left to heal by granulation, should be discarded, and that the feature in every operation which is to give satisfaction should be rapid primary union. If this latter statement be accepted, we should further discard all methods in which foreign bodies, even though aseptic, silk and silver wire for instance, are buried in the wound."

In a letter from Dr. Coley, assistant of Dr. Bull under date of May 23, he states: "I feel greatly indebted to you for the kangaroo tendon suture and your efforts to make known its virtues. It seems to be the ideal suture for hernia. I introduced it at the Hospital for Ruptured and Crippled, and afterwards persuaded Dr. Bull to use it in the New York hospital. I have operated upon forty-four cases in children, mostly during the last year. With my adult cases at the Post Graduate, I have operated nearly sixty times and have had more than fifty cases of primary union. In fact, have never failed to get primary union where I have used the kangaroo tendon."

The progress of modern surgery is emphasized upon every hand, and the prophesy which I made years ago that the cure of hernia was no exception, is being widely fulfilled. The older anatomists understood quite as well as ourselves that, in the normal relationship of the parts, the inguinal canal is always disposed in a direction at or near a right angle to the intra-abdominal pressure, and in the maintenance of this is the principal reason why all males are not subjects of hernia. It is quite probable that the primal predisposition to hernia is owing to an arrest in the processes of development, which finds its minor expression in the infundibulum process, in the attachment of the peritoneum to the spermatic cord about the internal ring.

When we remember the late period of intra-uterine life at which the testicle descends into the scrotum, and the closure of the peritoneum about the cord takes place, we can easily understand why the parietal peritoneum at the internal ring usually presents a depression. This is often very considerably pronounced in men who have never suffered from hernia, the strong aponeurotic structures which close the internal ring having been sufficient to retain the intra-abdominal pressure at its normal angle. Change, however, the direction of pressure sufficiently to permit the wave-like impulses of the intestinal contents to impinge within the infundibulum, and little by little the barrier produced by the transversalis fascia yields; the internal ring enlarges by a depression of its lower border until gradually the line of intra-abdominal pressure becomes more or less parallel to that of the canal; the abdominal wall gives way under some sudden impulse and the patient recognizes that he is ruptured. That which seems to him a sudden accident is the result rather of a series of causes acting through a considerable period.

If we are correct as to causation, the study of which is of the greatest importance, it becomes as that we consider the essential factors which must enter into the problem in any operation for cure. Although seemingly so simple, it will be found that the equation is a varying one, depending largely upon personal conditions which are ever subject to modifications. These may be grouped in a general way as follows:

First, intra-abdominal pressure; second, the condition of the abdominal wall; the development and tone of its muscles and connective tissue; the amount of fat; the size of the cord, which is oftentimes very greatly increased by enlarged veins; third, the pathological changes in the peritoneum; the sacs containing the hernial tumor which are most varied in character, demanding for the exhaustive treatment of this part of the subject a chapter longer than this entire paper; fourth, contents of the sac; the constituents of the hernial tumor, a condition of almost endless variety of detail which must be passed over without comment.

There is at the present time a general consensus of surgical opinion, that the contents of the hernial tumor having been disposed of, the sac itself must be treated in great measure as a foreign pathological body. Nearly all operators agree that in pronounced hernia it should be dissected free quite within the internal ring and by some method closed so as to minimize as far as possible the infundibulum process. Mr. Macewen, by the use of the whole or a part, proposed to return it within the ring in a manner to press from without inward and forward; to buttress, so to speak, the weakened internal inguinal ring by it. This was a wise disposition of the parts before it was thought practicable to re-enforce in any way the posterior border of the inguinal canal and close from below upward the internal ring. Other operators contented themselves with twisting, ligating, or suturing in order to make tense the peritoneum about the ring. Dr. Bryant of New York, advocated in addition to this, the division of the sac and interweaving it between portions of the abdominal wall, so to speak, using it as a vitalized suture. This, however, proved disastrous in a number of cases, because of the impairment of the vitality of the parts

from cutting off the circulation at the base, which caused sloughing, and it has been practically abandoned by its distinguished author.

I have already given a brief résumé of Professor Kocher's method, who endeavors to utilize the sac in a somewhat similar way by forcibly twisting it upon its base, and when thus twisted to its very end, attaching it by suture to the undivided external abdominal wall. I have been unable to gather from his paper the number of his operations performed after this method which, although carefully illustrated by a series of drawings, is referred to as his more recent device. His results as tabulated are admirable and yet evidently not all performed in this way. It is clearly apparent that, in a very considerable class of hernia, for instance the large old direct irreducible hernia, this method would be inapplicable. By it it is impossible to re-enforce and strengthen the structures posterior to the inguinal canal; to reform the internal inguinal ring; to restore the obliquity of the canal and change the line of intra-abdominal pressure.

Bassini's method is worthy of careful analysis and in all its essentials is not unlike that of mine. It is doubtless true that this distinguished Italian surgeon worked out the problem utterly independently, without knowledge of my labors in this direction, although my first publication upon this subject antedates his by quite fifteen years. By a free dissection the base of the sac is closed in an oblique line quite within the border of the internal ring, the cord is lifted from its canal and held upon the inner side by an assistant. The posterior border of the conjoined tendon is brought in apposition to Poupart's ligament by a line of continuous catgut sutures and closed from below upward quite upon the cord at its exit from the internal ring. The cord is then replaced and the strong aponeurotic fibers of the conjoined tendon and Poupart's ligament are closed down upon the cord by a similar line of continuous suturing, until the external ring is reformed. Suture of the skin completes the operation.

Dr. Halsted's modification of Bassini's operation is different in that the cord is placed entirely external to the rejoined oblique muscle, re-enforcing posteriorly a new inguinal canal by all the strong structures that go to make up the abdominal wall. A new canal is constructed in the tissues just beneath the skin; although thus re-enforced Dr. Halsted thinks it is important to isolate and cut away all but one or two of the veins of the cord in order to reduce its size as much as possible.

Postemski has modified the Bassini method, apparently ignorant of Halsted's procedures, but differing from them in that he forms a new internal ring, one-half an inch or more above the upper border of its former site, and attaches the cord by loose catgut sutures to the connective tissue toward the median line external to the fascia of the great oblique muscle.

Dr. Fowler has still further modified this procedure by carrying the site of the internal ring as far as the length of the cord will permit, an half inch or more, above its former location and reversing the direction of the cord through the abdominal wall in its entrance into the abdomen. Thus the cord is carried forward and inward and held by loose catgut sutures to the fascia of the external oblique muscle, while the abdominal opening, represented by its

former inguinal canal, is obliterated in its entirety and closed by a double row of figure-of-eight silk-worm gut sutures.

History is said to repeat itself. Heliodorus describes an operation essentially like these latter methods under discussion. After him the evolution of the problem went on little by little, until it was safely worked out by the elimination, not alone of the inguinal canal and the redundant veins of the cord, but also the entirety of this troublesome complication was removed, and cures were easily effected at wholesale; castration being first performed, although the operators were in blissful ignorance of our troublesome painstaking antiseptic technique. In tracing the results of these innovations it is an interesting, although I grant a subordinate question, to ascertain the integrity and usefulness of this organ oftentimes overestimated in its physiological value.

Levity aside, it is important to follow the deductions which should guide us in the safe solution of the problem, and this to most minds would seem answered in restoring the parts to their normal anatomical and physiological relationship. Thus I assume that the inguinal canal, normally developed is long enough to make the internal abdominal pressure at a right angle to its axis, and when this is effected little if anything further can be gained by the transplantation of the cord to a higher point through the abdominal wall. The upper border of the internal inguinal ring remains a sure and safe landmark for the fixation of the spermatic cord.

Mr. Cooper pointed out the extraordinary reinforcement of the transversalis fascia which normally fixed the internal ring and formed the posterior border of the inguinal canal. This is usually re-enforced also by a portion of the transversalis muscle. The great lateral protecting walls of the canal, as every anatomist knows, are made up, upon the inner border by the conjoined tendon, and upon the outer by Poupart's ligament. The thick fascia from the oblique muscles covers over the cord, making its external envelope. The lower edge of these reflecting fibers forms the external ring. Thus the cord lies easily movable in a fixed, firm canal, although its strong borders are subject to a considerable variety of changes.

It seems that the solution of the problem for the cure of hernia must be the restoration of the parts to their normal standard if possible. This was the problem which I set before me for solution quite twenty years ago. In order to accomplish it, it is clearly evident that the peritoneal sac must be entirely removed. Since the hernia has its origin in the deformation and shortening of the posterior wall of the canal, it seemed equally clear that some method must be devised for its reconstruction and restoration. This demanded a free dissection; first to deal properly with the contents of the sac; second, to free quite within the ring and eliminate this deformed peritoneal pouch. This having been effected it was a natural deduction that the posterior wall of the inguinal canal must be reformed, but to accomplish this, suture material must be used which could be buried in the tissues and there remain undisturbed. If arteries could be ligated with catgut, and the subsequent intervening processes show the constricted vessel surrounded by a newly-formed connective tissue band, replacing the ligature, the inference was that this material might serve a similar

purpose when applied for closing the internal ring and reconstructing the posterior wall of the inguinal canal. This method I put in practice more than twenty years ago and published the results, being the first to advocate the advantages derived from the use of the buried animal sutures.

Having reformed the internal ring and the posterior border of the canal, there only remained the closure of the wound in order to effect the complete restoration of the parts to their normal relationship. This I have long believed is best effected by approximating the tissues in an even layer by means of the double continuous tendon suture.

To master the problem as thus outlined, the technique of the operation must be conducted with the most careful antiseptic measures, since otherwise primary union is the exception rather than the rule, and when suppuration ensues, the operation is followed not only by an almost necessary failure, but with a possible risk of life. But in these precautions I happily found safety owing to the early personal training received from the great master of antiseptic surgery. Ambitious operators very properly desire to improve upon previous measures, and probably to this more than any other cause, the profession is indebted for a great variety of detail, worked out with much enthusiasm, and a vast amount of clinical experience by which the subject has been greatly enriched.

If the essential factors are as above outlined, and the experience of a multitude of workers under improved methods is accepted as testimony, conservatively the verdict may be rendered; that inguinal hernia in the male can be safely and permanently cured; so safely that the collated experiences which within a year I have myself made of over 3,000 cases of hernia, operated upon, shows less than 1 per cent. of mortality. The results in the hands of these operators have been satisfactory, so satisfactory that from 80 to 90 per cent. are declared cured.

The surgical measures are not severe; the later operators declare that under modern aseptic precautions not more than 5 per cent. of the wounds fail of primary union. Even where cure has not been effected, in a great majority of the cases the condition of the patient has been much improved. The essential factor in addition to those above stated is, a wound in *aseptic* tissues, *aseptically* made and maintained. For reasons which I have emphasized elsewhere, there is great advantage in the use of buried animal sutures, preferably tendon, but whatever the material employed, the tissues must not be over-constricted, since approximation and retention at rest of the structures as little devitalized as possible are important factors in securing primary union in even an aseptic wound. The only dressing which seems entirely adequate and which also approaches the ideal, is the iodoform collodion seal which necessarily prevents infection entering the wound, while drainage is dispensed with and no sutures have to be removed.

I have no hesitancy in commending to the profession these measures, which generally are applicable to all wounds aseptically made, as the really essential factors which pertain as fundamental in the cure of hernia.

In reviewing the recent literature of the subject it has given me intense satisfaction to find that the fundamental principles of the operation, for which

I have so long contended, have been finally accepted and carried into practice by many of the most distinguished surgeons of Europe and America. It is with the utmost confidence that I contemplate the surgical relief which will be given to the great army of truss-bearing sufferers in a not distant future.

A STUDY OF THE RADICAL CURE OF HERNIA BY MARCY'S METHOD.

WITH A REPORT OF EIGHT CASES INCLUDING OPERATIONS.

Read before the Gynecological Society of Boston.

BY ALBERT H. TUTTLE, M.D.

CAMBRIDGE, MASS.

The operation for the radical cure of hernia consists in the treatment of the viscera, peritoneal sac, the opening in the abdominal wall, and the incision of the skin.

Marcy's operation differs very materially from all others in three important respects, viz: the manner of suturing the rings with a perineal needle, taking a shoemaker's stitch; the suture material, kangaroo tendon, a non-irritating, easily made aseptic material which is very strong and capable of resisting absorption and softening for a very long time, sufficiently long for the complete metamorphosis of a plastic exudation into firm connective tissue; the restoration of the obliquity of the inguinal canal by a free dissection of the canal, the elevation of the cord, and the tight closure of the internal ring below it, the dropping of the cord, and the reformation of the canal by drawing together the tissues from either side over the cord with tendon and the shoemaker's stitch.

The advantage of the manner of stitching consists of the close apposition into which it brings tissues, the breadth of the opposing surfaces it affords, and the material thickening it produces in the already thinned-out abdominal wall.

The superiority of kangaroo tendon over silk as a buried suture depends on its being less irritable and less likely to act as a foreign body with the formation of a sinus, and slow healing. Although silk has been used successfully as a buried suture by many masters in surgery, there is evidence of its causing harm at times in an apparently aseptic wound. Catgut is absorbed too quickly unless over-chromicized, and then it may act as an irritant. All sutures which are brought out upon the skin surface for final removal, cannot be compared with the buried material, because they are removed early and leave the plastic exudate without support, then absorption as a rule rapidly occurs. There is none, or but little connective tissue formation, and the old breach may quickly re-form, within six weeks after the primary operation.

Three months after burying the tendon in the second operation, in case 2, it was removed in apparently the same condition as when inserted, and five months after the primary operation, tendon was removed in short pieces, which was pale in color, soft, somewhat thickened, easily broken, but retained its original shape. In both instances the tendon was surrounded by a dense mesh-work of connective tissue which was sufficient evidence of round cell infiltration that had undergone complete metamorphosis.

The restoration of the obliquity of the canal affords

the natural means for strengthening the parts and helps to prevent a recurrence of the hernia.

An incision is made in the skin over the inguinal canal, and in the same direction, between three and four inches in length; the opening is widened by dissecting up with the fingers the skin and superficial fascia on either side, and the cord exposed. The canal is then opened by passing in a director above the cord and cutting with a scalpel the outer wall. It should be opened way to the top. The cord should now be separated from its attachments and drawn out with the sac, which in small indirect hernia is usually found empty and concealed beneath the infundibuliform or fascia propria of the cord, so as to expose the rings.

When the gut is strangulated, the sac is carefully opened with the aid of a director and the internal ring cut above. Gerster's suggestion to cut the constriction from without inward instead of from within outwards is an especially valuable one. The gut is further drawn out and very carefully inspected before it is returned to the abdomen. If the peritoneal coat is smooth and shiny, the gut may be put back into place and the sac, if free from adherent omentum, closed with sutures passed through the neck. When there are adhesions between the omentum and sac they should be broken down and the bleeding points tied with animal ligature. If the omentum is deformed with many adhesions, which when separated leave large raw surfaces, with many bleeding points, or is reduced with great difficulty, perhaps only by enlarging the ring, to sew it off near the abdominal opening with a shoemaker's stitch, so as to include all the vessels, cut away the protruding portion, and close in the raw surface with an over-and-over stitch, may be considered better surgery than the reduction of the mutilated part.

If gangrenous changes have started in the gut, as indicated by the roughened peritoneal coat and greasy sensation to the touch, there are three ways of proceeding; when in a doubtful condition, enlarge the opening in the abdominal wall sufficiently to allow free circulation in the gut, draw further out the strangulated coil so as to expose about an inch that is in a normal condition, pack aseptic gauze lightly about and under the coil so as to prevent the spontaneous return of the bowel, and keep the parts covered with sterilized hot wet cloths wrung out of a normal salt solution. In this manner the changes in the circulation of the strangulated gut may be watched for several hours if necessary, during which time the patient is maintained under ether narcosis, and, if the circulation shows signs of returning in the strangulated portion by a change of the dark color to a paler, redder hue, the parts may be immediately repaired.

When gangrene of the gut has taken place, one can resort to a resection with the formation of an anastomosis by some one of the various perfected methods, or an artificial anus may be made, and the gut sewed into the inguinal wound, or the gut can be fastened with a few stitches to the edges of the opening and after dressing the wound aseptically, left to the care of nature. In either case the prognosis is very bad and depends as much upon the condition of the patient at the time of operating, as upon the severity of the operation *per se*.

The treatment of the sac is a very important matter and, as a rule, the most difficult part of the operation.

ration for a radical cure. It should be dissected out in every case where it is possible to do so except in young children, and all traces removed from the edges of the internal ring. As it lies flaccid in the canal the sac can hardly be distinguished from the elements proper to the cord, and it must be opened near the neck by a careful dissection with a director and scalpel, while one bears in mind that it may be confined in the sheath of the cord, under the fascia propria, then separated all around from the tissues forming the internal ring, and finally stripped off from the cord and other adhesions, from the neck downward, that one may be sure of its complete removal from the hernial canal. The sac should then be freed from any contents, the neck sewed off, the remains excised, and the stump dropped into place. Unless this is properly done there will be a peritoneal pouch that extends into and acts upon the canal every time there is any abdominal straining, very much like a bag of water before the advancing head during parturition, which finally may effect a dilation of the rings and reproduce the hernia. This is due to the fact that if the sac is not entirely separated from the internal ring and sewed off by itself the complete closure of the neck is attended with great difficulty and one has no means of determining that a small pouch is not left immediately beneath the cord, or that a part of the sac is not included in the sutured edges of the internal ring. When the sac is not entirely removed from the hernial canal it becomes a weak point in the operation for radical cure to the hernia and was the probable cause of failure in many of the earlier operations, especially those where the ring was closed without making an incision in the skin.

The final steps of the operation consist in closing the internal ring tightly with a line of shoemaker stitches, starting from the lower margin of the ring and working upward; the closure of the external ring after the cord is dropped back into place, by drawing together the tissues on either side, with an over-and-over stitch, so as to cover over the cord; the approximation of the edges of the skin wound with a continuous buried suture; and the sealing of the line of incision with collodion reinforced by a few fibers of absorbent cotton.

Case 1.—Clarence S., age 41 years, has had an oblique inguinal hernia for twenty years on the right side for which he has worn a truss fourteen years, and on the left side he has had a similar hernia for four years. A short time before operating the gut had slipped down the canal and was returned only with great difficulty under narcosis, and at the time of operating a bunch was found in the groin which proved to be strangulated omentum undergoing a process of supuration.

Operation Nov. 20, 1891. The right side was treated by dissecting up the cord and closing the rings without interfering with the sac; the incision in the skin was repaired in the usual manner. On the left side the sac, including omentum, was tied off at the neck and the canal and skin closed except at the lower angle, where a strand of tendon ligature was brought out to act as drainage.

The wounds healed quickly, all but the open end on the left side, by first intention, and for about four months there was an apparent cure, when the abdominal wall began to bulge at the inguinal rings on both sides and soon afterwards the herniae were reproduced.

May 9, 1892, the case was again operated upon, this time by the method of Dr. Marcy, who closed the rings and wound without dissecting out the sac. Both wounds healed by first intention, but in from four to six weeks after the operation small multiple abscesses formed at the site of the incisions, which would discharge, rapidly heal, and then break down again. They did not appear like ordinary abscesses, but more like a retrogressive degeneration of tissue without inflammatory changes. Treatment by antiseptic cleansing and dressing did not apparently modify the course of this trouble, but as soon as a truss was applied with pressure it immediately ceased. However, before this measure of relief was adopted, the abdominal wall became quite thin from the breaking down of tissue, and although by wearing a truss the patient experienced no trouble until fall, a direct abdominal hernia then developed above the cord, near the upper limit of the internal ring but unconnected with it, on the right side.

To relieve this last trouble a third operation was performed by Dr. Marcy, Feb. 14, 1893. The sac was opened and found to contain adherent omentum; this was freed from its adhesions and a large portion sewed off and removed. The sac was tied at the neck and the stump returned to the abdomen. The operation was finished in the usual manner. Healing occurred by first intention, but at the end of a month the tissue again began to break down the same as after the first operation, and the patient was advised to wear a supporter with a large hair pad. May 1, a small abscess formed and since the patient has been free from trouble, July 15, there was an apparent cure.

Case 2.—An oblique inguinal hernia in a feeble male child 3 months old. Operation Dec. 8, 1891. The cord was raised and the ring closed by a simple over-and-over stitch. The collodion dressing became loosened from the action of urine at the end of two days and was removed, the skin carefully cleansed with a bichloride solution and dried, and a fresh collodion seal applied. Healing occurred by first intention and resulted in a radical cure of the hernia.

Case 3.—Charles G., age 40 years, has had an old oblique inguinal hernia on the left side. Operation Feb. 2, 1892, without excision of the sac. Healing occurred by first intention and it looked for a while as though a radical cure would be the result; in July, however, there appeared a swelling over the ring which seemed to indicate a return of the hernia, but which slowly disappeared, and the patient did very well until March, 1893, when the parts were strained severely by coughing and lifting and the hernia was reproduced.

Case 4.—Arthur B., age 27 years, has had an oblique inguinal hernia on the right side since childhood. Operation June 15, 1892. The ring was closed without interfering with the sac, healing occurred by first intention and a radical cure of the hernia followed.

Case 5.—William S., age 25 years, has had an oblique inguinal hernia on each side for some time and for which he has worn a double truss. Both sides were operated upon for the closure of the ring without the obliteration of the sac, August 1, 1892, and healed by primary union. The right side was radically cured, but the hernia on the left returned and a second operation was performed Dec. 8, 1892. The sac was untouched, but the canal was carefully opened and the ring sewed up tightly about the cord so as to shut off the lumen of the sac at the neck. About six weeks after the operation the patient slipped on the ice, and in the attempt to save himself gave the side a severe wrench, which immediately opened the ring and let the gut down. A third operation was thereby necessitated and performed March 9, 1893. This time the sac was opened, dissected out, ligatured and removed and the smooth edges of the internal ring, very much thickened by the former operations, were scarified and tightly approximated; the canal and skin wound were closed in the usual manner. The parts healed by first intention and there is every reason to expect a radical cure.

Case 6.—Leah G., age 55 years, married but never has been pregnant; has had an inguinal hernia for five years. The sac was a large one, extending as far as the labia and united to the surrounding tissues by firm adhesions. Strangulation occurred Feb. 28, 1893, and continued six hours and till the time of operation. The gut was found deeply congested and of a bluish hue, but with a smooth glistening peritoneal coat. It was returned to the abdomen, the sac carefully dissected out and excised, and the operation finished in the usual manner. Although careful aseptic and antiseptic precautions were used, the wound became infected and healed by a slow process of granulation, which was greatly retarded by the presence of the deep buried suture; however, the case finally recovered and the hernia has shown no evidence of returning.

Since writing the above I have operated on two cases:

Case 7.—Richard S., age 47 years. On the left side he has suffered from a direct inguinal hernia for nearly one year and April 20, 1893, another suddenly developed on the right side. Two days later both sides were operated on and the sacs carefully dissected out and excised, primary union occurred and promises well for a radical cure.

Case 8.—Alley S., age 11 years, was seen July 2, 1893, with a strangulated inguinal hernia complicated by an undescended testicle, which lay directly in the canal. The gut was returned to the abdomen with some difficulty under narcosis and then it was found impossible to wear a truss owing to the presence of the testicle. Therefore it was deemed best to make an incision, sew up the ring, and if possible, bring the testicle down into the scrotum. The tunica vaginalis, testicle and cord were dissected out *en masse*, the ring closed without opening the sac, the tunica opened and its contents inspected, the cord stretched as much as possible, a pocket made in the scrotum by inserting into it the fingers, the testicle and its tunics were partly brought down and the skin of the scrotum was brought up until the parts were nearly in their normal relation and fastened firmly by a suture that passed through the skin at the bottom of the scrotum and the cut edges of the tunica, and brought the bruised surfaces of these membranes into close apposition. The parts healed by primary intention, and as a result of the swelling and subsequent absorption natural to the process of repair, the traction exerted by the scrotum in seeking its normal position and perhaps the aid rendered by the force of gravity the testicle has descended still further, and at present is in a position out of harm's way. It is too early to decide the question of cure of the hernia.

In reviewing the above cases the value of excision of the sac is at once manifest; some cases cannot be cured without this procedure and there is always a great risk of a return of the hernia where the sac is left. The difficulties in cases one, three and five, came from this source; the excision of the sac on the left side in case one, was performed after a ligature had been passed simply about the neck and therefore the adherent omentum was contained between its cut edges and prevented proper union. In young subjects the hernia is usually of the nature of the congenital variety and the simple closure of the ring pinches the neck of the sac together, sets up a local irritation, and promotes the natural obliteration of the communication between the cavities of the peritoneum and tunica vaginalis.

THE NEW TREATMENT OF HERNIA.

Read in the Section of Surgery and Anatomy, at the Forty-fourth Annual Meeting of the American Medical Association.

BY ALEXANDER DALLAS, M.D.

NEW YORK.

In venturing to call your attention to some new points in the treatment of hernia, I assume that you are all familiar with the methods now in use and the unsatisfactory results obtained by them. With our 3,500,000 of cases of hernia in this country—a ratio of thirty cases to every practicing physician—the great importance of the subject is self-evident. Of this large number, over 80 per cent. are inguinal and my remarks will refer more particularly to that variety.

The treatment of hernia may be divided into, first, the palliative; second, the mixed; third, the treatment of strangulated hernia; and fourth, the "radical cure."

First, the Palliative.—The palliative or mechanical treatment of hernia includes all measures used to prevent the descent of the hernial protrusion, but more particularly, the employment of trusses of various descriptions.

To the general practitioner this is, unquestionably, the most important method of treatment, for all cases of hernia are first seen by him and every case of rupture at some period of its existence is subjected to palliative treatment. It behooves him, therefore, to thoroughly acquaint himself with the principles underlying palliative treatment, to recognize its limits and to know how best to secure the most satisfactory results. And, yet, few practitioners know anything about trusses; fewer still know how to apply them, for they carelessly delegate these important duties to the druggist's apprentice or the truss-vender.

Truss treatment, it should be clearly understood, is purely mechanical and its full benefits can only be secured by careful personal supervision. In *congenital* hernia, the exclusion of all foreign bodies from the vaginal process of the peritoneum permits of the contraction and obliteration of the canal which would otherwise naturally have occurred and a cure is speedily effected. In *acquired* hernia, before the sac has attained a separate existence of its own, the pressure of a properly adjusted truss restores the peritoneum forming the sac to its natural situation, the cavity of the sac is effaced and the peritoneum recovers its former polish and elasticity. In this way, cures sometimes take place in adults but can hardly be expected in old people. When the sac has acquired an independent existence, the action of the truss is still purely mechanical. By preventing the entrance of gut or omentum, it places the parts in the most favorable condition to undergo those changes of gradual contraction and obliteration by which all hollow parts of the body adapt themselves to their contents.

To insure success in "palliative treatment," it should be commenced as soon as a disposition to the formation of a hernia is detected. By the prompt initiation of treatment and its judicious continuance under the personal supervision of the surgeon, many cures can be effected where failures are now the rule. This is particularly true in the hernia of childhood where palliative measures are almost invariably sufficient to effect a cure.

Of equal importance is the selection of a proper truss. Some claim that there is no lack of good trusses in this country but a very limited practical acquaintance with them will prove how utterly erroneous this statement is. A good truss should be light, so as not to burden the patient; strong enough to prevent protrusion; sufficiently elastic to follow the abdominal movements; firm enough not to be easily displaced; so arranged that it does not press injuriously upon important organs nor interfere with the movements of the body; and so adjusted that it presses directly over the internal ring and is retained there. This latter is, unquestionably, the most important point in all truss treatment for, if the internal ring be not permanently closed, all hopes of a cure can be abandoned. To make effective pressure there should be a back pad as well as a front pad so as to secure greater accuracy with less pressure. Each hernia should have the truss specially adapted to it; the pad and the spring should be regulated by the case. It should be inspected at regular intervals and the pressure increased or diminished as the case may demand. And the surgeon should remember that after the unavoidable inconvenience of the first few days, any further pain or discomfort is unques-

tionably due to an ill-adjusted or improperly made truss and its continuance is unnecessary cruelty.

A careful examination of the trusses now in use will at once show how imperfectly they meet these indications. Many of them are burdensome by their weight while most of them are unnecessarily strong, causing atrophy of the parts against which they press. They all interfere with the movements of the body and are themselves kept in constant motion, causing painful excoriations of the skin. Not one of them can be *retained* over the internal ring, for they all gravitate downward until they rest upon the pubic bone. As a result, they exercise injurious pressure upon the spermatic cord, giving rise to severe pain and discomfort and inducing a nervous irritability which gradually undermines the system. In all of them, the pressure of the pad upon the external ring is upward and backward, causing ponting of the internal ring, thus predisposing to the constant presence of a bubonocoele and preventing the possibility of a cure.

In an endeavor to overcome these objections, I here show you a truss which I have been using for several years and which has given me more satisfaction than any I have tried. It is light and cool. It rests upon the crest of the ilium, an immovable support, and is not affected by any of the movements of the body. There is no constricting band around the hips to cause atrophy of the muscles and to interfere with every motion. As a result, there is no incessant disturbance of the pad, and consequently no excoriations to heal up. The belt passes down the sides of the abdomen, closely hugging the abdominal walls, thus breaking the lateral recoil of the intestines which causes the protrusion, and acting as an auxiliary to the pad. The pad, itself of hard rubber, is small and somewhat quadrilateral in shape; its lower outer angle cut off to fit into the fold of the groin; its surface flat or slightly concave, to adapt itself to the convex abdominal walls. Running from the center of the face of the pad to its lower edge is a gradually deepening groove which prevents compression of the spermatic cord. The pressure exercised by this truss being applied from above downward, is slight, comfortably borne and directly over the internal ring and upper part of the canal; and it is the only truss by which pressure can be retained there. Another important feature is its ease of application. Once properly adjusted, it can be taken off by the patient and reapplied without fear of displacement, a fact which cannot be said of any other truss with which I am acquainted. As all spring trusses should invariably be removed at bed-time, to be reapplied on getting up, the importance of this will be readily appreciated.

When the truss has been applied the medical attendant seems to think that his work is done. As a matter of fact, the real treatment of the case has just commenced if he expects to obtain a cure. The patient should be kept under the surgeon's supervision and should be carefully examined at regular intervals to assure himself of the perfect retention of the hernia as well as, in the case of children, to provide for their rapid growth. Perfect cleanliness should be preserved, and all causes that operate to prevent or retard nature in her efforts at repair should be removed. The digestion should be carefully looked after. Constipation should be prevented. Vomiting or straining from any cause should be avoided, as

well as excessive bodily exertion, and where the patient is obliged to make any considerable effort he should be taught to support the pad with his hand. The persistence of any of these causes may hinder or even completely destroy all chances of cure directed solely to the hernial protrusion.

At the same time, efforts should be made to develop and strengthen the weakened tissues by massage, electricity and gymnastic movements of various kinds. No spring truss should ever be worn in bed. In most cases it is unnecessary, in all it is harmful. When it is considered desirable to have some support, as in children, the truss should be removed at bedtime and replaced by a "hank truss" or home made bandage.

Second, the Mixed Treatment.—When, after a fair trial, the palliative method of treatment has failed other measures have at various times been tried, but the uncertainty of their action and the temporary character of their results have caused them to pass into disuse. To obviate these difficulties I have devised an instrument which is applicable both in inguinal and femoral hernia. It is simple in its application; it is definite and exact in its results; it is entirely free from danger, and the confinement necessitated by its employment is of short duration. The patient's consent can be readily obtained and its use can be safely recommended in all suitable cases. Finally, its results will compare very favorably with those of other and more dangerous measures. The instrument consists of a head and shaft or handle. The head is flattened and its point smooth and blunted. Its anterior and posterior surfaces and outer edge are covered with fine needle pointed projections while its inner surface is smooth and occupied by a deep groove. The cover of the shaft is movable, and while the instrument is being introduced is pushed forward so as to cover completely all the serrations, and present a perfectly smooth rounded surface. In operating, the parts are prepared in the usual way, while the instrument is rendered thoroughly aseptic by boiling. Twenty to thirty drops of a 4 per cent. solution of cocaine are injected into the field of operation and a transverse incision one inch long is made through the integument just below the external ring. The fascia is carefully separated and the spermatic cord gently lifted towards the inner wall of the canal. The instrument is now introduced, the groove turned towards and embracing the cord and cautiously insinuated through the canal until its point is felt free in the abdominal cavity. The shield is now removed and the instrument slowly withdrawn during which the whole interior surface of the canal, except the portion covered by the groove, is abraded and freshened. The surfaces are pressed together as the instrument is being withdrawn so as to prevent any unnecessary effusion of blood; the external wound is closed and sealed with iodoform collodion; a firm compress is placed over the canal and retained in position by strips of plaster and a bandage; and the patient is kept in bed for a few days until all local tenderness has passed away. By this simple method we at once secure complete agglutination of the walls of the canal and consequently a firm and permanent cure without pain and with only three or four days confinement to bed. A light truss with a grooved pad is then adjusted and the patient allowed to go about. At the end of two or

three months the truss can be discarded, the measures already described being used meantime to strengthen the parts.

This operation is applicable in all recent cases of acquired inguinal and femoral hernia and in all cases of congenital hernia, even of long standing. (It can be used in any case where the canal has not become obliterated by the pressure of the protruding viscera.) In femoral hernia the incision is made over the saphenous opening, the groove is turned toward the femoral vein and, in the after-treatment the leg should be well supported. In the cases in which I have used it the results have been most satisfactory and entirely successful. By the early and judicious employment of these two methods much good may be accomplished and the necessity for radical interference can in the future be largely limited to long standing hernial tumors of large size, associated with adhesions or other complications.

Third, the Treatment of Strangulated Hernia.—The sudden onset of strangulation, with the dangerous and alarming symptoms accompanying it, invests these cases with an interest and importance to the surgeon which cannot be overestimated. Measures, therefore, for its reduction should be immediately adopted and should be persisted in until relief has been secured. Many lives are sacrificed every year by improper treatment and delayed interference. The measures usually employed now are anaesthetics, taxis and herniotomy, although other adjuvants are sometimes used.

Now the administration of an anaesthetic requires the presence of an assistant and it invariably produces more or less depression; while its long-continued use is never free from danger. It is generally followed also by more or less vomiting; and it is sometimes difficult to determine whether the persistent vomiting is due to this or depends upon imperfect reduction of the hernia. In regard to taxis as ordinarily used, its employment is extremely hazardous. All authorities agree that the frightful mortality which now exists in cases of strangulated hernia is directly attributable to violent, ill-directed and protracted taxis, and to the consequent delay in operating. Cold, in the shape of ice-bags, etc., although strongly recommended, endangers the vitality of the already enfeebled tissues, and should never be employed, while hot applications can be used with safety and are far more agreeable and beneficial to the patient. Ether irrigation is sometimes used although Finkelstein, its chief advocate, only claims 53 per cent. of successes in cases of enterocoele; in epiplocele he admits it is of no value.

Even in the hands of experts, the results of all these measures are unsatisfactory; hence, a method of treatment which is free from the disadvantages and dangers of those now in use, which is so simple that any one can use it and so successful that all cases yield to it, must commend itself to the favorable attention of the profession. For fifteen years it has been under test and so far there has not been a single failure. The patient is placed in the recumbent position, the hips raised, the knees bent on the body and the tumor supported. A hypodermic injection of morphia $\frac{1}{4}$ grain, atropia $\frac{1}{16}$ grain, cocaine $\frac{1}{8}$ grain, is at once given in the neighborhood of the rupture, and repeated every fifteen minutes until the patient is comfortable. Meantime, he is made to drink, every five, minutes from two to four ounces of a hot

mixture consisting of: strong black coffee one pint; fluid extract of ergot two to four drachms, and when the pulse is weak and compressible, strychnia $\frac{1}{2}$ grain. At the end of half an hour the rupture has become flaccid and disappears, or gentle manipulation reduces it. I have never had to give the second dose nor have I had to wait over half an hour to secure reduction, while the necessary manipulations never exceeded two minutes. No anaesthetic was ever used or required. If, however, there should be no change in the tenseness of the tumor the same quantity of the mixture should be given during the next hour and, if reduction cannot then be effected the knife should at once be resorted to.

The advantages of this method of treatment are obvious. By the injection the pain and distress are at once alleviated and confidence inspired, an important item in these cases. At the same time gastric irritability is allayed and vomiting becomes much less frequent or even ceases, while the muscular tissues freed from irritation become relaxed. The fact that no anaesthetic is required is a decided advantage, for it prevents the employment of excessive and long-continued taxis and the injuries arising from it. At the same time it obviates the depression which its administration causes. The amount of taxis necessary for the reduction of the hernial tumor, after the administration of this mixture, is so slight and of such short duration that no injury can be inflicted upon the contents of the sac and reduction *en bloc* is impossible, while if operative measures are immediately resorted to on failure of the second attempt no unnecessary delay will be incurred and mortification of the bowel will become a rarity.

The fatal delay in resorting to operative interference is mainly attributable to the fact that many medical men do not seem to realize the dangers incurred by a continuance of the constriction, and look upon the operation as a last resource; and they will not consent to its use until death is imminent. The operation itself is not a dangerous one; the condition that demands it is exceedingly so. Its performance, indeed, is harmless compared to the danger incurred by allowing the constriction to continue. Many have to deplore its performance too late; no one regrets resorting to it too soon.

Fourth, Radical Treatment.—When the milder measures have failed and reasons of necessity or expediency demand further interference, resort to the so-called "radical cure" may be entertained. Unfortunately there is too great a tendency nowadays to resort to cutting under any and all circumstances, but it is well to remind enthusiastic advocates of promiscuous operating that the "radical cure" operation is always a serious one and jeopardizes the patient's life, while the results obtained are not always commensurate with the risks incurred. Under the most favorable circumstances the mortality ranges from 2 per cent. to 5 per cent., and there is no reasonable assurance of a successful result. It should never, therefore, be lightly resorted to nor its acceptance urged upon the patient without proper cause.

Of the numerous methods employed, not one commands the respect of any considerable body of the profession. This is mainly due to the fact that no two agree on the essential objects to be accomplished and the best methods of securing them, as well as to

the unsatisfactory results obtained. A careful study of the different steps in the formation of an inguinal hernia will indicate the only method by which the injury can be repaired. The first step is the bulging or giving way of the parietal peritoneum, the sac of the hernia. Unless checked this gradually insinuates itself into the opening in the transversalis fascia forming the internal ring, causing a gaping or pointing of the lower lip. The hernial tumor then forces its way through the canal displacing the tissues of which it is composed, particularly the outer wall of the canal, and finally appears at the external ring.

The indications to be met to insure success are: first, the restoration of the peritoneum to its normal condition as near as possible, so as to permit of the free gliding movement of the bowels over the surface. To accomplish this the sac should be freed from all adhesions, the peritoneum loosened for some distance around the internal ring and gently pulled down, and the whole length of the sac should then be cut away, not only to obliterate the depression of its surface, but to remove every portion of the peritoneum which has become more or less altered from stretching. For the same reason the cut surfaces should be sutured together so as to present as smooth a surface as possible. When tied in a ligature there is more or less puckering which resists the free movements of the bowels over its surface; second, the pointing of the lower lip of the internal ring should be obliterated so as no longer to invite intrusion of the bowel, while the displaced external wall of the canal should be approximated to the inner wall, the better to support the peritoneum and transversalis fascia. This can be accomplished by passing two sutures parallel with the outer line of the canal as in the Macewen operation, the upper one including the lower edge of the internal ring. In large hernie where the whole external wall is displaced, it would be well to insert two sutures in the same way along the inner line of the canal. In large old hernie, where the internal ring is much dilated so as to be opposite the external ring, it will be necessary to freshen the hardened edges of the ring and suture them together with a continuous double suture. Every step of the operation should be done under the strictest antisepsis; all dead pockets should be avoided as they serve only to collect blood and serum; drainage tubes should not be used, if possible, and every effort should be made to secure healing by first intention, as it materially increases the prospects of success.

To be effectual and permanent, therefore, the operation must produce obliteration of the hernial sac, closure of its ventral orifice and strengthening of those weak parts in the abdominal parietes through which the rupture protrudes. At the same time, measures must be taken to produce an improved tone of the general system, particularly of the peritoneal ligaments of the viscera, by which the power they exert in retaining the organs in their normal position is restored. The more this is accomplished, and the closer the processes of nature are imitated, the more perfect the result; but no operation can be considered a "radical cure" that does not enable the sufferer to dispense with the use of a truss.

Hospital Closed.—The Rivington, N. Y., City Hospital has been closed, the Common Council having refused to vote the money for its support.

STRANGULATED HERNIA.

Read at the Meeting of the Inter-County Medical Society, held at West Superior, Wis., July 11, 1893.

BY WILLIAM E. GROUND, M.D.

SUPERIOR, WIS.

I would like to consider with you to-day the subject of strangulated hernia. Probably the two most important surgical subjects before the profession just now are appendicitis and hernia. Every cemetery contains the graves of patients who have unnecessarily died from these affections.

The frequency of hernia varies somewhat at the different periods of life. It is met with very frequently during infancy. During early life it is generally of the congenital inguinal variety and is more common on the right than on the left side, probably owing to the fact that the root of the mesentery occupies a lower position on the right side. The greater proportionate length of the mesentery in infancy greatly favors the occurrence of hernial protrusions of the intestines during that period of life. Mr. Lockwood has shown that the mesentery in the infant measures one-fifth the length of the body, at puberty one-eighth and in adult life one-ninth. After early life the frequency of hernia diminishes rapidly, until after puberty. From puberty the number grows larger as age advances until at the age of sixty, it has been said that one in four or five are ruptured. Taking the human race as a whole, it has been estimated by surgeons of large experience that from one-sixteenth to one-eighth are afflicted with this complaint. While it is generally admitted that hernia occurs most frequently in the laboring classes, there are many conditions in those of more sedentary habits which must necessarily favor the escape of the various abdominal viscera.

Among the factors operating and in a general way favoring hernia may be mentioned heredity. Not that there is any direct transmission but rather the conditions that predispose to it, viz., the weakness of abdominal wall, openness of the rings, long mesentery. The stretching of the abdominal walls by pregnancies render lax the pelvic peritoneum during the child bearing period, and thus greatly favors the occurrence of femoral hernia at that time of life. The increase of volume and weight of the omentum by the deposit of fat favor the occurrence of hernia. Weakening and debilitating diseases cause the tissues to become relaxed and in that way encourage hernia.

Certain necessary anatomical conditions or defects in the abdominal wall renders hernia possible. They may be natural weaknesses or exaggerations of the natural, if I may be allowed the use of so far-fetched an expression, or the retentive powers of the abdominal walls may be diminished by traumatism, either intentional or accidental. Men have larger inguinal rings; women have a larger femoral arch, and one less filled in by muscles and less strong fascia.

Conditions being favorable certain immediate influences may result in the production of a hernia. These are lifting, coughing, crying, and straining to expel urine or feces.

A hernia is generally enclosed in a sac consisting of a protruded portion of the peritoneum. The peritoneal protrusion may have been pushed gradually through one of the openings as in the acquired inguinal form, or the process carried down by the

descent of the testicle may remain patent, so that the tunica vaginalis may form the sac in the congenital variety.

Femoral hernia is never congenital.

In inguinal hernia the parts that immediately concern us are the external and internal abdominal rings, and the inguinal canal. Still, it must be remembered at the outset that the rings and canal are only potential—they do not exist as rings or canal save when opened by a protrusion of the abdominal viscera or made so by a scalpel.

The separation or gap in the aponeurosis of the external oblique, called the external ring, allows the exit of the testicle and the spermatic cord in the male, and the round ligament of the uterus in the female. The size of the opening and the development and strength of its pillars and the fascia covering it vary greatly.

The internal ring is merely a funnel shaped expansion of the transverse fascia which the cord carries on with it as it escapes from the abdomen.

The flat sided passage in the abdominal wall between the external and internal rings is the inguinal canal. In very early life there is no canal, one ring lying directly behind the others to facilitate the passage of the testis. In the adult it measures about one inch and a half in length. The increased obliquity gives additional security.

A fullness or swelling out at one of the weak spots of the abdominal wall, which is more evident on standing, and which is especially noticeable when coughing or lifting, with the thighs flexed, is characteristic of the first appearance of hernia. It is a smooth uniform swelling which usually disappears when lying down to again reappear on standing. When the patient coughs or strains the tumor becomes tense, rises under the hand and expands in size. This manifestation is called the impulse and is generally characteristic of non-strangulated hernia.

Every organ in the abdomen has been known to have been herniated except the pancreas. The most common contents, however, of a hernial sac is some part of the intestine, usually the small bowel, or the omentum, or both.

A hernia may be reducible or irreducible. It may become incarcerated, inflamed or strangulated.

A hernia is said to be strangulated when the herniated portion of the bowel or omentum is so tightly constricted as to cut off completely the circulation. The whole circumference of the knuckle of bowel may be involved, or only one side of the loop, so that the channel is not completely closed, or only part of the circumference of the bowel protrudes and becomes strangulated, as in Richter's hernia. In this case only a portion of the intestinal canal is involved, and the bowels often continue to act during the period of strangulation. The vermiform appendix occasionally becomes herniated, either by itself or with the bowel or omentum. I, myself, have seen two such occurring in the practice of others. Brieger (*Archiv. für klin. Chir.*, Bd. 45, Hft. 4) reports twenty-two cases collected from different sources.

Whatever the contents of a hernial sac may be, the symptoms of strangulation are very much the same, though perhaps they differ much in degree.

The onset of strangulation is usually sudden, occurring generally while lifting or straining at stool,

or doing some other exertion, especially when the thighs are flexed and adducted. Strangulation, however, may be gradual. But whether rapid or slow the effect is the same; the only difference is the length of time and the amount of constriction. The symptoms are generally so clear and well marked that a mistake in diagnosing the condition is hardly possible; but occasionally cases are met with that are very puzzling. Because it is the most recent and standard work of surgery I quote from the American Text-Book on Surgery, page 778, the following diagnostic signs: "The symptoms of strangulated intestine are always the same, whether the strangulation occurs in the abdomen or outside of it, viz., faintness, collapse, severe abdominal pain chiefly referred to the umbilical region, complete constipation, so that flatus ceases to pass, then vomiting first of the food, then of bile-stained fluid, and finally of fluid with a fecal odor. The tongue is dry and brown and the pulse rapid. In strangulated hernia there are in addition, at first pain at the seat of rupture, a greater degree of tension, the tumor having increased in size, dullness on percussion over the hernia, and absence of impulse on coughing, with the fact that the tumor is irreducible. If unrelieved the abdomen becomes much distended, retching is more frequent and thirst intense, hiccough sets in, the urine is much diminished in quantity and the patient gradually sinks from exhaustion in eight or nine days, though in very acute cases he may die in forty-eight hours. The bowel by this time has become gangrenous or there is a general peritonitis. With the onset of the gangrene there is often a cessation of the more urgent symptoms as vomiting and pain. Often the symptoms are not so severe as just described, especially in femoral hernia. In recent herniae the symptoms are more acute than in old hernia and they are not so urgent when omentum is protruded with the bowel, or when the tumor has for some time been irreducible."

I thus quote at length because there are some important features to which I desire to call special attention. There are perhaps few surgical emergencies calling for more prompt and judicious action than strangulated hernia; and the question as to whether we shall operate at once or delay and palliate, is of supreme importance to the life of the patient. A few moments of hesitancy and doubt on the part of the surgeon, and the patient may be lost. So, gentlemen, if I appear a little tedious on this particular point I hope you will pardon me, for I can assure you I have felt keenly my responsibility as I have been brought to face these conditions.

The degree of collapse varies with the acuteness of the obstruction and the portion of the bowel obstructed. Thus, Mr. Treves states that the jejunum with its richer blood and nerve supply would resent an injury more energetically than the lower parts of the intestines, where there is less functional activity. The collapse and vomiting are due largely to the impression made on the great abdominal nerve plexuses by the pinching of the nerve filaments in the gut.

Vomiting may come on early or late in the progress of the case. When it does occur it rarely ceases until the strangulation is relieved or the patient dies. At first the vomited matter consists of undigested food, then of bile and later there comes up great gushes of a dark brown muddy liquid of an intensely offensive fecal odor. No matter whether

the vomiting appears early or late it is a symptom of grave omen. In a case of hernia in which any change has taken place in the condition of the tumor; such for example as an increase in size or tension with pain, and absence of expansile impulse, should be regarded as strangulated and treated as such. Do not wait for vomiting and other signs of intestinal obstruction. Vomiting is not a necessary condition of strangulation in the early stages and may not appear until gangrene is well established and septic peritonitis is present, and the powers of the patient so reduced as to often forbid a hope of recovery.

Pain may be very severe or it may be scarcely noticed. It may be at the seat of rupture and there may be wandering colicky pains all over the abdomen, but in nearly all cases there is a fixed dragging pain referred to the umbilicus.

Constipation is almost always present and is due, not necessarily to intestinal obstructions, but to the paralyzing effects on the visceral nerve supply. For we may have absolute constipation, and in fact generally do have constipation, where the herniated part consists only of omentum, or the appendix, or where the herniated part of the circumference of the bowel is included in the constriction and the canal is not obliterated, as in Richter's hernia, offering no mechanical impediment to the passage of fecal contents and gas; and further, we may have all the essential symptoms of strangulated hernia, such as vomiting, pain, constipation and collapse; but upon operating the sac is found to contain neither bowel nor omentum, only a little fluid, with no communication with the abdominal cavity; the operation, however, completely relieves the symptoms. While obstinate constipation is the rule, still Treves found three cases in fifty-three in which there was diarrhea, and several that responded to laxatives.

The local symptoms are generally quite prominent. If the hernia is old and large and has been down many times, the size is likely increased and it may be fairly soft. Small strangulated hernie are hard and tense, or if they contain omentum they feel doughy. Although the hernial tumor contains bowel, there may be dullness on percussion, owing to the small amount of air in the loop of the bowel, the thick walls, and to the fluid in the sac.

The impulse on coughing or straining is an important local feature and is of great diagnostic value; so much so indeed, that experienced surgeons have successfully calculated the nature of the contents of a hernial tumor by a careful estimation of the amount of expansion in the impulse. The impulse is principally due to the additional quantity of intestinal contents which is driven into the knuckle of gut by the act of coughing or straining. Of course it is very apparent that the amount and character of the impulse must be *markedly* influenced by the contents of the hernia. Thus in omental hernia, the expansion being due to the increased tension of the sac and to the sudden turgescence of the omental vessels, the impulse would naturally be relatively less in omental than in intestinal hernia. When strangulation occurs the contents of the sac are shut off from the abdomen and nothing more can enter; when the patient is made to cough the impulse is absent; provided, however, the constriction is situated as high at least as the internal abdominal ring. If the point of strangulation is below this all of that part of the hernia above will contribute toward

an impulse. And it sometimes happens that all of the symptoms of strangulation are caused by a small knuckle of bowel being nipped at the extreme lower end of a long sac, thus leaving an excess of unstrangulated bowel. It is not uncommon to find in inguinal hernia, long sacs extending down into the scrotum, divided into two or three compartments by two or more constricting bands or diaphragms. There is often a condition of free mobility in a strangulated hernia during coughing, especially if it be omental. The movements are, however, more of the nature of abrupt jumps and jerks in an up and down direction rather than expansile in character; that is to say, the tumor when the patient coughs not only rises under the hand but expands in size and is more marked in that part of the tumor lying near the ring. Again, when the strangulation is limited to the neck of the sac, although at the abdominal ring, the impulse may be present, provided, of course, the ring is not also concerned in the constriction. In very old and indurated masses of omentum, which completely fill the sac and block the external ring, even though it be not strangulated the expansile impulse may be absent.

As soon as possible after the diagnosis of strangulation is made it must be relieved, or the patient will surely die. Every moment increases the liability of gangrene in the bowel. The temporizing methods such as the application of heat and cold are applicable in only a very limited number of cases, and in fact they are generally used as aids to taxis. Applications of ice should be made only when the descent is recent, and even then not prolonged. In old persons with weak circulation, and in cases where the strangulation has existed for some time, the application of ice greatly favors gangrene. The application of heat can only be of value when an element of spasm exists and there is an irresistible desire to strain, as sometimes happens in large inguinal hernia.

Our means of reducing the strangulation is by taxis or herniotomy. Taxis is better adapted to inguinal than to femoral hernia, and to acquired than to congenital.

The patient should be etherized, and placed upon his back with his hips elevated and the thighs adducted and flexed upon the abdomen. The lower or external pillar of the ring blends with Poupart's ligament, to which is attached the fascia lata of the thigh, so that the position of the thigh affects the ring much. Thus extension and adduction of the thigh stretches the pillars and closes the ring, whereas flexion and adduction relaxes the pillars and opens the ring, relieves constriction and favors the return of the herniated viscera. Everything being ready the hands are thoroughly warmed, and while one hand firmly supports the neck of the hernia the other grasps the tumor and gently squeezes it, at the same time kneading it with a view of reducing its bulk. In manipulating the hernia great care must be used in making the pressure so that the whole surface of the finger pads and fingers are applied evenly, and the movements executed in a gentle, firm and regular manner. Avoid all forcible, unsteady and spasmodic manipulations; and above all avoid punching the finger tips into the parts, as they are admirably adapted for causing an unnecessary amount of bruising and possibly laceration of the gut. In inguinal hernia a slight downward pull is

usually made to straighten it out and the pressure is directed upward and outward. In femoral hernia the pressure is made at first downward to bring it opposite the saphenous opening, and then backward and upward. Generally the gut slips in with a sudden gurgle which is quite characteristic, or if the omentum, there is a gradual change and a sensation of emptiness of the sac. In either case there is immediate relief of the symptoms. I mean, of course, provided the strangulation is relieved. But it sometimes happens that the sac is separated from its surroundings and pushed bodily into the abdomen, with the contents still unreduced. This is termed reduction *en bloc*, in which case, although the tumor has disappeared the symptoms still persist. A trial of only a few moments is permissible during which manipulation may with safety be persisted in, in cases of apparent strangulation, no matter how gently it is applied. Even where a hernia is not strangulated prolonged manipulation may easily bring it about.

When properly applied taxis may be resorted to with propriety (a) in all cases seen very early, and the tension is not extreme; (b) in hernial tumors dull on percussion, with omental or fluid contents, if the impulse is present; (c) in cases where the symptoms are not urgent and where there has been no previous attempt made at reduction, and where the impulse is present. Taxis is more liable to succeed in inguinal than in femoral hernia, as the constricting tissues in the one are principally muscular, and in the other mainly ligamentous.

There are conditions in which taxis should not be resorted to at all in order to avert disaster. Here we have a loop of bowel distended with gas; rigid with vascular engorgement, constricted by a ring sometimes almost as sharp as a knife and over which the intestine acutely bulges in all directions, its vitality greatly impaired, no fresh blood having entered it for hours; and under these circumstances and while in this condition an attempt is made to force it through the constriction. Can you imagine anything more unsurgical than this? Under these circumstances the bowel can be bruised or lacerated with the greatest ease. In fact, unless extreme gentleness and care are used some bruising will occur in the most favorable cases. In far advanced cases laceration may occur at the seat of stricture. Owing to the pressure exerted by the constricting band the bowel may already be partially eaten through by ulceration from within, or possibly it may be gangrenous at that point. Then very little force would be needed to complete the perforation. In other cases when the constricted part is not weakened by pathological changes instances are reported in which the gut was ruptured during taxis. In these cases the rent was not at the point of constriction, but on the distended portion of the bowel where the bulging was most prominent. In old irreducible hernia there sometimes exist adhesions between the bowel and sac. If the adhesions themselves give way no harm follows; but they may be so strong and unyielding as to tear away some of the intestinal peritoneum in which event a partial laceration of the gut results, and is a serious accident if at all extensive. Another accident of taxis to which I have already referred, is the reduction *en masse* of the sac together with its contents, the strangulation being unreduced. This has happened on slight manipulation, and most

often occurs in recent hernia, in which the sac is not adherent. Rupture of the sac may occur, the bowel protruding through the rent into the subcutaneous tissue.

Even after the hernia has been reduced by taxis serious results may follow. If the intestine is inflamed at the time of the reduction; or, if owing to its long strangulation its vitality becomes so lowered as to allow its walls to be invaded by infective irritants, sloughing, perforation and peritonitis follows. A patient whose nutrition is bad may do well for three or four days, when, suddenly a small gangrenous patch separates and the patient sinks into a state of collapse and dies from shock.

Should taxis fail to return the hernia unrestrained to the abdominal cavity we must proceed at once to the performance of herniotomy. I would earnestly recommend that arrangements be made before the patient is etherized to proceed without delay to the operation should taxis fail.

I will now report two cases upon which I have operated recently.

Case 1.—O. G., age 28, laborer. Has been ruptured for ten years. The tumor was not large and could always be easily reduced. Never wore a truss. About the middle of the forenoon of March 11, 1893, while lifting a piece of timber in a stooping posture, he suddenly felt something give way in his left side and he sank to the ground. Dr. Baird was called and found a large, painful, irreducible hernial tumor in the left groin extending into the scrotum. He was at once removed to St. Francis hospital where I saw him with Dr. Baird. The patient was vomiting persistently, and the pain was severe. The man, large and robust, was now pale, pinched and anxious looking, pulse rapid and he was in a cold clammy sweat. Collapse seemed imminent, so little time was used in trying to reduce by manipulation, but preparation for operation was at once begun. The patient was etherized, the abdomen was shaved and all the usual antiseptic precautions taken. I was ably assisted by Drs. Baird, Spencer and King. An incision some six inches in length was made directly over the tumor, and the sac exposed and opened. The sac contained considerable dark colored fluid and about two feet of the large bowel, including the sigmoid flexure. The strangulated loop was dark and rigid with congestion. The constricting band which was at the internal ring was cut slightly and an attempt made to return the bowel, trying first at one end of the loop and then at the other, but it could not be returned. I then enlarged the ring to the extent of perhaps half an inch, before I could get the gut back into the abdominal cavity. Although the strangulation had existed for only about four hours its vitality was greatly impaired especially at one point where the constriction was firm, so that I hesitated somewhat about returning it. I did return it, however, and no bad results followed. I then dissected the sac free from the cord and other tissues and cut it off flush with the internal ring, after ligating it in sections with silk worm gut. The pillars were then sewn together with the same material, and I concluded the operation by doing McBurney's operation for radical cure. His bowels moved spontaneously on the second day and he made a prompt recovery. He is now at work in the woods and wears no truss.

Case 2.—I was called April 15, 1893, to see J. McG., age 27. He has had hernia several years. Was operated upon two years ago for strangulated hernia at which time the wound suppurated and he was in the hospital four months. He had worn a truss constantly. On this occasion, however, being somewhat under the influence of liquor he took off his truss. Within an hour his hernia came down and became strangulated. I saw him in the course of an hour and he was vomiting and suffering intense pain. I sent him to the hospital and tried taxis without an anesthetic. I finally prepared for an operation, and etherized the patient, applied taxis for a few moments but failed. I sterilized and made an incision three inches long directly over the tumor which was on the right groin. The tissues were so much matted together as to hardly be distinguished. After much careful dissection the sac was opened. This structure was much thickened and opaque. The sac contained a small knuckle of bowel and a large piece of omentum, which was much hypertro-

phied, and adherent to the sac. After relieving the constriction at the ring, the bowel was returned quite readily but the omentum could not be reduced without much handling and bruising. I therefore ligated it off in small sections and cut off a piece as large as my hand, and returned the stump to the abdomen. I then did a McBurney operation for radical cure. The case did well. Had a spontaneous movement of the bowels on the third day. In about a week his temperature went up to 103 and on removing the dressing found a mural abscess in the lower pillar of the ring. This was opened and discharged pus, but closed in a few days and the case finally went on to recovery, the patient leaving the hospital in about six weeks.

There are a few interesting points suggested by these cases. Many surgeons advise to only slightly nick the constricting tissues; but it seems to me better surgery to make the incision free enough to allow the herniated part to be easily returned, than to make a slight cut so that the gut will have to be literally crowded back. For the bowel may be in such a critical condition that even slight handling may greatly lessen the patient's chances for recovery, or even precipitate a fatal result. Then, I think, the omentum is liable to complicate matters very much. If much injured it is liable to inflame and if infected set up a septic peritonitis. It may form adhesions near the ring and guide the bowel to that point, thus greatly favoring a return of the hernia. If it is much hypertrophied and does not return readily it had better be removed and in doing this considerable care is necessary. The omentum should never be tied off in one mass nor even in large sections owing to the liability to hemorrhage? A ligature may sufficiently constrict the tissues as to prevent bleeding at the time but the fat is soon absorbed from under the ligature and it gets loose and allows free hemorrhage. So it is necessary to ligate in small sections and be sure the bleeding is thoroughly stopped before returning to the abdomen. In neither of these cases could an impulse be made out and this influenced me very materially in promptly resorting to herniotomy. In fact, many surgeons contend that when the impulse is absent an attempt should not be made to reduce by manipulation if there exists any other symptoms of strangulation.

REPORT OF CASES IN EVIDENCE OF ADVANCED THEORY OF SURGICAL IMPUNITY OF THE PERITONEAL VISCERA.

Read in the Section on Surgery and Anatomy, at the Forty-fourth Annual Meeting of the American Medical Association.

BY JOHN E. LINK, M.D.

TERRE HAUTE, IND.

To the members of this Association I feel that I should make some explanation, if not apology, in presenting this work.

I am possibly somewhat differently situated from the most of the prominent workers of the Surgical Section, and therefore from the environment of my location am able to draw some conclusions at variance with the experience of the city and hospital surgeon and teacher.

There are, we may all know, two classes of surgeons radically different in their methods of doing good, the conservative and the bold or daring. And whilst I may have in some remarks before the Section as well as in printed articles seemed to imply that with regard to abdominal work I place myself

with the latter, surely I do not wish to so stand. I am decidedly in favor of conservative means in all cases where delay is not hazardous, and surely I agree with Dr. Senn, when he says these cases of abdominal surgery are sometimes attended by the greatest of difficulty; and I emphasize this sentiment, and say none should venture but those thoroughly equipped with the essentials of knack, love of the good to be done and a thorough training incident to clinical teachings and experience. The fad of recording experiences, and the love of dramatic display have too often, I am sorry to say, within my own circle of observation, characterized the laparotomist. Removal of the ovaries for imaginary disease incident to neurotic constitution has been done, to my positive conviction, either through ignorance or viciousness in desire to make display of skill, where, as I have tried to show, no anatomical knowledge nor special surgical skill was required.

Hoping that I will be excused for these preliminary remarks, I will only add with regard to the misunderstanding between myself and Dr. Senn at Detroit, that I regret it, both for the sake of the interest that I entertain for my profession and the hazarding of a personal friendship.

That I am an advocate of cleanly and careful painstaking detail in surgery, when not interfering with an important principle, should stand without the saying. That Dr. Senn has done a grand work in this particular line is established, and I only wish to add my mite to the mountain rather than in any particular to tear it down.

What I expect or desire to accomplish in the experiments that I shall report, is to show that instead of the fine details of cleanliness, catgut, silk-worm gut, kangaroo tendon ligature, Lembert stitch and all that, being an essential feature of success, there is a tolerance of tissue here that not only invites the skill of the surgeon but demands the surgical attention of the doctor, when traumatized; and that any and all lines of progress however desirable in improved technic are of far less importance than that of promptness in this emergency work, not only in cases of penetrating wounds which I hold stand first, but in many others; appendicitis not being less than second in importance, whether, with perforation and general diffusion throughout the peritoneal cavity, or threatening. I believe that all cases of uncomplicated perforation of the bowel, barring accident, can be saved.

I am not here to present complications in idiopathic nor traumatic cases. I leave that to Dr. Senn and his *conféres*. I am only here to prove peritoneal tolerance to *outside entrance*—that there are no organized enemies lurking in the normal atmosphere. They are only, or in the most part, in old hospital wards and we country doctors have only to keep our patients away from them, and "aseptic surgery" so-called need not distract a moment of our time and attention, so greatly needed in these penetrating wounds, appendicitis, intussusception and obstruction of the lumen of the alimentary canal.

Antiseptic surgery got the credit at one time of making abdominal surgery practically safe. We are all, I think, now aware of the fact that the means so employed hazarded the life of the patient; but it has left a nucleus of thought in riddance of a pathological fallacy and popular superstition; and stands to abdominal surgery at least in about the same

light, in virtue, that Hahemannism does to scientific medicine.

My operations were all made in an old uncleaned barn or stable, several of them on the floor littered with decaying animal and vegetable matter; the others on an improvised table constructed of old boards picked up from the floor. Dogs unwashed and hands soiled—no water, soap or other disinfectant was used in any sense. Patient usually confined successively in a close kennel three by four feet with open or slat floor about a foot from the ground; kennels never washed or disinfected.

They were all so treated with the exception of two left in a bin in barn on account of cold weather. These both escaped, with bad results as reported, by jumping over a tight board partition about five feet high.

The number of cases is limited owing to the place of operation having to be torn down to give right of way for a railroad sidetrack, and just at a time when I was in the midst of my work. I was forced to discontinue during the cold weather of winter, owing to the above cause, and I was also unable to make any operations between April 28 and May 28.

I try to show nature's process of repair as well as tolerancy of tissue, and therefore have preserved the lives of some of the dogs for considerable length of time. In two instances I have made a second operation on the same dog at a considerable interval of time between.

Case 1.—Dog No. 1. Laparotomy on female dog, weight thirty-four pounds, May 31, 1892. Cut the ileum three-fourths across; sewed with darning needle armed with lapping yarn two ply; three interrupted sutures. Cut again within an inch and a half of the first incision. This cut Dr. L. J. Willen of Terre Haute, closed with aseptic catgut suture, interrupted Lembert stitch; cut again at about three inches from the latter, and closed with braided surgeon's silk in a large armed needle, taking three stitches, interrupted, and reinforced between each with black cotton, ordinary sewing thread and small cambric needle. Closed the abdominal walls with three deep stitches, including skin muscles and peritoneal coat in each stitch, using black braided surgeon's silk and large curved needle.

I placed the bitch in close confinement; gave water only, for two days; then milk until the fifth day, when I gave her well-cooked beefsteak, which she took with relish; killed her the fifth day of June. Post-mortem revealed no peritonitis whatever. The two wounds which were closed with coarse sutures were patched with omentum; the one with surgeon's silk I exposed by tearing away the omental patch and found sutures still in place, but loosening by slough in the direction of the mucous membrane. The wound closed with catgut Lembert stitch had healed by first intention; specimen preserved and presented before the Surgical Section American Medical Association at Detroit.

Case 2.—Dog No. 2. Weight of dog twelve pounds; female. Operation done August 23, 1892. Opened the cavity and with fore-finger caught up and drew out a loop of the ileum covered with omentum; cut through omental covering and incised the bowel transversely to about two-thirds its circumference; sewed with sutures of lapping yarn in darning needle as in Case 1. Confined the dog, and gave only water for three days, then milk until the sixth day when I fed stewed chicken. By mistake the dog got the end of a chicken bone and gulped it without crushing. From this time on I fed meat freely. The dog evinced no suffering.

I presented this case to the Vigo County Medical Society, Thursday Sept. 12, 1892, the tenth day after operation. The abdominal wound was perfectly closed, apparently by first intention. I had removed the sutures on the fifth day. There was little or no evidence of suppuration. The dog was chloroformed and the abdomen re-opened.

There was no evidence of general peritonitis. On close examination a convulsus of the ileum was

found and the bowel adherent to the mesentery which in this case seems to have formed the medium of covering in healing. Dog killed and specimen marked No. 2 preserved with a specimen of stitches as used, made post-mortem. Later, the end of thigh bone of chicken is found lodged at cicatricial convulsus, where it remains to be seen, somewhat impacted, but no impaction of bowel contents above.

Case 3.—Dog No. 3. Black dog, male; weight, thirty-five pounds, operation done October 11, assisted by Dr. B. A. Watson of Jersey City, N. J., author of "Amputations and Complications," dedicated to Lister, also author of "Typhemia and Septicemia," Pepper's Practice, etc.

With hands black from handling dog fresh from dirty kennel, all unwashed, I made an incision of about two inches in length. Drew out the omentum in considerable quantity until I exposed the ileum which I caught up and withdrew until several inches was exposed. I cut well across to the mesenteric attachment, and then sewed with darning needle armed with three ply cotton wrapping cord making three interrupted sutures, tied in heavy knot and cut at about an eighth of an inch in length. Bowels and omentum were replaced without cleansing and the parietal wound closed with three deep stitches, surgeon's silk. Dog confined in same kennel as the other two, was very impatient of restraint, yelping most constantly day and night. Was watered and fed as the others. On the seventh day placed him in the barn with other dogs.

Though the parietal wound was open and gaping, the opening was well closed at the bottom, the peritoneal coat having closed by adhesion. Dog's life preserved for other experimental purposes.

Case No. 4.—Dog No. 4. Weight of dog sixty pounds. Operation October 22, 1892, assisted by Dr. Shaley of Terre Haute and Dr. Brunker of Riley. A small opening was made in the median line; the omentum drawn out and a loop of ileum exposed and cut across; three interrupted sutures with darning needle and three ply cotton yarn was used.

This operation was attended by much embarrassment in stitching up the parietal wound, returning the viscera, etc., owing to imperfect etherization; and the fact that the operation was done on the barn floor littered with chaff, straw and general debris which was constantly getting mixed up with the bowels and omentum. The dog had been fed freely a short time before and vomited copiously confined to a chain on barn floor. By October 27th, the dog was apparently well, wound nearly healed. Dog preserved until March 1st, when in an effort to etherize, he died.

Specimen preserved and labeled No. 4. The specimen shows the alimentary tract perfectly normal, and only a thread of omentum left clinging to the point of injury, absorption evidently having cleared up the scaffolding of support—nature's workmanship displayed.

Case 5.—Operation same as No. 4. Operation done Oct. 22, 1892. Oct. 23d dog running at large in stable, having escaped over five foot board partition; 25th, dog quite out of sorts, external wound gaping; 26th, more cheerful, on his feet but I fed nothing; 27th, seems much improved and eats some soft, well cooked meat; swallowed a short piece of bone—mutton rib—two or three inches long; confined again but escaped during the night by jumping and is found dead in the stable the next morning. Post-mortem examination reveals a large clot of blood, at least eight ounces; no fecal extravasation or bowel perforation. There is a large mass of omentum and bowel agglutinate with lymph, no general peritonitis. Dog evidently died from hemorrhage and shock, incident to injury received in escaping from confinement. Specimen preserved and marked No. 5.

Case 6.—Operation done Oct. 22, 1893, same as Nos. 4 and 5; small black dog; weight six pounds. Oct. 23d, dog escaped from confinement and is nowhere to be found; Oct. 27th, dog found under barn floor, omentum protruding in a mass as large as a hulled walnut; 28th, dog is in good condition as above; fed some well cooked meat; put a ligature around the tumor with intention of strangulating and removing. Nov. 11th tumor still there and somewhat enlarged. With

the assistance of Dr. Glover of Terre Haute, I etherize and cut around the tumor, through into the peritoneal cavity and remove leaving a large gaping wound. We decided to kill the dog and make post-mortem examination of the bowel wound. There is a slight adhesion of the bowel—ileum—to the parietal walls in the lumbar region, left side. In order to preserve it as we find it the muscle is in part removed with the viscous. The cut in the bowel seems to have been patched by adhesions to the mesentery. The bowel is cut first across near where the injury appears, and then slit longitudinally so as to expose the inner surface of the bowel. The sutures are found still clinging by the merest hold to the mucous membrane covered with a mass of calcareous concretion; the inner membrane of the bowel is rough and slightly thickened; lumen of the bowel apparently increased from relaxed condition of coats of bowel, which are well reinforced by patch on the peritoneal aspect. See specimen No. 6.

Case 7.—Female dog, 15 lbs under the influence of the anæsthetic commercial ether.

Case 8.—Small dog. Operation done April 11, 1893, under anæsthesia, Squibbs ether. An incision about two inches long was made below the umbilicus; the omentum pulled out and a loop of the bowel secured and cut entirely across; incision made with scissors, the cut extending into the mesentery. I sewed up the wound with cambric needle armed with flax thread; continued suture beginning at mesenteric line extending around until I reach the point of commencing when I tie the two ends of the thread, exercising some care not to draw too tightly—the danger being that the sutures thus applied if drawn upon will act as a drawstring puckering and thus contracting the lumen of the bowel. The bowel and omentum are now returned and the parietal wall is closed with curved surgeon's needle armed with flax thread, two deep interrupted sutures being used. Dog confined and treated as the others before described, until the eighth day when he is fed cooked meat and given his liberty in the barn with other dogs. April 19th, dog killed and post-mortem examination made; find a large mass formed of lymph and mesentery about one and a half inches in diameter to which the mesenteric aspect of the wounded bowel is adherent. The outer side of the wounded bowel is patched with adherent omentum. There is no diffused or general peritonitis. The viscera are all in healthy condition notwithstanding as I should have before stated the dog had fallen the night before through a hole in the floor of the loft to the stable floor below, a distance of nine feet. There is an acute curve of the bowel as it is found imbedded in the above described tumor. The lumen is normal—no stenosis nor dilation perceptible. Made no effort to examine condition of sutures. The parietal structures are preserved so as to show the bad condition of outer wound and the perfect healing of the peritoneal aspect with mesentery attached. Specimen preserved marked No. 8.

Case 9.—Small dog, male; operation done April 3, 1893, assisted by Dr. Mason of Terre Haute; anæsthetized with commercial ether; opened abdomen with rusty scalpel; caught up a loop of small intestines; cut out a segment about two and a half inches in length; tied the whole of intervening mesentery with a fillet of silk thread carried around with a curved surgeon's needle; sewed the two, distal and proximal, ends of the cut bowel together, using darning needle with heavy lapping yarn; first stitch at the point of mesenteric attachment, the next at the opposite curvature and then once at midway between these on both sides, and for additional security against possible leakage I put an interrupted suture of small cotton thread with cambric needle between these. All sutures are interrupted. The intervening segment of bowel is now removed by cutting the mesentery at point between the fillet and intestinal line. Owing to some oozing of blood I, for additional security again place another ligature or fillet about the mesenteric fold, this time including about a half inch of that supplying each sewed end of the bowel. We must here depend upon voluntary transplantation of vascular tissue to replace the cut off mesenteric supply. The bowels and mesentery are now returned, with some attendant difficulty owing to small parietal opening; there is in consequence of the squirting process, some leakage of the contents of the bowel between the stitches. The parietal wound is closed by two deep interrupted silk sutures. Dog treated much as the others described. On the tenth day after operation the stitches were removed from parietal wound, which is closed; the dog has been eating heartily for two or three days; has a full healthy discharge from the bowels, normal in size and consistency, which I have pre-

served, dried for your inspection. Dog's life preserved for purpose of future experiments.

This is same dog as Case 11, operated upon and killed before the Surgical Section; post-mortem examination hurriedly made failed to reveal point of resection of bowel; later assisted by Dr. Marcy of Boston, we found the point of injury and repair; the lumen of the bowel was about normal in caliber and line; there was a thin veil or sheet of omental patch covering the section to the extent of about two inches in length; coats of the bowel nearly normal, excepting the outer, thickened by overlying patch of adherent omental tissue. Specimen along with the segment removed, preserved in bottle marked No. 9.

Case 10.—Dog No. 9.—Operation done May 28; cut small hole in ileum and sutured with cambric needle armed with double cotton thread; single suture; dog killed and post-mortem examination made June 6. There is some difficulty experienced in finding point of last cut as well as that of the first reported "case 10," but a careful examination later reveals the bowel covered with very thin sheet of omentum; the bowel is opened by longitudinal incision and the suture as described above is found adherent to the two inner coats of the bowel; mucous membrane slightly thickened for a length of two or more inches. Specimen preserved and marked No. 10.

Case 11.—Dog No. 3.—Second laparotomy; first Oct. 11; reported "Case No. 3." Operation May 28, 1893; made short incision above old cicatrix; hooked out a loop of, and cut small hole in bowel; closed with one suture, coarse cord and darning needle; closed outer wound with flax thread in curved needle, single suture; killed dog June 4; post-mortem examination shows a small omental band attached to a point of ileum; evidently the patched wound of first operation; the coats of the bowel are thickened by overlying omental patch of about an inch in length; width of omental strip attached to bowel is about half an inch at point of juncture and four or five inches in length; the caliber of the gut at site of operation is a little enlarged.

There is also found a mass of omentum and mesentery agglutinated to the abdominal parietal at point of peritoneal cut, with the ileum firmly attached to this mass. I cut into the bowel longitudinally, and find the coarse suture like a ring lying loose in folds of the mucous coat; I attached it with a thread in order to maintain it where found. Specimen placed in glass bottle marked No. 11.

Case 12.—Small black and tan female. Operated May 29th; cut bowel half across; used the same thread for suture that I used in two cases previously, washing the dried blood clot from it in cold water; no disinfectant—not even soap—was used. Closed the wound in bowel with one lapping cord and two flax thread interrupted sutures. Closed the parietal opening with a double flax thread, single interrupted suture; killed the dog June 4th. Post-mortem examination shows outer wound closed with sutures adherent. Parietal surface closed, with mesentery attached; no congestive or inflammatory action perceptible. Gut wound agglutinated to omentum. On exposure by opening the lumen of the bowel there is a ragged condition of the edges of the gut wound revealed; the sutures have disappeared by sloughing. Specimen preserved, marked No. 12.

Case 13.—Young shepherd dog, half grown; anæsthetized with chloroform May 30, 1893; cut short opening in parietal walls; hooked out with dirty fingers a loop of ileum; cut small hole through omentum into the bowel; sewed latter with darning needle and cotton cord, same string as used in case 10 and 11, made pliable by simply wetting in cold water. Returned viscera and closed parietal wound with double flax thread single suture, deeply taken through skin and muscle with a lighter hold on peritoneal coat. Dog confined to a short chain on bed of shavings. Treated same as others and killed June 4th. Specimen preserved in salt to June 10th, then in alcohol and glycerine. There is less agglutination of viscera than in any of the other recent cases. The ileum makes a long loop of four inches from a sharp turn to point where the wound is situated and seals itself against the mesentery of the same bowel. On making longitudinal incision through the normal appearing bowel there is found a single suture of coarse cord, the same as described in closing the wound, attached by a slight hold on mucous membrane. The peritoneal line of parietal wound had healed by first intention; the other was gaping and in bad condition. Specimen of gut and parietal wounds preserved marked No. 13.

Case 14.—Fox hound; operation done May 31st. Bowel cut half across; three lapping yarn darning needle sutures

used in closing; bowel replaced and parietal wall closed with a single interrupted flax thread suture. Dog killed June 4th. Specimen shows a large mass of omental tissue covering the wound. I tear it away sufficiently to show the sutures still *in situ*, but slightly loosened from their origin and hold on the three coats of the bowel, peritoneal cutting through. Specimen marked No. 14.

Case 15.—Dog No. 9.—Same individual as Case 9 and 10; June 6th, chloroformed the dog for third experimental operation, in order to show method of operating, before the Surgical Section. Dog died under influence of anæsthetic before being brought forward; used dead body to show facility by which the abdomen can be opened without wounding viscera; rusty scalpel is shown; one cut reaches the cavity but opening is too small to admit of the hooking out of the intestines; scalpel is inserted with finger-still in the cavity as a guide, when a somewhat *franchising* cut is made and bowel withdrawn which is cut with scissors and sowed with darning needle and cord, as previously described. The specimen with others as above reported are presented for examination. The specimen with rough sample stitch is preserved with a considerable portion of the normal gut and mesentery valuable as evidence of non-inflammatory action of peritoneal structures, from operative interference. Marked No. 19.

DR. MANLEY of New York.—It is unfortunate Dr. Link has so little time. This exhibit of rough and ready character, is not without interest. Indeed, it is particularly interesting just now, when the heat of discussion has passed over in reference to the treatment of lesions of the peritoneum. The value of Dr. Link's paper seems to me to be in two directions: first, with reference to the fact that the peritoneal cavity, when opened under proper circumstances, is not attended with very great danger; second, with reference to antisepsis or asepsis. I remember very well at Washington, when Dr. Link was present at the International Congress, at the time the antiseptic doctrine was at full height and it was almost treason for one to question its efficacy, and he, like Tait, stood as he stands now. The doctor has shown, as far as the lower animal is concerned, it is immaterial whether we employ antisepsis or asepsis. But, a great many think those operations, which are so easily and readily performed on the dog are the same in the human being, whereas there is scarcely any analogy. We can remove a foot or so of intestine in the dog and the animal scarcely lose a meal, while in the human being we must have a profound regard for that structure. Dr. Link has shown us how lesions, simple in character, can be dealt with quite readily. I think he has accomplished a great deal of good. In the presence of a lesion of the intestine it is not necessary to lay our patient up until a specialist can arrive.

DR. CONNELL, Wis.—I think it is now over a year ago that Dr. McKay of this city, concluded to do some work of this character. The superintendent of the poor farm furnished us material, and we got the spayist up there to help us. He, I am quite sure, had not washed his hands for a year. He opened the abdomen with his penknife, and stuck his hands in the cavity. Nevertheless, the animal recovered. Some time ago I tried a series of experiments with the oblique stitch, and after performing some ten or twelve of these experiments antiseptically I concluded to make an anastomosis, using the same principle. I thought that while I was killing a dog upon which I had operated before, I would practice upon him and prepare myself for an oblique operation I was going to make in a few days. I placed the dog on the table, under the influence of ether, and since I was going to kill him I took no precautions to wash my hands, but tore open the mesentery with my fingers, pulled out the intestine, cut it and drew it together with a piece of hemp thread. After I got through the dog looked so well that I concluded to wait and see whether he would live. Six months afterward I killed him, and tomorrow I will show you the specimen. After I had worked a little while

on the anastomosis I returned to the table, and worked with the gall-bladder, and a gall-stone was removed from the dog. He lived a fortnight, and then succumbed, and, in that case there was no attempt at antiseptic surgery.

DR. GEO. M. RICE, Cal.—It seems to me the discussion is rather unfortunate than fortunate for this section. It does seem to me, that because we cannot get good results occasionally by bad surgery, we should never be warranted in doing bad surgery. It is not that we are obtaining good results in spite of this surgery, but we stand upon means which will in the largest number of cases give us the best results. This kind of negative reasoning would tear down the foundations of medicine. We occasionally get good results by bad operations, but in so many are rather unfortunate for us in that they induce us to be careless in carrying out the methods which would give the best results.

DR. H. O. WICK, of Detroit.—The dog experiments are to be regarded as a means to show how to do these operations, but when you attempt to perform the same operation in the human subject it is very different.

DR. LA PRIVE of Philadelphia.—In my mind Dr. Link's specimens only mean that the dog is a very good animal to experiment on. If there is anyone subject that has brought surgery to the high position it now occupies, it is the knowledge of bacteriology; it is the knowledge that if you keep certain germs out of the soil, suppuration will be absent, which caused the death of nine-tenths of our surgical cases before the days of bacteriology. What do the experiments of Dr. Link lead to? They show simply that as the dog can eat rotten meat and dirt and live on it, so any one can admit dirt into the peritoneal cavity and live, but as we can not eat that food and live, so we can not have the least dirt in the peritoneal cavity and live. Man seems to be the soil best adapted to most germs; his serum is less resistant than that of the lower animals. This is proven by the experiments of the doctor. Therefore, I do not agree with the gentleman, that this would have a bad moral effect on the Section. I hope every one will realize the value of that communication. It does not imply that we should be less careful in the ideal cleanliness. Gentlemen, even at our own table we distinguish the man by the nicety of his cleanliness. Be absolutely cleanly, and then we will have eliminated all the risks. We want to have 100 per cent. of success, if possible, although that perhaps will never be achieved. Try at least to eliminate dirt.

DR. HOFFMAN of Philadelphia.—It has been my very good and bad fortune to see some very good and bad surgery. I have seen one case, where the nurse washed out one of the sponges in a slop bucket, and the patient got well. In another case the operator asked the assistant to insert his finger into the rectum to nod up the tubes, and when the operator turned his back the assistant inserted his finger into the peritoneum, and the patient got well. Another case: The attendant brushed off the table and then, without washing his hands, operated, and the patient got well. However, I do not believe any of us would close one of those operators to do our work. I do not believe the man who plays with sepsis, antisepsis and asepsis, interconvertibly would go to the man who believes them interconvertible for his surgery. I do not believe chemicals will make any surgery clean.

DR. LINK.—I call the gentleman to order. I have said before, and said again to-day, there is no comparison between the peritoneum of the human and of the dog.

CHAIRMAN.—He is simply showing the tolerance of the peritoneum, giving three cases to illustrate it.

DR. HOFFMAN, continuing.—Mr. President and Gentlemen: I think those gentlemen who have left the term antisepsis and gone over to asepsis have done a great deal; I think they

have gone to show that sepsis depends on uncleanness. We do not wish barrels and buckets of chemicals, but simply such measures as are necessary to make us clean. The man who has never done surgery and operates upon an animal by animal methods, will be mistaken if he goes into the operating room and expects the same results by the same methods. Animals are tolerant and intolerant, just as in some, large doses of medicine will produce no effect and in others will cause death. Now, without any disparagement to those gentlemen who try to show that surgery on the animal is the same as on man, except to show what has been done, I will say the man who trusts to animal experiments will carry his animal experiments and dirt along into human surgery, and just as sure as he does his results are sure to be bad. The tendency is to be careless, and carelessness means dirt. Just as soon as watchfulness is gone, just that soon dirt creeps in.

DR. MUDD, St. Louis—I think the paper presented by Dr. Link has its purpose. I think that perfect cleanliness, which comes with perfect surgery, is the purpose of all our work. It simply shows we have our individual ideals, and each man carries some imperfections. There is no universal ideal at which we will tend, but each of us have an ideal standard toward which he tends. You will find many inconsistencies in the work of to-day. I think this variety in results shown here to-day is good for us, because it gives us food for thought.

DR. J. B. ROBERTS, Philadelphia—One point has not been brought out here; that is, although it is admitted the peritoneal cavity or peritoneum is tolerant to many kinds of bacteria, it has been proven to us that we must not apply this reasoning or experiments to other operations in the human body. I think Dr. Link will say he would not apply this kind of surgery to other operations, as amputation of a dog's limb, for the peritoneum is tolerant to some things which cut muscles and other tissues will not stand. It seems to me Dr. Link has shown us a valuable thing in that the surgeon must do the best he can. Many surgeons, it seems to me, are ridiculous in the clumsiness of their methods. If we will only remember, what seems to me to be the essence and principle of modern surgery, that some tissue and some animals and some people, at some time and under some circumstances are in such conditions that they are resistant to bacteria while at other times they are not resistant; that sometimes these bacteria will do harm and sometimes they will not, it makes no difference whether you call it antiseptic or aseptic surgery, or clean surgery, or Jones' surgery or Smith's surgery.

DR. PRICE, Philadelphia—As to the tolerance of the peritoneum, it matters but little in all intraperitoneal operations what you remove if you do it well and cleanly, but it does matter what you let in. I do not hold, with an enormous experience in peritoneal surgery, that the tolerance is very great. I know a lymph sac is capable of digesting such material as blood, water, etc., so long as there is no dirt in it. There should be less talk about the tolerance of the peritoneum, and less of this experimenting on dumb brutes as well as on human beings. I am satisfied some of our best surgeons observe the best of care in the peritoneum of the dumb brute. It has been my bad fortune to have to do with a large number of post-operative sequelae of bad surgery, and I usually find it due to irritating solutions and sluggish surgery. Only yesterday I released a uterus with the whole free extremity of the omentum about the cicatrix. I knew before the operation what I had to deal with, because I knew whose hand had been in there. I will close my discussion by saying, this law of cleanliness not only holds good in surgery but it is of paramount value in obstetrics and in everything that approximates surgery.

Cleanliness is paramount. I know of nothing so absolutely important as cleanliness in medicine. I have had 1,300 labors without a death from any cause, and it is wholly due to cleanliness.

DR. J. McFAIDEN GASTON, Ga.—If we will but recollect what has been the recorded results of penetrating wounds of the abdomen, gunshot and knife, in regard to the results in view of operative measures compared with non-operative measures, it will throw some light on the inference to be drawn from this discussion.

DR. LINK—The bad condition of some of these wounds simply shows we must be clean to obtain the best results. Some of the gentlemen have gone from the subject here presented to bacteriological relations and the condemning of my dirty surgery. This I insist is entirely unjustifiable in the light of my opening disclaimer. Dr. Gaston speaks of penetrating wounds, and I would like to ask how many penetrating wounds of this kind have lived without operation. Cases of penetrating wounds, where the bowels are implicated, usually die if not operated upon at once. As I said in Detroit, if a case of this kind came into my hands I would not treat it if I could avoid doing so, for I admit and admitted then Dr. Senn is superior to myself in his technique, appliances, etc. I do believe in this beautiful toilet of surgery if obtainable, but we should not cover up a deep physiological principle with simple technique. I am now speaking to men more competent than I am and who are better teachers than I am, but I say to the general practitioner, if you find a penetrating wound of the intestines, it is your duty to close it up and in the meantime if your discretion suggest, send for the specialist; but do not allow the excretions and dirty contents of the bowel to get into the peritoneal cavity while waiting for the specialist to arrive, but operate at once. There is not one of us who claims to-day that antiseptics cure the patients. And, what do we learn from this? We learn that we do not have to use antiseptics. Just as Hahnemannism taught us that large doses do not always cure our patients, so this shows that cases may recover without antiseptics or aseptics.

UNNECESSARY RESTRICTIONS IN SURGERY.

Read in the Section of Surgery and Anatomy at the Forty-fourth Annual Meeting of the American Medical Association.

BY JOHN B. ROBERTS, A.M., M.D.

PHILADELPHIA.

While I fully appreciate the need for caution and care in all departments of medicine, I have of late years come to believe that patients are often subjected to restrictions which add to their discomfort, without bringing any commensurate advantage in shortening the time of recovery or guaranteeing the permanency of cure.

The inaccuracy of our former knowledge of the causes of surgical complications and a college teaching, which gives little opportunity for the exercise of individual judgment, have tended to make the timid or inexperienced practitioner follow with blind zeal the dogmatic assertions of writers and teachers of recognized authority.

It is true that it is better to err on the side of caution than to expose a patient to unwarranted risk in a desire to give him greater liberty. On the other hand, the establishment of a nervous dread in the mind of an invalid is one of the chief causes of the habitual semi-invalidism now so prevalent in many walks of life. Physicians are unwittingly the cause of many symptoms which torment neurasthenic humanity.

Surgical affections and operations are so associated with disability in the public mind, that it usually takes but a word to make the patient think himself debarred from the most innocuous liberty.

In order to hear the views of this representative body of working surgeons, I wish to cite a few instances, which seem to me evidences of unnecessary restriction in surgical practice.

Is it not true that patients with fractures of the fibula and tibia are often kept in bed too long and even prevented from carrying on essential business enterprises, because the surgeon fails to recognize the utility of a plaster of Paris dressing? Are not persons with fractures of the bones of the forearm compelled to wear cumbersome splints longer than necessary, and thereby debarred from using the hand for personal needs and for writing?

Tuberculous spondylitis and coxitis are often the cause of many months' confinement in bed in a stuffy chamber; because the surgeon fails to realize that the sunshine and fresh air are urging him to apply a gypsum jacket or a hip splint and send the pallid little patient out into the fields which he himself daily enjoys. I advise no undue hurry in omitting the valuable rest which pertains to recuperancy; but it is often maintained too long.

Again, it is not unusual for convalescents of all kinds to be kept in the house, when driving or even walking a short distance in the open air would stimulate appetite and induce sleep better than any tonic or soporific. Immobilization of joints and repaired fractures should not be too long continued. Absorption of inflammatory deposits and pliability of muscular masses are induced by voluntary use and massage. The value of these adjuvants to treatment is diminished by a delayed resort to them. Sprains and chronic joint affections, of certain kinds especially, call for motion and even painful manipulation.

The somewhat fashionable restriction of voluntary movements of the limbs after abdominal operations is, I am sure, usually unnecessary and in many cases adds to the accumulated discomforts attending all surgical procedures. There are, I believe, few operations that demand maintenance of the supine position for a long series of hours. Turning the patient carefully a little to the right or to the left does no harm, as a rule, and makes disease more tolerable.

To deny water to those who have recently been subjected to operation is often a refined cruelty, reminding one of the days when patients, parched with typhoid fever, were not allowed to have the tongue even moistened with cool water. Copious draughts of water may possibly do harm immediately after recovery from anesthesia because they may induce vomiting. Soon, however, moderate quantities of water may be drunk with impunity and are of advantage in filling up the vessels depleted by any previous bleeding. Do not allow your patients to drink water inordinately, and restrict its use if real evidence is forthcoming of its harmfulness. More theory, however, must not be permitted to stand against the well known value of water as an agent which keeps skin, kidneys and bowels active, reduces temperature, and plays a physiological role in reestablishing the equilibrium of a circulation disturbed by bleeding and surgical shock.

It seems to me that we are coming now to a more scientific understanding concerning the proper reg-

ulation of diet in surgery. Much restriction formerly advocated because of the almost invariable occurrence of surgical fever, is now recognized as unnecessary.

We know that pyæmia, septicæmia, sapremia and kindred complications are due usually to what the surgeon puts into, or allows to remain in, the wound rather than to what the patient puts into his own stomach. Surgical textbooks of recent publication, however, are not altogether guiltless of teaching an erroneous causation for post-operative complications. Errors in diet may cause fever and other undesirable symptoms, but their power for evil should not be overestimated. After many capital operations, the patient may return to an ordinary diet on the third or fourth day.

I am often surprised to see a great amount of cotton and a splint used as a dressing for a comparatively insignificant wound of a hand or arm. A few pieces of gauze, but little larger than the wound, saturated with collodion is all that is really needed in many such cases. Great bundles of dressing restrict harmless motion, often make the patient sensitive about mingling with his acquaintances, and are nearly always unnecessary and almost unjustifiable.

In conjunctivitis, iritis, keratitis and wounds of the eyeball it is seldom necessary to keep the patient in the house. A pair of dark glasses to exclude glaring sunshine or the sealing of the inflamed or injured eye with plaster is usually the only restriction needed, except that reading with either eye is to be avoided. Imprisonment in a darkened room is almost never required.

Routine restrictions belong to the methods of those who allow others to do their thinking, and who attempt to practice surgery by "following the leader," as do children in a game.

DR. GRIFFITH, Kansas City—I do not think that anyone at present would put a fractured tibia and fibula in a plaster cast and keep the patient on his back for six weeks. I understand that in many cases of tubercular spine, plaster-of-paris will not do and is not the accepted treatment; that the supine position with or without extension on a parallelogram, especially when the vertebrae of the cervical region is involved, is the only treatment. I have had a case of this kind in my own family, and if I had it to go over again this would be my treatment, as it is the advanced method and gives better results than a cast or jury mast. No one thinks a moment of keeping little ones indoors all the time, and in compound fractures or resection of the elbow, wrist or shoulder joints, no one thinks now of keeping them in bed or confined to a room.

DR. McLEAN, Detroit—The paper of Dr. Roberts struck me as containing a great deal of common sense. Some of us remember what a strict regimen used to be observed about twenty-five years ago after operations. I believe much of it to be unnecessary, or even injurious. I recently performed an amputation of the shoulder, and on the twelfth day after the wound was entirely healed, the patient walking about in perfect health, and I exhibited him on that day before our local society. In another case I performed an amputation at the hip joint, and on the fourteenth day I exhibited him also, walking on crutches and in perfect health. In both of these cases the restrictions as to diet and confinement were much simpler than is the usual practice to-day. I have come to believe that in fractures of the thigh no extension at all is necessary in many cases. To lay down as an orthodox law that in every case extension

is necessary is not right. We have too many fixed rules.

Dr. THOMAS, Pennsylvania—I believe there are certain points to be considered. Sometimes surgeons are brought into court charged with malpractice in the treatment of a fracture. If the splint has been taken off sooner than the books say, the attorney for the plaintiff has a case. There was an instance of this kind in our city a short time ago, where a surgeon was mulcted \$5,000 for having let the patient out three weeks after a fracture of the tibia and fibula. If he had been orthodox in his proceedings this unfortunate result would have been avoided. I don't think splints are taken off much too soon, and in justice to ourselves we should not take them off too soon.

Dr. MARCY, Boston—A common practice among surgeons on both continents to-day is the elaborate preparatory treatment, which has great disadvantages, in that it keeps the patient in suspense for several days before the operation. Another practice among many is that of getting at a result by several stages. I am in the habit of doing three or four or even more operations at one sitting, which it is customary to do in as many sittings, and I think with great advantage to the patient. I also want to speak of the employment of collodion dressings where no drainage is necessary—to recommend it.

Dr. ROBERTS—In closing the discussion, I will say my object has been to emphasize the fact that no surgical injury, process or disease should be treated in a routine manner.

TUMORS OF THE NECK.

Read before the Section of Surgery and Anatomy, at the Forty-fourth Annual Meeting of the American Medical Association.

BY WM. L. RODMAN, M.D.

PROFESSOR OF OPERATIVE SURGERY, KENTUCKY SCHOOL OF MEDICINE, LOUISVILLE, KY.

No region of the body is so prolific in neoplasms as the neck.

No region of the body is so important from an anatomical and surgical standpoint, containing as it does many great vessels and nerves, the integrity of which is essential to life. Therefore, the diagnosis and treatment of morbid growths in this situation is of commanding interest.

Never passed the time since surgery has been practiced as an art, that its followers everywhere have not approached operations upon the neck with the greatest caution, if not trepidation.

While a proper amount of anxiety should attend all operations in so vital a spot, I shall endeavor to show that the danger incurred in the removal of tumors from the neck, varies as widely as the many neoplasms differ histologically.

Tumors superficial to the deep cervical fascia are comparatively easy of diagnosis and safely operable, presenting no greater danger than similar growths in other regions of the body.

The only vessel of importance is the external jugular vein and this can usually be avoided as it is a prominent landmark in the neck. The danger from cutting it is not great. I have twice wounded it myself and have seen others do so, without trouble. Tumors originating beneath the deep cervical fascia, on the other hand, present the greatest difficulties in their diagnosis and removal.

Tumors of the neck are common at all ages. They are congenital and acquired, cystic and solid, benign and malignant. This region is preëminently the site of congenital cysts and I know of no other which compares to it in this respect. Many tumors

which are usually thought to be acquired are congenital, being held down by the deep fascia and prevented from appearing externally. A congenital cyst may not form a distinct and well outlined tumor until adolescence or middle age. This knowledge is of great value in diagnosis and treatment.

Cysts as they occur in the neck embrace almost every known variety:

1st. The simple, serous or unilocular cyst is frequently met with in the subclavian triangle and may pass downwards under the clavicle into the axilla or chest. They contain as a rule a colorless, limpid fluid and are usually called "hydroceles of the neck."

The cyst is congenital or acquired and may be above or beneath the deep cervical fascia. It is usually translucent and covered by smooth, thin skin of natural color. The aspirator would settle the diagnosis in any doubtful case. These cysts are supposed to grow from the branchial clefts and have been accurately described by Mannoni, Phillips and others.

Treatment.—When practicable they should be excised. When deeply attached, it will be better to excise a portion of the cyst wall, drain freely and plug with iodoform gauze. The old treatment of tapping and injecting with iodine, carbolic acid, etc., is uncertain and dangerous. Setons are more so. Spontaneous recovery has followed accidental rupture.

2nd. The second variety of cyst encountered in the neck is the compound or multilocular—the cystic hygroma of some authors, the lymphatic geioma cysticum of others. It is generally congenital and develops from the lymphatic vessels. It is most obnoxious to the carotid triangles. The different compartments of these cysts vary in size from a small shot to an orange. Their contents vary as widely as their size. Every sort of fluid, semi-solid and solid materials may be found in them. They are usually situated beneath the deep fascia, but may perforate it and present superficially.

They are attached to everything—vertebrae, muscles, vessels and nerves, which makes their removal always a serious matter, often an utter impossibility.

No other treatment, however, is at all satisfactory, and most authors recommend excision with all its primary and secondary dangers. The internal jugular vein, carotid artery and pneumogastric nerve have been excised in removing these growths, the patients in some instances making excellent recoveries. They are recognized by their tuberculated outline, fluctuation, and preference for the carotid triangles.

3d. The bloody cyst or hematocele may be met with in the neck. Sometimes they are hydroceles into which a vessel has ruptured. There is, however, a true bloody cyst intimately connected with the great vessels. Their contents resemble blood, and it is said that they are cyst-like dilations of the internal jugular vein. They may or may not communicate with the interior of the vessel. Subsidence of swelling upon gentle pressure would be an evidence of such communication, and a useful hint as to treatment as well.

4th. Sebaceous cysts are frequently met with in the neck. They are superficial and deep, usually the latter, as pointed out by von Langenbeck, differing in this respect from similar cysts in other parts of the body. Superficial sebaceous cysts are likely to occur in the thyro-hyoid region and are easily enu-

eleated. They may attain the size of an orange. Deep epididymic cysts are according to Gross, invariably situated in the superior carotid triangles—usually the left. They are frequently connected with the sheath of the vessels, and when the head is in certain positions pulsate synchronously with the heart. They give a pulpy fluctuation which is best elicited by putting one finger in the mouth, the other over the tumor. Von Langenbeck advises extirpation with all of its risks and hazards.

5th. Bursalcysts developed from the two normal bursae situated along the middle line of the neck are infrequently found. The upper bursa is found between the hyoid bone and thyroid cartilage; the lower and larger one between the thyroid cartilage and skin. These tumors are diagnosed by their situation, viscid contents and obedience to the movements of the larynx. They are rarely so large as a walnut.

6th. Hydatid cysts have in rare instances been found in the neck. Erichsen reports two cases. One removed from the subclavian triangle of a woman upon whom he had previously operated for hydatids of the liver.

7th. Along with cysts may be mentioned the air cyst or goitre aérien. It is caused by hernia of the mucous membrane of larynx or trachea through their cartilages or rings respectively. They disappear upon pressure, vary with respiration and enlarge after exertion. It is a rare affection and occurs in those who use the voice constantly, as the auctioneer or public crier.

8th. Thyroid cysts are less common in America than in the mountainous regions of Europe and India. They are particularly common in the Alps and Himalayas. I have seen many well marked thyroid cysts in Kentucky. These cysts which are usually multiple, generally affect the lobes of the thyroid glands rarely the isthmus. The right lobe more commonly suffers, which will place these tumors in the right inferior carotid triangle. The cysts vary in size from a pea to a fist and contain different kinds of fluid—rather viscid, bloody with an abundance of cholesterine.

They obey the movements of the larynx. Women suffer more frequently than men. The trachea may be pushed well to the opposite side.

Treatment.—If the disease is limited to either lobe, the proper treatment is by excision. Prof. Kocher of Berne, who has lived for years in a goitrous district and has excised the thyroid gland in whole or in part far in excess of other surgeons, is emphatic in his approval of partial thyroidectomy, but condemns removal of the entire gland.

Myxedema follows the latter operation in nearly every instance. He followed his cases carefully and in only two out of eighteen complete thyroidectomies were the symptoms of myxedema wanting. In both of these the bronchocele returned, and it is fair to assume that he did not remove the entire gland. Of twenty-eight partial thyroidectomies the general health of the patients did not suffer any. The experience of other surgeons has been not unlike Kocher's, and few if any advise total extirpation of the gland. If a portion of it is left the distressing and fatal symptoms of myxedema do not occur.

Where excision is not practicable, incision and drainage should be followed. Tapping and injections while curative in some instances are on the whole more dangerous and less certain than incision.

The other enlargements of the thyroid gland may as well be disposed of now. Benign tumors do not affect the thyroid, and the only innocent affection of a solid nature to which it is liable is the fibrous bronchocele. It is simply an hypertrophy of the normal glandular and connective tissue. It may affect the entire gland, but, like cystic disease, in this situation, is most obnoxious to its lobes, especially the right. The isthmus rarely suffers alone. Circumscribed hypertrophic conditions of this gland are by some called adenomata. Enlargements of this body in goitrous districts are frequently associated with cretinism.

Per contra, idiocy, so far as I am advised by the superintendent of the feeble minded institutions of this and other States, does not predispose to enlargement of the thyroid.

Malignant disease—carcinoma and sarcoma rarely affects the thyroid. Cancer is by far the more common affection and may exist as enchepaloid or scirrhus. It appears late in life.

Treatment.—Nothing can be done for malignant disease. The only hope would be in complete removal of the gland and this is certain to be followed by myxedema.

The solid bronchocele should be excised under the same rules governing operations for cystic disease.

In very exceptional instances there may be accessory thyroids in the neck—within the larynx, trachea, etc., and they give rise to the same enlargements peculiar to the normal gland. Benign solid neoplasms are found in all parts of the neck. The most usual growths are lymphoma, enchondroma, fibroma and lipoma. There is besides a local hypertrophic condition of the skin which at times is so distinct as to give the appearance of a tumor. The vessels in the affected area are much enlarged. This is really a naevoid condition.

Lymphomata are the most common of benign growths. They will generally be found in the submaxillary, occipital and subclavian triangles. One gland is as a rule affected. Enchondroma is practically limited to the submaxillary triangle where it affects the submaxillary salivary gland. I have never seen it in any other region of the neck.

Fibromas are not specially common, and when they do occur, do so indifferently. No region is specially liable to them.

Lipoma or fatty tumor while not frequent is sufficiently common in the neck. They are very generally superficial to the deep fascia, and when so are easy of removal, whatever their size. My belief is that they are more commonly situated in the inferior carotid triangle than other parts of the neck. They may attain an enormous size as shown by the photographs which I pass around, kindly sent me by my friend Dr. Samuel Swope, of Marion, Ky. Each had grown from twenty to twenty-five years.

Sterno Mastoid Tumor.—There is a circumscribed swelling of the sterno mastoid muscle, which is at times so pronounced as to give decidedly the appearance of a neoplasm.

Bryant and Holmes, who have specially investigated the subject, speak of it as if it were peculiar to the newborn infant and due to some injury (they are more common in breech presentations) during parturition. It unquestionably occurs in adults. I have seen two well marked examples of this affection.

Three years ago a farmer about 55 years of age,

living in Indiana, presented himself at the surgical clinic of the university with a well marked circumscribed swelling in the right mastoid muscle. No history of syphilis or trauma. The muscle could be lifted up sufficiently to clear up any doubt as to diagnosis. This man was given iodide of potassium, blistered locally, and was practically well within a fortnight.

Malignant Tumors.—Malignant disease of the neck may show itself in at least three different varieties. There are sarcomas, carcinomas, and the local enlargements incident to Hodgkins' disease—or as we prefer to call it, lymphadenoma. Sarcomas are more frequent than carcinomas.

Cancer never begins in the lymphatic gland primarily, and sarcoma does so but rarely.

Both sarcoma and cancer are in my judgment usually found after forty, and are likely to be situated in the occipital or submaxillary triangles. Sarcomas give a most deceptive sense of fluctuation when well advanced. The skin is discolored a deep red or violaceous hue and in time ulcerates. Hemorrhages take place from time to time and aid in hastening the end. Sarcoma attain an enormous bulk.

Treatment.—Unless seen and diagnosticated early, these cases are in my judgment not operable. No operation for malignant disease promises success unless considerable tissue can be sacrificed. This can not be done in the neck.

These growths are always more adherent than they seem to be, are exceedingly vascular, often accompanied by enlarged glands which renders their complete removal a matter of impossibility. The primary and secondary dangers are so great from operations for the removal of these growths that the wise surgeon will, as a rule, decline to interfere, for at best he has little prospect of doing substantial good.

Lymphadenoma affects the lymphatic glands of the neck early in the disease. The diagnosis of this affection can only be confounded with tubercular adenitis; as a rule, no trouble should be experienced in differentiating between them.

Tubercular glands always begin in the submaxillary triangle, whereas, in lymphadenoma the enlarged glands are first seen in the carotid and subclavian triangles. Tubercular glands are as a rule, small and unilateral—in lymphadenoma larger and bilateral.

Tubercular glands often break down—lymphadenomata rarely do so. Above all, tubercular glands are most common between ten and thirty years of age; lymphadenoma occurs at any age and *men* are more liable to it than women.

Tubercular adenitis runs a chronic course; lymphadenoma an acute one. Surgery promises but little in lymphadenoma.

Tubercular Glands.—No paper upon tumors of the neck would be complete without a description of the most common of all swellings in this region—tubercular lymphatic glands.

While these growths are inflammatory and not neoplastic in origin, still their history and operative treatment so closely resemble neoplasms that clinically we treat them as such. They are most common between ten and thirty years of age. The African and mulatto are very liable to them. They are unquestionably due to the tubercle bacil-

lus which gains entrance through a lesion of the skin, mucous membrane, socket of carious teeth, etc., and is then carried by the lymph vessels to the nearest lymphatic gland and deposited in its interior. The first glands affected are almost invariably the submaxillary. At first a single gland is enlarged, later on when it is no longer able to filter out all of the tubercle bacilli they pass to the neighboring gland, and so on possibly until the entire chain in this region, superficial and deep, become implicated in the tubercular process. So that we have first the submaxillary glands enlarged, next the occipital, lastly the subclavian. These all belong to the superficial chain.

The deep lymphatic glands are situated immediately beneath the sterno mastoid muscle from its origin to its insertion. These, in part or in whole, sooner or later join in the tubercular inflammation.

In the advanced stage of this affection every gland on one or both sides of the neck may be enlarged. It may run an acute, subacute or chronic course. Death may follow from miliary tuberculosis within a few months, or the disease may remain localized in a single gland for many years. The lymphatic glands are truly the "watch dogs of the system," and it depends upon how well they do their work what is to be the fate of the individual; as long as infection of other tissues, especially the lungs, is prevented, the disease runs a safe course. The capsule of the gland aids materially in localizing the germs and spores and preventing infection of the surrounding paraglandular tissue.

Separate for a time, tubercular glands usually fuse together, moving as a whole, the outlines of each, however, being usually distinct.

The first infected are the largest, possibly attaining the size of a walnut, while those involved late in the process are no larger than a pea. Tubercular glands may become caseous or break down; those first affected are most likely to do so, but they do not suppurate in a literal sense. The fluid or so-called pus is sterile.

Sometimes an acute process is engrafted upon the chronic; the glands becoming affected secondarily by the ordinary pyogenic organisms. Then true suppuration occurs and the glandular tissue and tubercle bacilli are destroyed by the acute process which ends in abscess and drainage—a fortunate ending when only one or two glands are involved. Acute suppuration taking place in a large number of glands could only hasten death.

Treatment.—If modern bacteriology and pathology go for anything, we should not be in doubt as to the treatment of tubercular glands in the neck or elsewhere. Exposure of the diseased parts by a free incision, so that each gland can be seen, felt and completely extirpated, along with its capsule, constitute the ideal treatment. When it is practicable Professor Senn advises—and I think wisely—that the entire chain of diseased glands should be removed en masse. An incision from the mastoid process to the angle of the lower jaw and thence along its lower border, would give free access to the glands usually enlarged. Senn removes the submaxillary salivary gland if it is at all suspicious, also the lower portion of the parotid. The occipital and subclavian glands are easily reached and enucleated.

If the deep chain of glands situate beneath the

mastoid muscle are to be removed, incisions are open to the operator. An incision along the anterior or posterior edge of the mastoid may be made in order to gain access to the diseased glands. The fact that the carotid artery and internal jugular vein have been injured in so many cases is sufficient evidence to me that these incisions do not sufficiently expose the parts, and the surgeon depends entirely upon the sense of touch.

Billroth cut the jugular vein sixteen times in 415 operations.

So that the operator shall see and feel every enlarged gland, the sterno-mastoid should be cut across about its center, and each end reflected back. Afterwards, the muscle should be sutured with over-prepared catgut or iron dyed silk. The head should be held in one position to facilitate union of the ends of the muscle.

The results of Billroth, Fraenkel, Schnell and others who have done many operations for tubercular glands, are quite as encouraging as an optimist would expect. About 25 per cent. of the cases operated upon suffer relapses and require a second or third operation.

When we remember that enlarged tubercular glands threaten life as long as they remain in the body, each being a focus for subsequent infection, and that in at least one case out of every eight military tuberculosis of the lungs follows, who can doubt what his duty is when a case of this kind comes to him for advice?

DR. MACLEAN of Detroit—The author discountenanced tapping and injecting the so-called hydrocele of the neck; for myself I will say that I have tapped and injected with iodine in a large number of such cases a great many times and I have never had occasion to regret it. I have never known of a failure.

With cystic goitres it is another matter; I occasionally get good results—not always. Sometimes the patient will allow tapping and injection when he will allow nothing else.

I have accidentally cut the jugular vein a good many times and never had any bad results; there is no great danger attached to the accident. There are many questions connected with this subject that are valuable, but I will merely say that I am personally grateful to the author for the manner in which he has dealt with it.

DR. MADD of St. Louis—I think the reader's classification of tumors of the neck a valuable and helpful one. The diagnosis of the individual case is often a difficult matter.

I don't regard the division of the jugular as very important.

The treatment of cysts of the neck in my hands has been most satisfactory by excision and I regard it as better than tapping and injections. The question has come up in my mind this morning, as it has many times before, whether myxedema following extirpation of the glands is as likely to occur here as it does in the countries where the condition is of so much more frequent occurrence, and from which the statistics are compiled. It is my belief that it is not.

DR. RODMAN—I thank the gentlemen for the favorable reception they have given my paper.

I find that the treatment by tapping and injection has effected many cures in eminent hands, but I regard excision as safer and better.

SELECTIONS.

Tracheotomy and Intubation in the Children's Hospital at Zurich.

—By G. BAER.—In this selection the surgeon discusses a subject which is under the notice of many of our papers. The author has been careful in practice and always with good results, so that now in all difficult cases, stenosis of the larynx, etc., whenever indicated, intubation has become the primary operation. Baer gives the entire history of all cases which occurred from the founding of the hospital in 1873 until 1891. Careful tables of statistics in which are classified the total mortality, the years and seasons in which the cases occurred, ages of patients and the percentage of recoveries from the operation according to the nature of the disease.

The number of cases reported is 66, of which about 48 per cent. resulted fatally. In 60 per cent. of the cases classified as to age, the youngest have the greatest mortality. Up to the first year of age about 75 per cent. succumbed, and from the eleventh year, only 8.3 per cent. The total number of operations—tracheotomy and intubation both—was 404. During the years 1874 to 1888, tracheotomy only was resorted to in about 323 cases. Later, when intubation was practiced only seven tracheotomies were performed, mostly on account of great swelling of the tonsils with closure of the nasal passages, which rendered intubation impracticable. Seventy-four cases were submitted to intubation, upon nineteen of which tracheotomy was subsequently performed. The mortality of the 404 operations is about 25.6 or 26.4 per cent. Out of the 323 patients on whom tracheotomy was performed 210 died; of the eighty-one intubations only forty-six succeeded.

The mortality statistics of the entire number, including the non-operative cases, point strongly in favor of intubation. More striking is the difference in the more dangerous cases of early life. From the first to the sixth year fatal cases in which tracheotomy was performed showed about 51 per cent., and in intubation only 41 per cent., a good 10 per cent. difference in favor of the latter. Besides, during that period in which intubation was entirely resorted to, a great majority of the cases were those of complicated pharyngo-laryngeal diphtheria, whereas the more simple laryngeal cases were few. The result is all the more noteworthy in that this hospital receives as a rule smaller children. Thirty-five of those intubated were under three years of age.

Following these general statistics is a history of the seventy-four intubation cases with clinical observations, which on the whole overrule the objections made against this operation.

Baer follows the O'wyer method except in one point—he does not remove the string from the tube, but fastens it securely between the teeth. This not only prevents the tube from being swallowed or slipping down, but also renders the use of the extubator unnecessary. The withdrawal of the tube can be quickly accomplished with the finger by the nurse in critical moments, and as a re-intubation seldom requires immediate performance, this makes the operation more practicable in private practice.

Baer attaches no importance to Escherich's observation, that it adds to the danger from pneumonia, and that the tube prevents expectoration. Although 44 per cent. of the seventy-four cases and pneumonia which had already existed at the time of operation, or had followed it so quickly that it could not be considered as due to the operation itself. In only four of the patients operated on this might have possibly been the case, but the author calls attention to the fact that inflammation of the lungs follows tracheotomy and if appearing at all, occurs somewhere between the third and sixth day after the appearance of diphtheria, that cases beyond the operative procedures seems to be responsible for this.

The objection that expectoration is less than through the wide tubes used in tracheotomies, Baer refutes, by stating that occasional swabbing out of the throats of intubated patients is quite efficient in removing clots of mucous, membrane, etc. No doubt in children, what is coughed up is immediately swallowed and no evil results from it, such as secondary diphtheritic infection of the alimentary canal. At all events, the clearing of the tube gives sufficient supply of air and if the openings at the head of the tube are made a trifle smaller, this can only be more favorable for expectoration as it can be more readily accomplished through a small than a large opening. Accidents during the operation (intubation) there were none. In only one case the tube persistently took the wrong direction into the trachea, and the patient was finally cured by tracheotomy. This, by the way, was the only case where a secondary operation was required. Swallowing of the tube, or slipping into the trachea never happened, nor asphyxiation from accumulation of secretions on the tube. There were also no injuries from intubation, to avoid which great care must be exercised in the selection of tubes which are not too large. That pieces of membrane may become crowded down into the trachea during the operation, the author admits, but considers this accident very rare; in such cases tracheotomy can be resorted to. Usually, however, the membrane is gotten rid of in the natural way, through the tube or by coughing. In order to avoid this complication, tubes with a short shaft should be used like O'Dwyer's model of 1890, the shaft of which is only 3 cm. long. The opening in the head piece is larger than in the older models in order to facilitate expectoration. The coughing up of the tube should be regarded more as a favorable than an unfavorable occurrence. When this happens during the first few days after the operation, it is usually followed by coughing up of tough masses of membrane; if happening later, it is almost always a sign that the larynx is returning to its normal condition; it is so to speak, a spontaneous expulsion. In all of the cases, however, there was plenty of time for the physician to replace the tube. It must be admitted that with intubated children, catarrhal disturbances and difficulties of nutrition were frequent, but patients upon whom tracheotomy has been performed suffer from this also. These difficulties can be met in various ways. If fluids can not be swallowed, semi-fluids may be tried, or swallowing with the head laid low, or the tube may be temporarily removed.

The different alterations and re-modelings which the tube is undergoing from time to time, promises relief in this direction. In the Zurich hospital, as well as by O'Dwyer himself, such changes have been attempted. The author adds several chapters on the practice of intubation in cases of chronic stenosis in patients upon whom tracheotomy has been performed, and also in the acute stenosis of non-diphtheritic patients.

On the whole, the work is deserving of great praise and can not fail to gain new friends for intubation.—*From the Centralblatt für Chirurgie*, July, 1893.

BOOK NOTICES.

Dunglison's New Pronouncing Medical Dictionary. A new edition of Dunglison's Medical Dictionary, by RICHARD J. DUNGLISON, is announced as in press for early publication. It has been thoroughly revised and greatly enlarged, and will contain about 44,000 new medical words and phrases. Pronunciation has been introduced into the new edition by means of a simple phonetic spelling. In the new edition much encyclopedic information, difficult of access elsewhere, will be found conveniently at hand. Especial attention has been devoted to matters of practical value. A review will appear in an early issue.

A Defense of Gastronomy. When a physician, who also has just claims to the title of philosopher, discourses entertainingly upon a subject of universal interest, his statements should receive attentive consideration; but when the author is an American and a veteran medical editor, he has the right to demand from us not only a hearing, but also a favorable judgment. Dr. DANIEL G. BRINTON has just favored

the public by writing a book on "The Pursuit of Happiness" (Phila., 1893), which abounds in wit and wisdom, and in which he summarizes the experience of an observer of unusual qualifications for the task which he has so well completed. As gastronomy is a medical topic, we extract the following paragraphs on this subject from Dr. Brinton's work for the entertainment of such of our readers as are interested in the æsthetic relations of dietetics:

"All nations of culture have connected a certain solemn joy with the act of taking food. To "break bread" with one is the expression of the sweet sentiment of hospitality, and for the lovers to share the same loaf before the High Priest was the simple and beautiful marriage rite among the ancient Romans. The "love-feasts" of the early Christians were the repetitions of the only ceremony which their Founder prescribed; and science traces to appropriate nutrition the growth of both physical and mental abilities. The devout Novalis called meal times the 'flower-seasons of the day,' and claimed that all spiritual joys can be expressed through the service of the table. Can there be anything in it unworthy or debasing?"

"In the light of such declaration should we look on our food-taking, and not merely as feeding and filling. Were the kitchen more of a studio in American homes, we should see a higher style of art in the drawing-rooms. The worst preparation for a day's work is a poor breakfast, and its shabbiest reward is a bad dinner. If our daughters studied more diligently what the Italians call the *melodia del gusto*, their married lives would be attuned to a more harmonious accord.

"Consider the appointments and symmetry of a well served dinner in that high style of art which the French have brought to perfection. The mere sight of the table awakens our æsthetic feelings, dispenses the cares that have infested the day and softens the asperities which its rude conflicts have developed. The snowy cloth with its embroidered center piece, bearing a vase of roses or restful green; the gay triumphs of the potter's skill, flanked by polished metal and diaphanous crystal, whose varied forms hint of the manifold gifts of the grape; the chairs so disposed as to suggest how we should live our whole lives—ever near to others, but not jostling them. Then how rhythmic the progress of the repast! the cold, salt shell fish, followed by the hot and spicy soup, harmonized by the neutral flavor of the fish, its creamy sauces relieved by the bare suspicion of the clear acid of the lemon; and so on through the courses, until the aromatic coffee and the tiny glass of liqueur, redolent of wild herbs or of Alpine flowers, remove both thoughts of food and a sense of satiety.

"The sequence of such a repast is not a conventionality. Medical men as well as epicures know that it is based on physiology. Once, with a friend of like inquiring mind, I ordered a dinner at a restaurant of renown, exactly reversing the usual sequence, beginning with Chartreuse, coffee and ice-cream, ending with soup, oysters and hock. The experiment convinced us that the received is the right sequence, and we made no second attempt to put the wrong end foremost.

"Many will cry that such a dinner as I describe is one for the millionaire and not for the million. They are in error. In France, I have partaken of such in families of very humble means. They are in fact economical. At an ordinary American dinner, I have seen seven vegetables and two meats served at once. Half the number would have set forth a much better repast, if served in the French manner. Moreover, an elaborate dinner is not desirable daily, but to have one, say weekly, is as improving as going to the opera or listening to a great poet read his own verses.

"An essential precept of gastronomic culture is to cultivate a taste for all customary dishes. Every locality has its own. Snails and mussels and cockscumbs are favorite dishes in Paris, but I have found few Americans enlightened enough to be willing to like them. A broad taste adds to one's pleasure and that of others. How disappointing the guest who refuses dish after dish planned with an eye to his pleasure.

"Do not be ashamed of the enjoyments of life which are derived from judicious eating and drinking. There are no more accurate standards of a family than its table manners, table service, table talk. Culture is reflected in them as in a mirror. Care not if the bigots and Pharisees call you a wine-bibber and a glutton. You will not be the first to whom they have applied those epithets, and you need not be ashamed of your company."

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:
PER ANNUM, IN ADVANCE, \$5.00
SINGLE COPIES, 10 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
NO. 68 WABASH AVE., CHICAGO, ILLINOIS.

All members of the Association should send their Annual Dues to the
Treasurer, RICHARD J. DUNGLISON, M.D., Lock Box 1274, Philadelphia, Pa.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Dunglison, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues and subscription for THE JOURNAL. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

SATURDAY, AUGUST 19, 1893.

THE TREATMENT OF TYPHOID FEVER.

In the topic which heads this editorial the medical profession is certainly as much interested as it is in the treatment of pulmonary phthisis. The able papers and discussions which we have presented to our readers in the columns of the JOURNAL during the past few weeks have been of great value as reflecting the opinions of active practitioners whose practical experience is of inestimable service to less favored colleagues, yet the fundamental rules governing the management of enteric fever are not modified by these expressions of opinion. Differences in belief may exist, whether intestinal antiseptics is desirable or obtainable in typhoid fever, and whether this temperature or that, is to be treated as a dangerous symptom, but the important fact that enteric fever is a disease in which good nursing and watching are the real factors productive in bringing about recovery, is universally recognized. In typhoid fever above all other diseases the physician must recognize that a cure is impossible, that he can guide the patient through the storm but not stop the storm, and that the only object he may expect to accomplish is the control of symptoms which directly or indirectly affect the patient unfavorably. While he may not be able to remove the cause of the symptoms the very relief may be advantageous. Thus a delirium indicative of great mental or physical distress, or the presence of some complication inducing pain may so exhaust the patient's vitality as to seriously impair his chances of recovery, and measures directed to the relief of these symptoms may save the particles of strength needed to carry the case over some crisis in his attack. There is therefore no specific or routine treatment by internal methods which should be resorted to when the diagnosis of typhoid fever is established, but there are two external methods aside from feeding which may be applied

to so nearly every case as to be called routine, namely, absolute rest in bed flat on the back, and the use of the bath in a more or less modified form. A simple mixture designed to maintain free action of the kidneys or stomach may be ordered in each case, chiefly to comfort the patient and his friends, but beyond this nothing is to be used without a distinct indication by some prominent symptom.

The necessity of absolute rest in early stages of enteric fever is known to every one, yet it often requires the most strenuous efforts on the part of the physician, particularly if not aided by a trained nurse, to maintain the degree of rest necessary. If there is one factor potent in rendering a prognosis unfavorable in enteric fever it is the neglect of this precaution in the smallest detail, and every rising to stool may be regarded as a most unfortunate cause of future trouble and danger.

The use of the bath, or more correctly water in any form during typhoid fever, stands next in importance and next in its approach to routine. It is a mistaken idea with many physicians that the water treatment of typhoid is solely indicated by high fever. Nothing can be more erroneous. While high temperature is without doubt a most important indication for the bath treatment, extreme restlessness is also a positive reason for its employment. Further than this there can be no doubt that the use of water not only lowers excessive temperature but prevents its rapid return and in some way advantageously modifies nutritional changes. Restlessness and insomnia accompanying fever too slight to require the full bath are often entirely relieved by a tepid sponging which soothes the irritated skin and equalizes the circulation, refreshing and invigorating the patient. Each part so sponged should be immediately rubbed dry so that the patient may not be relaxed by soaking. We presume this does not apply to the cases of high fever in which friction with the hand must be used to bring the blood to the surface where it may be cooled. We have not tried to indicate in this article the medicinal treatment required by various complications, as space forbids, but we are sure that if these views are followed complications will be less frequent and a firm basis maintained for rational measures sometimes necessary for the relief of accidents.

THE PAN-AMERICAN MEDICAL CONGRESS.

With the next issue of the JOURNAL we will complete the publication of the preliminary programs of the different Sections of the coming Congress. All doubts that have been expressed concerning its success are now set at rest, and this Congress is destined to go into history as one of the most successful medical meetings ever held on this continent. It is no disparagement to the Ninth International Medical Con-

gress to make this assertion, for the managers of that Congress had the constant and determined opposition of many of our most influential medical leaders, and of the medical press east of the Alleghenies.

Happily, DOCTORS PEPPER and REED have encountered no such fierce opposition; a united American medical profession have marched under their leadership in the most harmonious fashion and without the slightest friction or bitterness.

Contrary to the general opinion, our colleagues from the other Americas and the Islands of Pan-American seas, have generously responded to the call, and they are well represented upon the program of every Section. They will be welcomed with true Pan-American hospitality, and we trust that this meeting will signalize the beginning of that bond of fraternal union which all Americans hope may grow stronger with each recurring triennial.

The Washington committee have left nothing undone that would inure to the success of the meeting, and the Congress of the United States in making a liberal appropriation for it, were governed by motives of patriotism, and the spirit of encouragement of the liberal arts and sciences.

From a scientific standpoint the program of the Congress leaves little to be desired; there might in future Congresses if any are to be held, be fewer sections and more consolidation, but in a country where every man is a born leader he must have something to lead. Moreover, the experience of this organization will be of great service to those that are to follow. Meanwhile, let us in advance heartily congratulate PRESIDENT PEPPER, SECRETARY GENERAL REED and the other officers of the Congress, on the assured prospect of the undisputed and deserved success now about to crown their labors.

ASPECTS OF AMERICAN PHARMACY.

The *Chemist and Druggist*, July 29, treats briefly of an apparent downward tendency in the pharmacy of this country. It implies that while there are still men of high caliber in the front ranks, the days of "the Parrishes and Procters are ended." The rank and file are not satisfactory, chiefly because the door of entry into that department of life work is too wide and too easy, and also because there are too many stores. Competition is too great to enable good workmen to sustain themselves.

Another fault is found in the loose organization of boards of pharmacy; and the latter are or may be so administered that their qualifying examinations are far from being a test of sound professional knowledge. The remuneration to be obtained by the members of such boards is commonly quite inadequate to command the services of the best men.

"Some teachers, a few examiners, and some prominent pharmacists have endeavored to warn the

trade of the evil, and have urged prompt remedies; but there is no sympathy with such notions, and the immediate result is that young men of good education give pharmacy a wide berth. What appears to be necessary before American pharmacy can take its rightful position is that—

1. An examination in English, arithmetic, and Latin, or French, or German, should be instituted and passed by candidates before commencing apprenticeship.

2. Evidence should be produced to show that candidates for a license have been engaged for four years in dispensing and making pharmacopoeial preparations, one year at a college of pharmacy being recognized as part of the period.

3. The boards of pharmacy should be reconstituted so as to free them from executive functions, and devote themselves solely to the examination of candidates. With this object, only men of distinguished collegiate career who are known to be up to date in all the branches of knowledge pertaining to pharmacy should be appointed, and the honorarium should be such that the best men can afford to give their services.

It is the opinion of some of those best capable of judging in America, that less than 5 per cent. of those entering the drug trade in the United States could pass the English preliminary examination, and probably not 1 per cent. could attempt the Latin paper. It has been even questioned if one in a dozen of the members of the boards of pharmacy could write an English prescription in full Latin. It may be asked why, if that is so, American pharmacists do such good work. Their pharmacopoeia touches the high water mark; how can that be? The answer really shows the possibilities of American pharmacy. The workers in research, the men who compile pharmacopoeias, are the pick of the thoroughly educated class, some of them naturalized citizens whose early training was obtained in Europe. American pharmacy would be bad indeed if from its 30,000 followers a score or two fit men could not be picked for the best work. But the conditions are altogether opposed to the growth of this class, and unless educational and examination reforms are introduced for the improvement of the trade, the United States pharmacopoeia will become an expression of the opinions of teachers or professors and of chemists to manufacturing houses. That is a consummation not desirable from any point of view."

THE MEETING OF THE MILITARY SURGEONS.

To those of the profession who have an interest in the progress of the workers in a particular line, the proceedings of the Association of Military Surgeons will be specially attractive. The Association has a manifold labor before it. It has to build up itself as an association, to reorganize on the most approved basis the medical organizations of its various members and to stir up the energies of our military medical men to a thorough appreciation of the responsibilities of their position. In effecting either of the last two tasks it will accomplish the first—the consolidation of its own organization into a permanent and valuable institution. Probably greater prog-

ress will at first be made in the education of the individual than in attempts to effect changes in existing organizations. Both are needed; but the latter will be accomplished only when a majority of the medical officers concerned have a full and complete knowledge of their duties and responsibilities in war and in peace and of the methods by which they may best be fulfilled. The Surgeon General of the Army has recently established a medical school in which young graduates who have been selected by competitive examination are required to attend a four months' course from 9 A. M. to 4 P. M. daily to prepare them to undertake their medico-military duties. This shows that something more is required than a medical education, a commission and a uniform, to enable one to become a qualified military surgeon. The routine duties of a medical officer of the State military forces are easily learned; but the duties of active service in time of war which in peace he is expected to prepare for, require time, study and practice. Much more than a few days' outing in a summer camp is evidently needful. The Association should formulate its views on the special requirements of candidates for commission, and urge that no medical man be appointed unless he has shown himself possessed of the necessary technical knowledge.

This brings us to the second point, that of organization. Here earnest work will be required to accomplish the necessary changes. It is difficult to get out of the old ruts, but the day of the regimental surgeon and his assistants has passed. The State medical departments should be organized after modern methods to obtain from them at all times their best work and to render them assimilable, in the event of war, with the medical department of the regular army. A staff of specially educated medical officers and a well drilled hospital corps are as essential to the well being of the State troops as to that of the Home Service troops of Great Britain; both may be called upon at any time to take the field. Already our military surgeons are progressing in this direction, and we look to the Association hopefully for the speedy accomplishment of that reorganization which will enable all to be consolidated in an emergency into one compact, U. S. MEDICAL STAFF CORPS.

THE CHOLERA SITUATION.

During the month of April the situation in regard to the introduction of cholera into this country looked quite threatening; in the months of May and June there seemed to be a lull in Europe, but July there was a marked increase in the number of cases and deaths, and also of infected places. This was simply following the history of all epidemics and pandemics of cholera, and it was to be expected that a recrudescence of the disease would occur with the advent of

high temperature in many localities. This obtains especially with regard to Russia and France. While the fatality is not so great as it was last year, still in some localities in Russia the mortality is very high. The figures given by cablegram from London for last week are as follows: Podolia 484 cases, 175 deaths; Orël, 327 cases, 110 deaths; Don region, 354 cases, 147 deaths; Kieff, 290 cases, 91 deaths; Gron-do, 110 cases, 27 deaths; Nijni Novgorod, 259 cases, 102 deaths; Kherson, 50 cases, 18 deaths; Yaroslav, 38 cases, 15 deaths; Kazyn, 39 cases, 13 deaths; Moscow, not including Moscow City, 27 cases, 9 deaths. In Moscow city there was an average of thirty cases, and fifteen deaths daily. It will be seen that it principally prevails in the southern portion of Russia, while it is true that a few cases have appeared in St. Petersburg this year. This condition of affairs has stimulated the German authorities and there are now only two points through which communication is held with Russia. Hamburg has forbidden and will not allow emigrants from Russia to come to that place, a precaution which if it had been taken last year would probably have saved the city a bitter experience. Germany, also, has forbidden the importation of hay, straw and fodder from Russia for the same reasons. Bremen still receives Russian emigrants, but they are not allowed to be sent to this country until after proper detention and purification and disinfection of themselves and their baggage. Some of them have also reached Naples by way of Odessa and a number of them within the last week arrived in Paris, having been brought there through Baron Hirsch's agency. In Roumania a number of cases have occurred and the authorities have prohibited communication with Russia, in consequence of the occurrence of cases in Bessarabia. Austria has had quite a scare during the last week by the breaking out of cholera along the line of a canal now being dug, the cases occurring among the workmen.

There is still some cholera in Hungary and the lower Danube. In France, cholera has existed in the northwestern portion and is increasing in the southern portion, but owing to the reticence observed by the French authorities, it is impossible to tell all the localities in which it exists. The authorities are pursuing a similar course to that which they took in Marseilles and Toulon in 1884, when they called cholera, cholérine. France evidently is not yet observing the agreement of the Dresden conference of this year, at which each country pledged itself to notify the others of the presence of cholera within its borders. France has always pursued the policy of concealment as much as it possibly could, with the result of more outbreaks of the disease than if a different course had been pursued. Four vessels with cholera

aboard arrived during July at four separate and widely different localities in England, having sailed from or touched at ports in France or Italy, but so far, owing to the promptness of the authorities, there has not been any spread of the disease. The *Myrtle Branch* arrived in the river Tyne from Nantes; the *Widdington* in Penarth Roads from Marseilles via Malta; the *Blue Jacket* in Cardiff and the *Altmore* at Gravesend, both of the latter having sailed from Marseilles. On the last named vessel was a fireman in a state of convalescence and his case affords an instructive lesson as to the duration of the infection in a person who has suffered from cholera. The *Altmore* arrived at Marseilles on July 3 and left on July 5. The fireman was on shore during the whole time of her stay there, and on July 7 was attacked by very severe diarrhoea (twelve times in twelve hours), vomiting, and cramps. He became faint and collapsed, and the captain gave him quinine and iron. When the ship arrived at Gravesend on July 17, the fireman was still feeble, and although nominally at work was able to do very little. The vessel was cleansed by the Customs officers, and the usual certificate given. Dr. Williams, however, the Assistant Medical Inspector, found the case, and sent him to the Hospital. The presence of the cholera bacillus in the evacuations of the patient was demonstrated by Dr. MACFADYEN at the College of State Medicine. This is very important, as it affords further evidence that a patient who might thoroughly be called convalescent was still capable of communicating the infection. It cannot, therefore, be proper to allow patients who have recovered from cholera to leave the hospital until some time after convalescence has been established. Dr. COLLINGRIDGE is of opinion that the period ought to be fourteen days. This fact obviously throws a very serious responsibility on medical officers of health. The ship *Altmore*, has been thoroughly fumigated and disinfected with corrosive sublimate under Dr. COLLINGRIDGE's directions; the water tanks have been emptied and cleaned, the bilges disinfected, and all clothing treated with superheated steam. (*British Medical Journal*.) It must also be recollected that it was stated by an observer in St. Petersburg, last year that the comma bacillus was found in the evacuations of a man who was not suffering from cholera. This naturally suggests the question whether this disease may not be spread by walking cases.

At the moment of writing, *The Lancet* just at hand, reports the arrival at Gravesend of the *Bona* from Burmah, with several suspicious cases on board, one fireman having died on the day of seizure by a malady held to be cholera. A Danish steamer on its way from Antwerp put into the Humber on the 2d of August with one of the crew ill from cholera. Since that date four cases have been reported in

Antwerp. The *Elizabeth McNeal*, bound from Cherbourg to Rochester, arriving at the Noire on the 2d inst. was found to have a case of cholera on board.

So far, no authentic case of cholera has developed in Germany during the last two months, showing the stringent precautions exercised in that Empire. The outbreak in Mecca seems to have exhausted itself, while at Bassorah and at a few points in Turkey in Asia, cases have been reported, as also at Smyrna. It does not seem that the returning pilgrims from Mecca have scattered the disease to a great extent. At El-Tor a number of cases have however, occurred, there being still in quarantine at that place over 12,000 pilgrims, and 6,000 more on shipboard.

In Italy a number of cases have occurred at Alessandria and in Piedmont during the last month, and cases are also reported at Rome. The Italian authorities announced that the disease was suppressed at Alessandria. It is plainly evident that the disease existed at other points as on July 19th, Dr. Young of the Marine Hospital service announced the existence of cholera in Naples. This was contradicted by the authorities and for a time the Italian government undoubtedly wished to suppress any indication of the existence of cholera, but the time came when the fact could no longer be withheld, and official announcement was made. An officer of the Italian government went from Rome to Naples and while there contracted the disease and died. Since, the government has forbidden pilgrimage to Rome, and within the last week has placed a medical officer on each train running between Naples and Rome to inspect and take care of such passengers as may be attacked with the disease. In consequence of the unfavorable aspect in Italy the International Medical Congress at Rome has been postponed until April. The Italian government asserts that the disease was introduced into Italy by some Italian workmen coming from Marseilles.

The action of Dr. Young, in communicating the intelligence that cholera existed in Naples cannot be too highly commended, as the importance thereof to this country is shown by the following New York Health officer's telegram:

"Steamship Karamania cleared from Naples on the 15th of July with 471 passengers. Officers and crew sufficient to make up a total of 524 persons. All in good health according to the bill of health. All vaccinated and effects inspected. Signed, Twells, U. S. Consul; Young, assistant surgeon, M. H. S." On the second day out Rosa Buccola, died. Surgeon making autopsy stated cause of death to be congestion of the lungs, and that she was ill when she came on board. The steamer touched at Gibraltar on the 20th, when the consular visa of bill of health was granted by the Consul, who, after writing in the above statement, said "Steamship leaves in free pratique." (I may add that this patient had diarrhoea as well.) The following is the history of the two cases which died just before reaching port:

An Italian, aged 40, was taken suddenly ill. Found in a very prostrated condition. Complained of pain in right side and diarrhoea. Removed immediately to ship's hospital. On August 2d, after treatment, he seemed to be slightly im-

proved. Later on he became rapidly worse, diarrhoea and vomiting. Some cramps in legs and arms. He died at 8 A. M. on the 3rd. On the 1st, a woman, aged 23, Italian, began to have diarrhoea. Great prostration; pulse weak. She continued to grow weak. Complained of abdominal pain. Began sinking in the night. Died morning of 3d. Buried at sea. There were several cases of diarrhoea between the 17th of July and the 1st of August on board. The vessel has been ordered to lower quarantine, and passengers will be transferred at once. They will be detained five days at least.

An inspection was made of the passengers, but no new cases found. It was decided, however, and under the circumstances very properly, that all should be transferred to Hoffmann's Island for cleansing, disinfection and observation. After a short time suspicious cases began to develop; these were promptly transferred to Swinburne Island and some of them were pronounced, after the bacteriological examination was made, to be suffering from cholera. Four deaths have so far occurred by this disease, and there are now in the hospital a total of twenty; of these fourteen have cholera, one convalescent, three not having cholera and two suspects. The disease is said to be of a mild type.

It is to be regretted that the improvements at Hoffmann's Island had not been completed before the arrival of cholera.

As it will probably be some time before the immigrants of the Karamania are discharged, it would seem advisable for the health officer to consider carefully the lesson afforded by the Gravesend experience, and to devote his attention to the prevention of the possibility of any infection being conveyed by convalescents. To this end it would be probably desirable to have the evacuations of the convalescents periodically and carefully examined.

The situation in the port of New York now naturally causes anxiety throughout the country, and the responsibility of those in charge is very great. No immigrants should be allowed to land in this country from any ports in France or from any vessels that touch at any ports in France, from Italy, and especially from ports bordering on the northern and eastern portion of the Mediterranean Sea, or from Russia, except under the most rigid surveillance.

The quarantine of the port of New York is again on trial, and it will not do to omit any precaution to prevent the introduction of disease into the United States. While it is true that during the last two or three days no new cases have occurred, there is still danger.

As we go to press, an increased number of cases in Russia is reported by cable, and four cases of cholera among Poles are announced at Berlin, and the disease is spreading from Naples to other coast towns.

DISINFECTION CIRCULAR.

We give in this issue the full text of the circular regarding the use of disinfectants just issued by the Surgeon General of the Army for the instruction of

his medical officers. This must be accepted as an *ex cathedra* utterance, as it is to the work of Surgeon General STERNBERG as chairman of the Committee on Disinfectants of the American Public Health Association that the profession owes its present advanced knowledge on this subject.

His instructions will therefore receive merited attention from the medical profession, and particularly from municipal and other health officers. He insists on the needlessness of using disinfectants when there is no infectious material to be disinfected, and suggests that even the use of antiseptics and deodorants implies somewhat of a reproach as indicating a neglect of cleanliness and strict sanitary police. Another of the points on which he lays special stress is the unnecessary call for *superheated* steam, requiring a specially constructed steam-chamber, which is so generally found even in official instructions on this subject; free exposure to flowing steam for one hour being sufficient to secure disinfection. The transference of infection by flies from excreta to the surface of meat, milk or other food supplies is also referred to as suggesting the need for careful disinfection in this direction. We commend this circular to attentive consideration in view of present conditions, with cholera at our eastern portals and yellow fever officially announced on our southern shores.

SOCIETY NEWS.

The Association of Military Surgeons of the National Guard of the United States.

Abstract of the Proceedings of the Third Annual Meeting, held in Chicago, Ill., August 8, 9 and 10, 1893.

(Continued from page 246.)

At the executive session held in the morning, the name of the Association was changed to "The Association of Military Surgeons of the United States."

SECOND DAY—AFTERNOON SESSION.

The Association was called to order in the U. S. Government Building at Jackson Park at 2 P. M. by PRESIDENT SENN.

The first paper read was by DR. HERRERT L. BURRELL of Boston, entitled

GUNSHOT WOUNDS OF JOINTS.

The author said that all writers agree upon dividing the effect of bullets into zones. Zone one extends up to 400 meters of distance. A 30 caliber bullet has a decidedly explosive effect, but less than 45 caliber. He reported two cases which illustrated the difference in the destructive effects upon the spongy ends of bones entering into the formation of the knee joint, at 350 yards. The skin of every subject of the reception of a gunshot wound is septic. It is the author's belief that all that can be done for a patient receiving an injury at the "line of fire" is—

1. To check the primary hemorrhage by means of tourniquets.
2. To apply antiseptic dressings (iodoform gauze), or some dry antiseptic.
3. To prevent further injury to the patient during his speedy removal to the field hospital.

The author formulated the following conclusions as regards gunshot wounds of the joints with the new 30 caliber projectile: (a) that joints having large synovial cavities will have to be thoroughly explored and cleansed, except possibly where the injury has been received at mid and long range; (b) that small or superficial joints with small synovial areas will simply require cleansing and tamponading; (c) that it will require a larger number of company bearers, Red Cross workers, and surgeons than have ever been assigned for duty; (d) that so far as joint injuries are concerned the new 30 caliber is more humane than the 40 caliber bullet.

DR. LOUIS LAGARDE, U. S. Army followed with a paper entitled,

GUNSHOT INJURIES INFLICTED BY THE PROJECTILES OF HARD EXTERIOR,

which dealt principally with the comparative difference in the destructive effects between the number 30 caliber German silver jacketed bullet, and one 45 caliber leaden projectile. If we look back upon the conditions which influence destructive effects in wounds we will find three factors, namely, velocity of the projectile, resistance of impact, and deformation of the projectile. Projectiles of hard exterior are more humane than those of the old armament. One of the chief causes of death on the field of battle is said to arise from fatal primary hemorrhage. Moraudy ascribes 75 per cent. of deaths to this cause. Lidell places the percentage at 30, and Legouest at 18 per cent. These figures, the speaker thought, were founded on mere assumption, because as a rule surgeons are so busy in caring for the wounded after a battle that there is no time to devote to the dead, hence the lack of precise data. With the use of the new armament, he believes the cases of fatal primary hemorrhage will be less. In making this statement he was mindful of the fact that the majority of the writers on this subject entertained the opposite view. He had based his conviction upon the following mode of reasoning, that when the leaden projectile encounters resistant bone, pieces of lead are nearly always detached at the moment of impact. If the momentum of the projectile is still sufficient the pieces of lead are detached, splinters of bone act as secondary projectiles, and the danger to neighboring vessels is consequently increased. As long as the new projectiles beyond the zone of explosion cause less shattering, and they seldom deform, the amount of danger to blood vessels will not be so great, hence the percentage of fatal cases of primary hemorrhage in future wars should be less.

DR. G. D. DESHON of Chicago, read a paper entitled

THE MILITARY RIFLE AS VIEWED BY THE SURGEON.

The author dealt principally with the evolution of the rifle, and exhibited and demonstrated the *modus operandi* of the rifles used by different nations.

DR. A. C. GHARD, U. S. Army, read a paper entitled

WOUNDS MADE BY LARGE AND SMALL BULLETS.

The paper was a digest of the past experience compared with experiments recently made on the effects of the small caliber infantry armament. By simple reasoning the author arrives at the conclusion that the energy of a projectile is the main factor controlling the amount of injury inflicted, and if the formula for energy is not correctly applied the whole fabric of the conclusions drawn from experiments with a reduced charge and computed distance is fallacious. Experiments had been recently made with the new small caliber weapons in Prussia which determined that the effects were, if anything, more destructive than those of large caliber guns.

PROFESSOR FINKLER of the Imperial German Army, addressed the Association on the "Bacteriology and Chemistry of Tetanus."

DR. CHARLES ADAMS, of First Regiment, Chicago, read a paper on

GUNSHOT WOUNDS OF THE CHEST.

He said from the time of Larrey to the present, the proportion of wounds of the chest to the total number of wounded had been very nearly 1-12½ per cent. The fatality under modern methods of treatment, had been reduced from 30 to 75 per cent. under the old methods. Contusions of the thorax vary in degree from the superficial to those accompanied by the disorganization of the contained viscera. It has been frequently observed that a soldier has received a blow upon the chest from a spent bullet, has even in some instances been knocked down by it, convinced from his sensations that the ball had entered the chest, and has returned to duty as soon as his fears were allayed with no after consequences or only those of a trivial nature.

Wounds of the bony walls of the chest, without penetration of its cavity, include shot injuries of the sternum, clavicle, ribs, scapulae and vertebrae. Fractures of the sternum, without opening the pleura or pericardium are of rare occurrence; often bullets, especially of small caliber, are embedded in the bone substance, and splitting and extensive shattering of the bone have been observed.

The treatment of non-penetrating wounds of the chest should be governed by the same rules which are applied to the treatment of wounds in general, the ideal in chest wounds being primary aseptic or antiseptic occlusion. Most penetrating wounds of the chest are complicated by wounds of the contained viscera.

Emphysema, unless very extensive, may be confidently expected to disappear under the compression of the dressing. If of large extent, multiple punctures may be made. All penetrating wounds of the chest should be carefully watched for hemorrhage. A patient suffering from a penetrating wound of the chest should be treated by absolute rest. Cooling drinks should be administered, or small pieces of ice, to allay thirst. The application of cold to the chest surface is not often a practical measure as the cold will not be effective through such a dressing as should be primarily supplied. This should be liberally thick. Of the drugs which have been recommended in chest wounds nothing calms the patient, eases pain and has better effect upon the hemorrhage than morphia given by hypodermic injection. Ergotin administered in the same way may be of service in hemorrhage. Digitalis may be needed to strengthen a heart failing from acute anemia.

DR. J. D. GRIFFITH, Surgeon General of Missouri, contributed a paper on

GUNSHOT WOUNDS OF THE ABDOMEN,

which was read by Dr. LaGarde, in the absence of the author. The paper criticised observations that had been made as to the action of the new appliances of destruction on the living body and recorded some observations which the author had made.

The late rebellion in our own country, and the still more recent wars of Europe, had shown in their records the immense mortality of men wounded by the large leaden bullet. The ball now being used by our own Army and National Guard is heavier than either the English or Continental. The exceeding mortality of those wounded had naturally led our civilized world to look for a weapon more effective, yet more humane. This paradoxical condition had probably been found in our country by the adoption of the Krag-Jorgensen rifle, caliber 30. The small caliber repeating rifle is rapidly taking the place of the single loader of seven years ago. All the leading powers of Europe have taken steps towards re-armament with pieces not exceeding 31 in caliber. England, Germany, France, Austria, Italy,

Russia, Denmark and Belgium have adopted the small bore system. To produce such a rapid change of armament, the small bore rifle must possess decided advantages over the larger caliber gun. These advantages, as claimed by Professor Hibler, are lighter ammunition, flatter trajectory and greater danger space, less deviation by the wind, less recoil, greater penetration, greater accuracy, and last, and the one which particularly affects the surgeon, wounds while sufficient to disable, are more humane.

Dr. Griffith then dwelt upon the establishment of a government medical college as well equipped as West Point in its line, and supported in the same manner, for the purpose of thoroughly educating men for the battlefield, from the litter bearer and ambulance corps to the finished surgeon.

The author related a series of experiments with the new gun, 30 caliber, nickel coated ball with leaden core, driven by smokeless powder; weight of ball 220 grains, amount of powder 37 grains, the distance from the muzzle of the gun to the target being a little over 300 yards. A number of beef intestines, some full of water, some half full and others empty, were suspended in a wet bag of chamois skin. Two layers of this covering the intestines were separated by half an inch, and the bag and contents fired into. Several large dogs were also provided. The conclusion reached is that the new rifle is anything but a humane gun in the first zone, the explosive effects being perfectly terrific; death being instantaneous in the dogs, even though no vital parts were struck. Again, it was noted that wherever a vessel was struck, the opening was absolutely clean cut as if by a knife—no "curling up" of the inner coat, so that hemorrhage could only be checked by stoppage of the heart beat.

(To be continued.)

Medical Society of the Missouri Valley.—The annual meeting of this society will be held in this city September 21st (Thursday) and continue in session one day. Members contributing papers must send titles to the secretary prior to August 25th, so they can appear on printed program, mailed September 1st. Applications for membership can be sent to Dr. J. F. White, Council Bluffs, Iowa, with a fee of two dollars enclosed.

A full meeting is expected; a profitable session desired. Secretary's office, COUNCIL BLUFFS, IOWA, Aug. 10th, 1893. F. S. THOMAS, M.D., Secretary.

Southern Minnesota Medical Society.—The second annual session of the Southern Minnesota Medical Association met Aug. 3rd at the Rochester State hospital. Several interesting papers were read. The officers elected were: president, Dr. A. F. Kilbourne, Rochester; first vice president, Dr. S. H. Van Cleave, Mantorville; second vice president, Dr. R. C. Dugan, Eyota; secretary and treasurer, Dr. H. H. Witherstine, Rochester.

Prize Essay.—The Belgian Gynecological and Obstetrical Society have decided to found an international annual competition bearing alternately on a gynecological or obstetrical question. Entries for the first competition will close September 1st, 1894. Manuscripts, written in French, must be sent before that date to the secretary-general of the society, M. Jacobs, 12 Rue des Petits-Carmes; must be marked by a motto or design, and be accompanied by a sealed envelope bearing a similar mark and enclosing the competitor's name and address. The prize will be the sum of three hundred francs. The subject of the competition for the coming year will be: "Chercher à établir par des expériences personnelles, anatomiques, physiologiques, chimiques, etc., le rôle rempli dans l'organisme par l'écoulement menstruel."—*Am. Jour. Obst.*, Aug., 1893.

ASSOCIATION NEWS.

Membership in the American Medical Association.—The need for organization of local societies is apparent, and it is none too soon for efforts to be made in this direction. In accepting membership in the local or State society, as its qualification, the Association has for years taken the ground recently adopted by the Medical Society of the State of California. The onus of determining the professional fitness of an applicant is thrown upon the locality where he is best known, and upon presentation of the proper certificate there is no further question as to his eligibility. California is now ahead of most of the States in the possession of a more perfect organization. The present loophole in the constitution of the National organization is the dual portal of admission, and this the proposed constitution endeavors to remedy by providing that members can only join from a State society. The local society is the great factor of importance to the profession, and in States where membership in a local society is not a prerequisite of membership in the State society, the AMERICAN MEDICAL ASSOCIATION has at present no authority to uphold the "unit of professional organization."—*Occidental Med. Times*, Aug., '93.

DOMESTIC CORRESPONDENCE.

The Treatment of the Morphine Disease.

To the Editor:—Sir—To any who may desire it I shall take pleasure in sending a paper giving in full detail a method of treating morphinism that is simple, satisfactory and successful; and far in advance of any mode yet presented to accomplish two cardinal objects—minimum duration of treatment and maximum freedom from pain.

J. MATTISON.

Medical Director Brooklyn Home for Habitués.

A Query.

To the Editor:—Who is the rising chemist of New York city? Ans: He whose classic portrait precedes baking powder advertisements.

MISCELLANY.

New Cancer Cure.—A recent issue of that sterling medical journal the *New York World*, informs us that Doctors W. T. Bull and W. B. Coley of New York city have discovered a new cancer cure, in the *Streptococcus Erysipelatosus*.

Surgeon General of Washington.—Dr. J. B. Eagleson of Seattle, has been appointed surgeon general of Washington on the staff of the commander-in-chief, with the rank of colonel, in the place of the late Col. E. L. Smith.

Saratoga Springs in Danger.—It is stated that a recent well-boring in the vicinity of Saratoga opened up a vein of dry carbonic acid gas, and those who are interested in the perpetuity of the Springs are in trepidation lest this vein may be the carbonizing agency of their various sparkling fountains. If that vein should be tapped so as permanently to affect the Springs the losses at that health resort would be very considerable; in the millions, possibly.

New Hospital.—The trustees of St. Barnabas hospital, Minneapolis, contemplate the erection of a new brick hospital building upon the site of their present frame building. The new building will cost about \$25,000.

Distinguished German Dentists.—Dr. Emil Richter of Berlin, arrived in Chicago August 9th with a distinguished party of German dentists. They have made the journey here from New York by easy stages, stopping at the notable places on the way. At the Dental Congress to be held here Aug. 14th to 19th they will represent the fatherland, and in the meanwhile they will enjoy the world's fair. There are nearly a dozen members in the party.

THE PUBLIC SERVICES.

U. S. Naval Laboratory and Department of Instruction.

By order of the Secretary of the Navy dated June 22, the Naval Laboratory at Brooklyn will hereafter be known as the U. S. Naval Laboratory and Department of Instruction. Immediately after admission to the Navy, assistant surgeons will be ordered to that institution, for such study and instruction as may be necessary to familiarize them with the duties of medical officers ashore and afloat.

The course of instruction will occupy three months.

A professional record is kept of the assistant surgeons' work, and when examined for promotion this record will be transmitted to the Naval Medical Examining Board for inspection, to be returned to the Bureau on completion of the examination.

The Use of Disinfectants.

WAR DEPARTMENT, SURGEON GENERAL'S OFFICE,

Washington, August 9, 1893.

Requisitions received from time to time indicate that certain medical officers of the Army are not well informed with reference to the use of disinfectants.

It may be the meaning of A. R. 1656 and of paragraph 36 of the Supply Table has been misunderstood.

A. R. 1656. "Carbolic acid, chloride of lime, sulphate of iron, corrosive chloride of mercury, solution of chlorinated soda, and other articles required as antiseptics or disinfectants in hospitals, and for general use at military posts, will be issued by the Medical Department upon the requisition of the medical officer."

Standard Supply Table, paragraph 36. "Disinfectants for general post sanitation will be issued by the Medical Department upon the annual requisition."

The mistaken idea that disinfectants are required "for general post sanitation" in the absence of any infectious material to be destroyed seems to be prevalent among officers and non-commissioned officers of the Army, and should not receive support from officers of the Medical Department.

The definition of a disinfectant adopted by the Committee on Disinfectants of the American Public Health Association in 1885 has now been generally accepted by well informed sanitarians. This is as follows:

"The object of disinfection is to prevent the extension of infectious diseases by destroying the specific infectious material which gives rise to them. This is accomplished by the use of disinfectants."

"There can be no partial disinfection of such material; either its infecting power is destroyed, or it is not. In the latter case there is a failure to disinfect. Nor can there be any disinfection in the absence of infectious material."

"Antiseptic agents also exercise a restraining influence upon the development of disease germs, and their use during epidemics is to be recommended when masses of organic material in the vicinity of human habitations can not be completely destroyed, or removed, or disinfected."

At the conclusion of the Lomb prize essay, published by the American Public Health Association in 1885, the following propositions are formulated:

"*Infection* consists in extinguishing the spark, killing the germ, which may light up an epidemic in the presence of a supply of combustible material—filth."

"The object of *general sanitary policy* is to remove this combustible material out of the way, so that no harm may result even if the spark be introduced."

"*Antiseptics and disinfectants* are useful when it is impracticable to remove offensive organic material from the vicinity of human habitations, but they are a poor substitute for cleanliness."

Chloride of lime, carbolic acid, and mercuric chloride are issued by the Medical Department for use as disinfectants, properly so-called. A solution containing 1 per cent. of a good chloride of lime, or 5 per cent. of carbolic acid, is sufficient for disinfecting the excreta of patients with cholera or typhoid fever, or the sputa of patients suffering from diphtheria, scarlet fever, or tuberculosis. The floors, furniture, etc., in rooms occupied by patients suffering from carbolic acid, and with a solution of mercuric chloride of 1:1000. Soiled bed linen, underclothing, etc., used by such patients should be immersed in one of the above mentioned solutions before it is sent to the laundry. But in the absence of any infectious material, disinfection agents are not required, and their use for purposes of general post sanitation is not authorized.

Sulphate of iron and other cheap antiseptics and disinfectants may be used when necessary. But the necessity for their use is a reproach upon the sanitary policy of a post and should only be required under exceptional circumstances.

The active discharges of healthy persons do not require disinfection, and when properly disposed of do not require treatment with any chemical, as at a latrine. If water closets or earth-closets are offensive this is due to faulty construction, to insufficient supply of water or dry earth, or to neglect of ordinary cleanliness. The attempt to remedy such defects by the systematic use of antiseptics is expensive and unsatisfactory in its results.

The same is true of foul drains, bad-smelling urinals, accumulations of garbage, etc. The proper remedy for such conditions is cleanliness and strict sanitary policy.

When accumulations of organic material undergoing decomposition can not be removed or buried, they may be treated with an antiseptic solution or with freshly burned quicklime. Quicklime is also a valuable disinfectant and may be substituted for the more expensive chloride of lime for disinfection of typhoid and cholera excreta, etc. For this purpose freshly prepared "milk of lime" should be used, containing about one part by weight of hydrate of lime to eight of water.

During the prevalence of an epidemic or when there is reason to believe that infectious material has been introduced from any source, latrines and cesspools may be treated with milk of lime in the proportion of 3 parts to 100 parts of the contents of the vault, and the daily addition of 10 parts for 100 parts of daily increment of feces.

While the feces of healthy individuals in privy vaults or on the surface of the soil are innocuous, it is well known that epidemics of cholera, typhoid fever, and camp diarrhea are usually due to the contamination of drinking water and food by the morbidly excreted in the excreta of persons suffering from these diseases. This may occur as the result of direct contamination of the water supply, and probably, also, by the transfer of infectious material to the surface of meats, milk, and other articles of food by flies which have recently been in contact with infectious excreta. This source of infection has not heretofore received proper consideration, and the probability of its occurring when the feces of patients suffering from the diseases mentioned are deposited upon the surface of the ground, or in open privy vaults, calls for extreme care, especially during times of actual or threatened epidemic. In camp, where it is necessary to use open pits as latrines, dry earth, quicklime, or wood ashes should be frequently thrown upon the surface of fecal accumulations.

All known diseases are destroyed by the temperature of boiling water, maintained for a few minutes. This being the case the destruction of articles of clothing which can be subjected to the action of boiling water or of live steam without material injury is unobjectionable. *Especially in steam railroads, where the use of steam heat, which requires a specially constructed steam chamber, is an unnecessary caution, free exposure to flowing steam for one hour being sufficient to secure disinfection.* But this applies only to articles which can be freely exposed in a steam chamber, and not to mattresses, pillows, or articles of clothing, etc. As a rule immersion in boiling water for half an hour will be the most convenient and most economical method for disinfecting articles of clothing, bed linen, blankets, etc.

When hair accessories and pillows need disinfection it will be necessary to open them up, either before or after immersing them in boiling water or in a disinfecting solution, in order that the hair may subsequently be thoroughly dried. When this is done the fact will be reported to the medical director of the department, and instructions will be given as to the disposition of the material.

When of little value, or in the absence of proper facilities for disinfection, mattresses, pillows and clothing may be destroyed in compliance with the regulations of the Army Retiring Board, which can be destroyed without material injury by immersion in boiling water or a disinfecting solution is not authorized.

GEO. M. STERNBERG,
Surgeon General U. S. Army.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from August 3, 1893, to August 1, 1893.

First Lieut. FRANK R. KEEFER, Asst. Surgeon, is granted leave of absence for one month and fifteen days, to take effect when his services can be spared.

Capt. MARLBOROUGH C. WYETH, Asst. Surgeon, extension of leave of absence granted on account of illness, is still further extended six months on account of sickness. By direction of the acting Secretary of War.

Capt. MARCUS E. TAYLOR, Asst. Surgeon, having been found incapacitated for duty by a medical board of the Army Retiring Board, will proceed to his home and report thence by letter to the Adjutant General of the Army.

Capt. HENRY S. T. HARRIS, Asst. Surgeon (Ft. Keogh, Mont.), is granted leave of absence for one month, to take effect about August 6, 1893.

Major J. V. LAUDERDALE, Surgeon U. S. A., is hereby granted leave of absence for one month, to commence about September 5, 1893.

Major GEORGE W. ADAMS, Surgeon U. S. A., is granted leave of absence for three months, to take effect on or about September 4, 1893.

First Lieut. CHARLES E. B. FLAGG, Asst. Surgeon, will proceed to the Yosemite National Park, California, for duty with Troop I, Fourth Cavalry, relieving Capt. LEONARD WOOD, Asst. Surgeon. Upon being thus stationed, Capt. Wood will return to his station, the Presidio of San Francisco, Cal.

Capt. EUGENE L. SWIFT, Asst. Surgeon, is granted leave of absence for one month, to take effect upon the return from detached service of First Lieut. BENJAMIN C. FRIEDER, Asst. Surgeon.

First Lieut. ALBERT BRADLEY, Asst. Surgeon U. S. A., is granted leave of absence for one month.

LETTERS RECEIVED.

(A) Ayer, S. W. & Son, Philadelphia, Pa.; Anderson, W. S., Detroit, Mich.; (B) Beltman, B., Chicago; Bates, N. T., Poughkeepsie, N. Y.; (C) Collis, Warren J., Boston; Chambers & Co., J. H. St. Louis, Mo.; Cutter, Ephraim, New York; Crothers, T. D., Hartford, Conn.; (D) Doering, E. J., Chicago; Dietz, Chas. J., Chicago, Ill.; (E) Eagleson, Jas. B., Seattle, Wash.; Eichberg, Joseph, Cincinnati; (F) Ground, Wm. E., West Superior, Wis.; Gihon, A. L., U. S. N.; (H) Hunt, T. K., Cadott, Wis.; Hughes, C. H., St. Louis; (M) Miller, Roland E., Napa, Cal.; Malsbary, G. E., Cincinnati, O.; Merrell, Wm. S., Chemical Co., Cincinnati, O.; Mellier Drug Co., St. Louis; Manley, Thos. H., New York; McLaughlin, H. W., Denver, Col.; Mayo, W. J., Rochester, Minn.; (P) Parvins Sons, S. H., Cincinnati, Ohio; (R) Ricketts, B. M., Cincinnati; Reed, C. A., Cincinnati; Rumbold, Thos. F., San Francisco; Ridge, S. M., Kansas City, Mo.; (S) Slay Bros., New York, N. Y.; Sternberg, Geo. M., Washington; Smith, J. F., Baltimore, Md.; (V) Vaughan, Geo. T., Chicago; (W) Wiltrout, J. D., Hudson, Wis.

The Journal of the American Medical Association

VOL. XXI.

CHICAGO, AUGUST 26, 1893.

No. 9.

ADDRESSES.

CHAIRMAN'S ADDRESS.

Read before the Section of Obstetrics and Diseases of Women, at the Forty-fourth Annual Meeting of the American Medical Association.

BY J. MILTON DUFF,
PITTSBURGH, PA.

Members of the Section of Obstetrics and Diseases of Women in the American Medical Association:—It is impossible to convey to you any idea of my high appreciation of the compliment paid to me, and to the State I represent, by calling upon me to preside over the deliberations of this distinguished and representative body of American physicians.

I should have hesitated to assume the duties of the position if I had not been encouraged by the knowledge of your sympathy, and by the confidence that through mutual coöperation we might make this one of the most interesting, instructive and influential meetings in the history of the Association.

INTEREST IN MEETINGS.

The happy interest evinced in the meeting, by the large number of papers offered from all parts of the country, from men of the highest standing in the profession, is significant of the general zeal for the welfare of the American Medical Association, and of the keen interest taken in the work of this Section. In this connection I may say, that inasmuch as the papers to be accepted for the program were limited to forty, it became my unpleasant duty to decline with thanks quite a number of papers, many of them from my warm personal friends, and from gentlemen whose professional attainments make it an honor to this Association to have had the proffer of their aid.

A DUTY OF THE CHAIRMAN.

The by-laws of the American Medical Association make it incumbent upon the chairman of each Section to prepare and deliver an address on the recent advancements in the branches belonging to his Section, including suggestions in regard to improvements in methods of work.

Unfortunately, in the strict fulfillment of the first part of this exaction, one is confronted with the delicate task of anticipating the major portion of the papers to be read before the Section; there are some general references, however, which I feel I may make with propriety, without unduly entrenching upon the subjects of the papers which will occupy your attention later.

OBJECT OF MEETING.

We meet here to-day, not alone for our individual benefit, but as well for the benefit of our grand and noble profession, and in the interests of suffering humanity. As a representative body the results of our

deliberations should be the property of the profession. Our deductions should be reached after the fullest discussion, and the most painstaking research, and then given the widest possible publication. We are expected to formulate principles, to commend certain operative procedures and lines of therapy, and to condemn others. The greater portion of the medical profession think for themselves, and think well; but at the same time the collective opinion of such a representative Association as this is eagerly sought by them.

With all due respect to those who with great labor prepare papers, as a rule the discussions are of as much, if not more benefit, than the papers themselves. It is not right, therefore, that the rich and luscious fruits of discussion should be lost. Except to those of us who hear the discussion, the meeting will be of no more benefit to the profession at large than they would have received had the readers of the various papers remained at their homes, and published their articles in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION without the discussions appended. I therefore emphasize the suggestion of my honored predecessor—that this Section should arrange for the publication of its transactions in permanent book form properly indexed. Our work should be done with an eye to the greatest good to the greatest number, not alone for the present but for the future. It should be a work so accomplished that it will leave behind it "a holy light which will be undimmed and undiminished by the lapse of years."

RETROSPECTIVE AND PROSPECTIVE.

As we to-day stand upon the eminence of "Modern Knowledge" and take a retrospect, we are astonished at the rapid and rugged ascent we have made side by side with obstetrics, gynecology and abdominal surgery, especially during the past decade; we are charmed as we contemplate our present commanding position, and the soul is filled with delight as we compare our restricted environment in the shades below, with the glorious sunshine and the broad vista which now meets our wondering eyes. When we look upward we find there are greater heights to reach and perhaps more rugged paths to tread; but by persistent effort and reciprocal action, we may reasonably hope are long to come in view of the "Eminence of Perfection."

THE WORK OF THE PAST YEAR.

The work of the past year, while in the way of steady advancement, has not been characterized by much that was unique or peculiarly brilliant and original. Some conspicuous and very noteworthy new operations have been suggested and performed, many old ones have been retired or modified, and some few of ancient origin "phoenix-like" have arisen from their ashes with fair prospect of great popular-

ity. Many matters of vital importance have been discussed on the floors of associations and in the columns of the journals, some of which eagerly await the dictum of this Association.

NEW RECRUITS.

The list of special practitioners in the departments represented by this Section has had large accessions during the past year. A large proportion of these additions are men inspired by professional zeal and ambition; with natural talent developed by special training and hard labor, by several years experience in that school of severe discipline "general practice," while many of them in addition carry the trophies of a post-graduate course. This class are welcomed with a generous spirit to our ranks. We need them. We want just such earnest, energetic, qualified workers. I am constrained to say, however, that a large class of our last recruits are not of the proper caliber. They are hothouse plants of mushroom growth. They have never been in the broad field of experience. Their roots have not grown down deep in mother earth, nurtured by the rains and sunshine of many summers and made strong by the frosts and storms of many winters of active general work. They enter the ranks only to bring obloquy upon specialism and specialists. There may be a few, but very few exceptions to the rule, "college bred specialists in any branch of medicine are not a success." The *tour specialist* is a creature of evolution from the general practitioner. I have no hesitancy in saying that any professor or number of professors who encourage their students in the idea that they are competent to walk straight from the college halls into any special line of practice are untrue to the trust reposed in them, and are deserving the condemnation of the profession.

OUR EDUCATIONAL ADVANTAGES.

There has been great cause for rejoicing on account of the almost uniform action on the part of our medical colleges during the past year in increasing the course of study, and in demanding a higher standard of scholarship. Facilities for more thorough and scientific teaching are being adopted, and many of our schools are the pride of the profession and second to none in the world. I wish to call your attention, however, to the fact that in nearly all our colleges the facilities for teaching the other branches of medicine are far beyond those afforded for the teaching and study of obstetrics and gynecology. As a consequence our graduates are not qualified in these branches as they should be.

From the best information I can get after considerable investigation, I feel safe in saying that over 50 per cent. of the graduates in medicine leave the college halls without ever having witnessed a case of labor or having introduced a speculum. If this be true, is it any wonder that the rate of mortality will not down, and that malignant disease, so often goes on almost to a fatal termination without its true character having been discovered? Far be it from me to speak of this as a reflection upon the many *worthy* and *true* men engaged in the teaching of these branches. They do the best they can under the circumstances. The reflection is rather upon the "boards of control" who, either through ignorance of the necessity, through parsimony, or from need of endowments fail to provide the proper hospital and clinical facilities.

It is our privilege and duty to demand of all institutions as a reward for our patronage that they employ instructors, not because of any financial or other influence they may have, but because they are competent to impart knowledge in the highest, broadest sense, and having employed them enable them to do good efficient work by providing the best possible facilities for instruction. Professors should be very careful to curb the innate tendency to magnify the importance of the capital operations, and perhaps through them their own ability as operators to the detriment and neglect of minor work. It is not an unusual thing to meet young practitioners who declare themselves not only competent, but willing and anxious to perform caeliotomies, hysterectomies, and caesarian section; but who are unable to operate for a vesico-vaginal fistula, sew up a lacerated perineum, or to determine the diameters of the pelvis.

OUR LITERATURE.

The literature of the year has been of such variety and character as to suit the tastes of the most fastidious. The standard works given to the profession are of a high character, some of them being perfect jewels of their type. It might not be becoming in me to specialize. The journals especially devoted to gynecology and obstetrics are to be congratulated on their increased merit. There has been more care taken in the selection of contributors, and as a rule in consequence the contributions are of a high character and contain more valuable and reliable information. The general medical journals also have given more recognition to the importance of these branches and have produced much of permanent value.

In fact, so much ability, energy and excellence is observable in most of our journals that we hesitate even to offer a suggestion, lest in our inexperience our judgment may be at fault. Without attempting to detract from their excellence we think we are expressing the humble opinion of a large portion of the profession when we say that many of our journals might become more effective, more dignified and more elevated in tone if they showed more of the personality of the editor. The absence of leading articles or editorials in some of our journals is, in the minds of many of the profession a great defect. The position of the editors naturally indicates that they are men of broad minds, and capable of forming comparatively correct opinions upon the topics embraced in the columns of their respective journals.

It is, therefore, due their readers that they give them the benefit of their discriminating judgment. This course is the more necessary because of the character of many of the journal articles. I have said there has been a great improvement in the past year but there is still room for greater improvement. Too much of our literature still comes from those seeking notoriety, and not from those who forget self in their earnest efforts to advance the interests of the profession. The young should be encouraged to observe and to write. Their fresh and pithy articles glowing with the ardor of youth infuse them with much that can be read with zest and benefit. The tendency on the part of some, however, to draw from the realms of their imagination should be curbed in order that their usefulness may not be effaced, or that they may not be misleading or productive of untold harm.

The tendency to exaggeration is not confined to the younger element alone; my strictures are perhaps equally applicable to some whose hairs have grown gray in the practice of their profession. Those, either young or old, who belong to the above category should as far as possible be excluded from among the contributors to our journals. Therefore, the greater necessity for discrimination and a knowledge of the standing in the profession, by the editor, of those who offer their productions.

While the young should be encouraged to observe and to write, the old who are rich in experience, trained in observation, should be impressed with the fact that they owe it to themselves, to the profession and to the world, to publish the winnowings from their storehouse of knowledge.

OPERATIVE WORK.

The solicitude of many with regard to the operative mania which took possession of our profession during the past few years was not without cause. We think no one will have the temerity to deny that there has been, and yet is at the hands of some, too much indiscriminate, useless and oftentimes reckless abdominal, gynecic and obstetric surgery. The past year has witnessed a great improvement in this direction; in fact, now that a reaction has set in the tendency will be toward the opposite extreme. While we should not encourage "the doing of evil that good may come," the operative craze from which individuals perhaps suffered, was productive of great good by offering an opportunity to analyze symptoms in connection with diseases of the pelvis, and thereby elicit much invaluable knowledge which otherwise must forever have lain hidden from view.

If all would adopt the principle that the *shot* of immediate results should never cause a sacrifice of a careful analysis, nor of an exact determination of the diagnosis and prognosis, we would seldom fail to have a proper interpretation of the indications in each given case and thus relieve us of all anxiety for the future. There are now and will be no doubt for a long time at least, many mooted points with regard to operative procedure. The difficulties will by and by be eliminated, and while other nations with pardonable pride boast of their great erudition, scientific lineage and great masters in surgical technique, may we not confidently hope that with his independence of character, high aims, noble purposes and exalted ambition, his natural tact, talent, energy, skill and genius, the American surgeon will do his full share in satisfactorily solving these intricate problems? Looking forward to the highest possible attainments we must be careful not to be stranded by misdirected zeal. The tendency to drift into ultra radicalism on the one hand, and radical conservatism on the other, must be guarded against. Personal ambition must remain secondary to the great purpose to be accomplished, personal animosities and jealousies must be covered up and professional harmony and unity of action sought for. While we should give proper honor and respect to the beacon lights in the profession, there should be no want of activity in personally searching for new truths, nor should there be an undue subservience to the principles enunciated by those whom we delight to honor. Independence of thought and action is not inconsistent with love and friendship for, and fealty to our honored masters, and will best subserve

us in attaining that high degree of excellence I trust we all so fondly hope for.

CANCER OF THE UTERUS.

Few diseases are more prevalent than cancer of the uterus, and none was formerly more universally fatal. There is now a very general consensus of opinion that it is a disease of local origin, and not as formerly supposed a general disease with a local manifestation. In 174 hysterectomies at the hands of five different operators, there was a primary mortality of only 8.4 per cent., and at the end of two years of 56.25 per cent.; of eighty-two vaginal hysterectomies done by Leopold, the patients were living without a recurrence of the disease. Such statistics as these supported by a vast array of others almost equally convincing, justify us in stamping hysterectomy for uterine cancer as a legitimate operation, and the disease for which it is done a curable one. A case in which the disease has invaded the parametrium is incurable and therefore not an operable one. The fact that near 90 per cent. of the cases presenting at our clinics are inoperable is very significant and suggests to us that the most important question in the whole matter today is the early diagnosis. The weighty responsibility here rests upon the general practitioner. I feel, therefore, that I should be remiss in my duty at this time if I did not call particular attention to the subject, and urge in the most emphatic manner upon the general practitioner the necessity of his thoroughly familiarizing himself with the early manifestations of this dread enemy of womankind.

THE GYNECOLOGICAL TREATMENT OF THE INSANE.

One of the most important of the live topics during the year has been the gynecological treatment of the insane. I will not insult the dignity and intelligence, nor impugn the motives of the members of the profession who are specially interested in this work, by offering an apology for any attempt on their part to invade the asylums for the insane, with the purpose of promiscuously spaying by the wholesale for the cure of insanity. That such an idea was ever entertained seriously by any one I can not think. Such a course would be so ridiculous, and so preposterous that we can scarcely understand how some of the "boards of control" and even a few of our medical journals seemingly entertained this untenable notion of the intention of those advocating the gynecological treatment of the insane. Their position can only be explained on the ground of a misapprehension of the facts. Certainly, no one has yet sufficient favorable data to justify him in becoming an enthusiast upon the cure of insanity by a resort to oöphorectomy. The intimate relationship, however, existing between the brain and generative organs would rationally lead us to infer that in women predisposed to insanity disease of the latter might be an exciting, if not a direct cause of mental alienation in some cases. That this inference is not purely theoretical and without foundation in practice, we have absolute proof in the results of a number of the operative procedures undertaken only after the most painstaking investigation by Joseph Price, Alice Bennett, W. P. Manton, J. B. Murdoch, Geo. H. Rohé, C. C. Hersman and a number of others whose integrity and ability are patent to all. How rich a harvest might await us in this vast, interesting and complicated field if properly cultivated I do not

pretend to say. The grand object to be accomplished we think justifies us in asking that proper facilities for investigation be afforded those competent to do the work. Of course whatever is done should be with the greatest circumspection. Those who undertake it must remember that they have ignorance on the one hand and prejudice on the other to contend with. 'Tis' said, you know, and truly too, "Prejudice and Ignorance are tough combatants who too often push large minded Ability into the ditch." Aside from any specific operation for the cure of insanity, there is another phase to the question which I feel imperatively demands the unequivocal support of this Section. I refer to operations for the relief of physical suffering among insane women. It is unnecessary for me to occupy time by entering into an argument and citing statistics and clinical facts to prove to you a fact you are all familiar with, that a very large proportion of the insane women in our hospitals are the victims of disease of the uterus and annexa or of both. In consequence they suffer physical pain to a greater or less extent; some of them we have reason to believe suffer untold agony and thus increase their mental anguish. Insanity is not a panacea for pain. Insane women are just as susceptible to, and suffer as much from it, as the sane. In view of this fact does not humanity demand that they at least be given the same chance for relief that is given to their more fortunate sisters, who mentally sound are subjects of the same bodily affliction? Are these poor women to be compelled, in this enlightened age, to forego all the benefits to be derived from a scientific treatment of their ailments, and to be condemned to suffer on and on without any effort being made to mitigate their physical pains? In the name of God and humanity, I appeal to you and to an intelligent public and ask you is it right, is it just, is it Christian-like, is it human? A prominent attorney connected with the board of one of our asylums has said, "We have no legal right to mutilate an insane woman by the removal of her ovaries," and that "a woman recovering her reason finding that she has been so mutilated, might have recourse to law in a suit for damages against the physician who had operated on her." This may be good law and I have no doubt it is, coming as it does from such eminent authority. I have doubts, however, about its justice. I believe that society has some rights in law which are above and beyond the rights of the individual, and I want to say just here on my own responsibility, not as the exponent of the opinions of this Section, that it is extremely doubtful if it is not a crime against society to permit any man or woman who has been a sufferer from chronic insanity to procreate the species, and thus run the grave risk of adding to our insane population, or to the hordes of criminals who infest society. This leads us to say that as the conservators of the physical welfare of the human race, it is our duty to call attention to the disastrous results of illy advised and incompatible marriages; to the necessity of the copulative act being performed only during the best possible physical and mental condition of both the prospective father and mother.

CRIMINAL ABORTIONS.

The alarming increase in the number of criminal abortions with all the physical, moral and social evil it entails is a subject which demands the serious

attention of the profession, of moralists and humanitarians. It has been suggested that in order to reduce the physical wrongs engendered by the performance of this operation by irresponsible incompetents, that the regular profession engage in it in a scientific manner.

Let the blush of shame mantle the cheeks of those who suggest this prostitution of our noble profession in the furtherance of such a pernicious crime against God and society. As a profession we have no right to assume the position of lukewarmness and of masterly inactivity in this matter. It is our duty to be aggressive and as far as in our power educate the public up to a thorough appreciation of the pernicious results of this evil. Whenever opportunity offers to detect in this fiendish work those whose names blacken the lists of our profession we should see that they are stamped as villains, and as speedily as possible brought to justice.

PUBEOTOMY.

The revival of pubeotomy with results far more favorable than the fondest expectations of its most sanguine supporters led them to hope for, bids fair to revolutionize some of the operative procedures in obstetric practice. If the present satisfactory results are maintained, embryotomy will be relegated to history, and the earnest pleadings on behalf of the relative rights of the mother and of the child will no longer be heard on the floor of the medical associations, nor occupy prominent space in the journals. It is yet too early to make any radical assertions, but the probabilities are that all will lay down their past differences upon craniotomy and embrace an operation which is more humane, inasmuch as it gives every possible chance to the child and does not increase the danger to the mother. Pubeotomy is not applicable to all cases of deformed pelvis; we do not hope without good reason, however, that it will be efficacious in all cases in which craniotomy could have been performed with a reasonable degree of success. It will also be proper in all cases where delivery could have been procured by producing premature birth at the seventh month. It will not therefore only supplant embryotomy, and the necessity for the production of premature delivery, but within the same limits of pelvic contraction also do away with the more hazardous operation of cesarean section in the hands of those who elect to save the child.

PLACENTA PREVIA.

The work of the past year has shown the utter absurdity of assuming the position of watchful expectancy in placenta previa. To those who have been watching the trend of events I need offer no arguments to sustain the position that placenta previa should be considered as a malignant condition, and should receive early and prompt treatment while the physician is in a position to control rather than be controlled by events. The method generally adopted is dilatation and delivery *per vias naturales*—but cesarean section is now being warmly advocated by some men as giving greater chance to both mother and child. Time and experience will have to determine which method is productive of the best results.

PUERPERAL INFECTION.

The reports of the year from the hospitals in our own and foreign countries show a very gratifying result so far as deaths from puerperal infection are

concerned. In scarcely any does the death rate go above 24 per cent, and in some it is *nil*. I have no means of gathering general statistics from private practice, and have only been able to get the isolated statistics of a few cities and of a few general practitioners, which justifies me in saying that the rate of mortality from this cause is much higher in general than in hospital practice. It is only a few years since the very converse of this was true. Why is this? Need I stop to say that it is because of the hospital practice of to-day being the more scientific? This opens up a wide field for thought, and should stimulate the general practitioner to greater efforts as far as possible toward the institution of strictly scientific midwifery in private practice. It may be impossible with the disadvantages of untrained nurses and environments over which we have no control to obtain as good results in private as in hospital practice. With the education of the laity upon the necessity of sepsis and good hygienic surroundings, the employment of trained nurses when possible, and the adoption on our own part of all possible precautions against infection, we could at least approximate the high standard set us by the hospitals. There are many more subjects to which I might refer. Among those of which I more particularly wished to speak were: The danger from and uselessness of curettage in many of the diseases of the pelvic viscera; the necessity of calling architects to our aid to secure the construction of sick rooms in our homes which would meet the demands of modern surgery and therapy; exploratory abdominal incisions are not free from danger and should be made with great circumspection; the significance of puerperine in the kidney (discovered by Brown-Séquard); the proper application of the terms, laparotomy and coeliotomy (Harris); the aseptic treatment of the umbilicus in the newborn, a preventive of trismus and other diseases of the child; the communi bacillus, a factor in auto-infection in the puerperal woman especially in connection with suppurative hemorrhoids; the septic cord a cause of infection of the mother; the necessity of the systematic care of pregnant women; pelvic troubles due to movable kidney (Theiran). All of these topics are sufficiently suggestive.

In the selection of our program, however, we have endeavored to have all the leading subjects represented. Without taking up more of your valuable time and with the earnest hope that our meeting may be harmonious, that new and warm friendships may be formed, that old ones will be more firmly cemented, and that the work of the Section will be of such high order that it will be an enduring monument to the memory of those composing the Columbian meeting of the Association, I now declare the Section open for the transaction of business.

Dr. J. B. Moffett, for more than thirteen years a resident of Minneapolis, died at Minneapolis recently. He had been in failing health for more than a year, and was finally carried away by an attack of congestion of the brain.

Deceased was a native of Kentucky, where, in Bath county, he was born Dec. 4, 1820. He was graduated from Rush Medical College, Chicago, and removing from Kentucky located for the practice of his profession in Iowa county, Wis., in 1846. There he practiced medicine and surgery until 1880, when he removed to Minneapolis in the fall of that year. In 1884 he discontinued active practice, and has since lived quietly, devoted to his family and to Masonry. In this he was a Sir Knight, member of Zion Commandery. He leaves a widow and seven children.

ORIGINAL ARTICLES.

THE PRESENT STATUS OF THORACIC SURGERY.

Read in the Section on Surgery at the Annual Meeting of the American Medical Association, 1892.

BY J. M. LAIDEN GASTON, M.D.

CHICAGO.

In comparing the conditions of surgical resources of former days with the operative measures adopted within the last decade, we can recognize the great advances made in surgery of the chest. It is to be noted, however, that many procedures are yet *sub judice*, and that the appliances that some have resorted to are not to be considered as established processes of relief for troubles in the thoracic cavity. Decided progress has been made in curative measures, yet there is much to be accomplished in fixing finally the rules which shall govern the surgeon in treating the disorders of the chest.

Those who have kept abreast of the literature of thoracic surgery will not be taken by surprise when it is stated that even the mode of dealing with wounds of the parietes of the chest is a mooted point. While the weight of authority is favorable to closing incised or gun-shot wounds of the walls of the thorax, there are advocates for laying open freely all the parietal structures in traumatic injuries of the chest walls attended with internal hemorrhage. The statistical records in favor of masterly inactivity in the treatment of foreign bodies in the air passages, is gradually giving way to active interference. Yet the experimental observations upon the results of operations for reaching the bronchial tubes directly through the walls of the thorax, afford little encouragement for these heroic procedures. It doth not yet appear what is to be the fate of early aspiration in serous pleural effusions, as a reaction has manifested itself in favor of medication, bloodletting and blisters in these cases.

A plea for early removal of pleuritic effusion is presented by Gardiner, not waiting for the subsidence of fever or the eliminating power of drugs. In twenty cases under his care within five years, all except two have done well under this course of treatment by early aspiration. A salutary result of aspiration is reported by Ernest Anacker and also by E. M. Jenkins. A case of chronic hydrothorax is reported by H. F. Twitchell, in which repeated aspirations and injections of tincture of iodine into the pleural cavity were attended with a satisfactory result. Two cases are described by J. H. Cox, one being aspirated with good effect, and the other from neglect of this procedure terminated in pointing and spontaneous discharge through the chest wall about the seventh inter-space. This was followed by a second pointing a month later about the fourth inter-space. There was an average discharge of one quart a day for eight months of thick, creamy pus, but in a year afterward this had entirely ceased. This case affords an illustration of the unaided power of nature.

The treatment of a case of pleuritic effusion by continuous drainage is reported by Baskett.

Aspiration was at first performed in a middle-aged man, drawing off forty-four ounces of serous fluid, and it was repeated seven times, the amount varying from two to six pints. It was then determined to employ continuous drainage, and an incision was

made in the fifth space in front of the axilla and a drainage tube was left in the opening. The discharge was very great, with expansion of the lung, and the breathing could be heard. The fluid became purulent in the course of three weeks, but gradually diminished and in four months the discharge ceased. The wound finally healed and the patient was soon restored to health.

This is a unique case in the departure from the ordinary course of treatment for serous effusion in the cavity of the pleura; and it will be noted that the collection assumed the character of empyema, as it is prone to do after repeated aspirations and subsequent closure of the opening into the cavity.

In hydrothorax, Anders draws attention to the change in the upper limit of dullness due to the position of the patient, as the physical sign of most importance in diagnosis.

He reports the case of a man aged 66 years from whose chest sixty ounces, seventy ounces and eighty ounces of fluid were withdrawn by aspiration at different times with decided improvement. He gives another case in which the diagnosis was confirmed by the use of the hypodermatic needle and the patient was treated successfully by the internal use of the so-called iodides. He states that in nearly every instance in which the double iodides have been used, thoracentesis has been unnecessary. Active medication in the outset of pleural effusion is urged by J. C. Thorowgood of London, noting that rapid absorption followed the use of salicylate of sodium in seventeen out of twenty-seven cases. Lindsay has relied upon counter-irritation and iodide of potassium, with the addition of the ammonio-citrate of iron, in the early stages, but aspirates if the effusion is large.

All concur in removing large accumulations of fluid after various modes of internal treatment have failed to give relief; yet the conditions for this procedure, in the view of many having ample experience, indicate an apprehension of consequences which may be averted by energetic measures of treatment by medication at the outset.

The development of pneumothorax, either spontaneously or from traumatism, has been met by two distinct processes, one being by aspiration of the chest, so as to take away the superfluous air, and the other by the introduction of the innocent solution of boric acid or chloride of sodium by a canula while another alongside of it allows the air to escape from the thoracic cavity. Thus the space previously occupied with air will be filled with the fluid to be removed by syphonage or which in due course of time is absorbed. Of course perforations of the lung will be reduced in size by the partial collapse from the outside pressure of the fluids.

Hodonyl recently presented to the New York Pathological Society two specimens of perforation of the lung, followed in a very short time by death. On opening the right side of the chest at the autopsy of one of the cases, gas escaped. About the middle of the upper lobe a circular perforation one-eighth inch in diameter was found in the pulmonary covering. The entire lung was consolidated and studded with tubercular nodules and there were cavities in the upper lobe. The other patient had been ill for a year and confined to bed for the past two months, yet was engaged in sweeping just before the perforation occurred, and died within a brief period afterwards.

If pneumothorax occur into the relatively sound lung, Fagge claims that its occurrence is apt to be marked by severe symptoms and death speedily follows, but that if the pneumothorax occurs on the side which is the more extensively diseased, the symptoms may not be urgent, and death does not occur speedily or the patient may recover.

Amongst the complications of phthisis, none gives greater concern than pneumothorax, which Samuel West shows to be attended with a mortality of 66 per cent. Sutherland gives the case of a man 32 years old which illustrates the advantages of aspiration. It was resolved to puncture the chest, and air was at once heard to pass into the bottle, and a considerable quantity of air was removed from the pleural cavity, with manifest improvement. On the following evening, aspiration being again performed, at first only air was withdrawn, then air mixed with fluid, and finally nine ounces of clear fluid were evacuated. At the end of a month thirty-four ounces of clear fluid were withdrawn. He then improved rapidly and afterwards continued in good health. The spontaneous cure of traumatic pneumothorax is reported by Bowes, in a man 36 years old. After a fracture of the eighth rib pneumothorax appeared, but next morning there were no traces of it, and the man recovered without any further complications.

In regard to surgical steps for extraction of bodies in the bronchi it may be noted that Buck, in a case where the patient had inhaled the distal portion of a tracheotomy tube, did a low tracheotomy. He was able to feel the tube with his finger, lodged in the left bronchus, and extracted it with suitable forceps. Weir had a patient with a piece of broken tooth lodged in a bronchus, for which he made an opening low down in the trachea. He was enabled to feel the division of the bronchi, and by means of a bent copper wire loop the tooth was dislodged and then extracted with an angular forceps. A most fortunate result of opening freely the lower part of the trachea was the extraction by J. W. Strickler of a plug of gauze from the bronchus when the patient was almost asphyxiated. A tracheotomy had been done for membranous croup with the insertion of a tube, when a piece of iodoform gauze which was used for cleansing out the trachea became detached from the probang and passed into the left bronchus. After dividing the skin down to the sternum the trachea was opened to the bifurcation, and the plug extracted.

On the other side of the question De Forrest Willard's experiments militate against the operation through the chest wall for the removal of foreign bodies impacted in the bronchi. His experiments on dogs thus far tend to prove: 1. That collapse of the lung on opening the thorax, when the lung has not been crippled by disease, is an exceedingly serious and dangerous element, adding greatly to the previous shock and threatening at once to overpower the patient. 2. The difficulties of reaching the bronchus, especially upon the left side, are very great and the risk of hemorrhage enormous. 3. Incision into the bronchus necessarily leads, after closure of the chest wound, to increasing pneumothorax with its subsequent dangers. 4. The delays in the operation from the collapse of the patient must necessarily be great. Rapid work is impossible when the root of the lung is being dragged backward and forward at least half an inch in the efforts occasioned by air-hunger, and precision is almost impossible. 5. To reach the bron-

thus is feasible, but to extract a foreign body is highly problematical for securing recovery.

Hydatids of the lung have come under surgical treatment somewhat frequently of late, and the outcome of operations for hydatid cysts by thoracotomy and pneumotomy gives encouragement to these procedures.

Independent of the observations upon cases of various kinds in human subjects, extended investigations have been made by experiments upon inferior animals which are calculated to shed some light upon thoracic surgery. Among these may be noted the experiments in pneumotomy and pneumonectomy, with suturing of lung, by Dr. De Forrest Willard of Philadelphia, which have been reported in full, but my space only admits of giving the results.

1. In thoracotomy and in bronchotomy the entrance of air into the pleural cavity is a far more serious matter, as regards the collapse of the lung and of the patient, when the lung tissue is normal, than when it is diseased or already crippled. 2. Incision into the substance of the lung, with removal of a portion, is well borne by dogs. Hemorrhage, though free, is not fatal, and can be arrested by packing. 3. Adhesion of the parietal and visceral layers can be readily obtained by sutures, and the resulting pleurisy is slight. 4. Surgically, these experiments point out that similar adhesive inflammation can be secured and thus permit safe incisions into tubercular or other diseased lung tissue, without infection of the pleural cavity. 5. A lung can be drawn into the wound and sutured outside of the pleural cavity. Pneumonectomy for gangrene or abscess of the lung offers better results than is possible in cases not treated surgically.

Some developments in the topography of the fissures of the lung, as a guide to transthecal openings, have been made by Eugene Rochard of Paris, which ought to aid in the treatment of abscess of the lung and interlobular pleuritis. His paper is illustrated by fifteen figures, showing these fissures under varying conditions in the dead subject and also the average tract of the interlobular fissures in the skeleton, including the fifth and sixth ribs.

In selecting a point for the introduction of a trocar in the anterior portion of the thorax, Jaconod of Paris considers that the region of Traubé on the lower part of the left side, of a semi-lunar shape, is the most favorable for puncture. It is the site which is least liable to complications with the diaphragm, pleura and abdominal wall, and there is less risk of encountering adhesions than in any other portion of the anterior region of the chest.

He finds it above the fifth or sixth left costal cartilage, extending backward to the anterior extremity of the ninth or tenth rib. A trocar may be safely introduced on the posterior aspect of the chest, as low down as the eighth intercostal space, but if inserted on a lower line is likely to enter the abdominal cavity; and an incision has actually been thus made between the diaphragm and the liver, which had to be closed by sutures before making one above.

In the various operations upon the cavity of the thorax there has been quite a marked diversity of opinions and a difference in practice as to the subsequent washing out of the pleura. While some have resorted to free irrigation and even to the use of medicated solutions, with apparent benefit, others have found these measures hurtful; and a consider-

able number of operators do not employ interpleural washes except in cases of contamination requiring correction.

On the other hand, some cases have been recently reported by Laplace in which the pleural cavity has been packed with gauze from day to day, with the claim that it contributes to the comfort of the patient and promotes the filling up of the space by granulations springing from the pleura.

As an intermediate step, semifluid substances, such as iodoform with glycerin, have been deposited in the pleura for the relief of tubercular degeneration with satisfactory results.

This general review of the different phases of thoracic surgery will not be complete without some details of the operative measures in each department.

In wounds of the thorax accompanied with internal hemorrhage, Axford has insisted upon free incision of the thoracic wall for the removal of the blood. But admits that he would not recommend this procedure in all cases, considering only those suited to it, in which there were immediate indications of copious bleeding and risk afterwards of decomposition of the blood mixed with air in the pleural cavity. Touching this position, Schmidt held that free incisions would produce an open pneumothorax, as only in cases having the lung wounded is this course proposed. He thinks that the favorable effect of the blood pressure upon the lung would be lost by removing it. The course adopted in most of these cases is to allow the blood to flow out, by placing the wound in a dependent position, and then close the opening by suture.

In gunshot wounds of the chest, Gehrman enjoin that the margins of the skin are to be cut smooth and stitches introduced. Albert says there is but one rational means of closing wounds of the thorax and that is by suture. Hemorrhage is immediately stopped and infection from the skin is avoided by the rapid union of the coaptated margins of the wound. The extent of the injury is known by the anatomical relations and by physical examination of the patient, and not by probing the cavity.

A case is reported by McClintock of gunshot wound of the thorax in a young lady and the cavity of the pleura was two-thirds full of blood. The use of occlusive dressings for the two bullet wounds secured union without suppuration, and an examination five months afterwards showed that the patient was perfectly well and there was no dullness over the region formerly filled with blood.

The literature pertaining to gunshot and incised wounds of the chest, affords numerous illustrations of the advantages of hermetically closing the openings.

A few years ago it was thought that a most desirable consummation had been reached by Estlander's operation in empyema, but to-day serious misgivings are entertained by the conservative surgeons of America and in Europe as to its applicability, except in extremely rebellious fistulous openings of the thorax.

The employment of efficient drainage, with or without resection of a small portion of a single rib, is held by many of the most experienced operators to meet all the needs of purulent collections in the pleural cavity, and that more extended resection of the ribs should be limited to abscess or gangrene of the parenchymatous structure of the lungs.

A recent departure from the established routine has come to the front in the amputation of small segments of the lung, when unfitted for performing their functions. But the few cases in which this operation has been performed affords no criterion for deciding upon the merits of this bold procedure.

In connection with the heart and pericardium Koerte describes a case of pericarditis with exudation, in which a puncture was made in the fifth intercostal space.

After resection of two inches of the fifth rib the pericardium was opened and about a quart of thin, purulent fluid was evacuated. Upon enlarging the opening, the cardiac movements could be distinctly seen, and the organ bore the washing out and disinfection without any marked disturbance. A case of hemorrhagic pericarditis, with serous effusion in the right pleura, is reported by Churton, in which he performed aspiration of the pericardium thirteen times and paracentesis of pleura seven times. The patient survived more than a year.

A needle was extracted from the pericardium of a boy 15 years old by Dziembowski and improvement followed without any complications. The murmur connected with the heart's action, which could be heard at some distance from the chest, disappeared immediately.

The invasion of the pericardium by the surgeon, not simply by puncture, but by free incision and the use of drainage tubes in the sac, promises satisfactory results, and has well nigh attained a place among the established processes in surgery.

A field of great interest, which has to be entered with much precaution, is that of the mediastinum, and though abscesses in this region have found spontaneous outlets with relief to the patients, there has little thus far been accomplished for the removal of tumors from this region. The graphic accounts of such neoplasms have been furnished by autopsies, and only a rare instance of the removal of a mediastinal tumor during life has thus far been reported. The initiative spirit of aggressive surgery, will no doubt inspire some intrepid explorer to penetrate this dark domain of disease, and we expect at no distant day to hear of important discoveries in this region, which may be yet crowned with good results.

A bold procedure for reaching the posterior mediastinum has been undertaken by Quenu and Hartman. A vertical incision, six inches long over the angles of the ribs, between the spinal border of the scapula and the vertebral column, about four fingers' breadth from the spine, is made so that the middle of the incision corresponds to the spine of the scapula. The ribs are then divided and resected for about an inch. The small resection of three ribs permits the hand to penetrate into the posterior mediastinum by stripping off the pleura. The opening in the thoracic wall extends from the inferior border of the second rib to the superior border of the sixth. By retraction of the ribs it is possible to see and explore the hilum of the lung, the aorta and that portion of the esophagus which extends from the root of the bronchus to the diaphragm.

If the pleura instead of being stripped off is incised, the upper lobe of the lung and even the summit of the thoracic cavity are easily accessible, and the authors claim that it is better to approach the mediastinum from the left side than from the right. Weir has recently repeated this operation on the

cadaver and found that the left bronchus could be easily reached.

Quenu and Wagner adopted a process of separating the ribs by lateral section and making an incision through the soft parts on either side and below, while the upper line of attachment is left undisturbed.

Thus a kind of trap door is made into the thorax, admitting of observations of the contents and the employment of any mode of procedure which may be indicated.

While Estlander made the original suggestion, Quenu first performed the operation.

G. Richelot has since performed it on the 16th of March, 1891, affording relief in an extensive empyema, giving full credit to Quenu by styling the operation, Quenu-thoracoplastie. Moreau performed the same operation three times subsequently.

Delorme of Paris, in reporting recently a substitute for Estlander's operation, seems to have ignored the work of Quenu and others in the same line, and adopted a procedure upon the same principle, with a modification, which presents no superiority in practice.

The process described by Delorme consists essentially in the formation of a flap from the soft parts of the thoracic wall and the ribs, which when retracted, affords wide access to the field of operation. After the completion of the operation the flap is replaced and sutured to the thoracic wall. The flap is formed as follows: an incision, representing the three sides of a rectangle, is made in the region between the third and sixth ribs. The base of the flap thus formed is directed posteriorly and above, and its upper and lower margins run parallel with the ribs, and extend from the axillary border of the scapula to within two fingers' breadth of the sternum. At the anterior margin of this flap, the ribs and intercostal muscles are severed, while at the posterior margin only the ribs are divided to a limited extent. The flap is then loosened at its upper and lower margins and thrown back. This operation has been employed by Delorme in tubercular abscess of the chest wall, which perforated into the thoracic cavity.

Following in the wake of Zackharevitch, whose experiments of thoracotomy resulted fatally in only two out thirteen operations performed on nine rabbits, W. Lemoine Wills of Los Angeles, has experimented on twenty rabbits, making twenty-seven operations, as follows: ten pneumonectomies, three thoracotomies, four attempted pneumonectomies with lacerations of lung, and chest packed with gauze; eight sutures of lung, three primary operations and five secondary; one pneumonotomy.

Apart from one death, caused by the anesthetics, and two from shock within one hour, there were few fatal results following directly from the several operations. In giving the average duration of life, including those killed for verifying effects, the time in pneumonectomies is thirty-two and one-third days; in attempted pneumonectomy twenty-seven and seven-one-hundredths days; in thoracotomy forty-four and two-thirds days; in suture of lung to chest wall, primary operations forty-four and two-thirds days; secondary fourteen and three-fifths days.

The author remarks upon these cases, with evident satisfaction: "If the results are as good as this in rabbits, how much more can be expected in man, by intelligent cooperation?"

We cannot as yet give a satisfactory reply to this question. But it is demonstrated by clinical observation upon the human subject that diseased structures of the chest, as in other parts of the physical organism, are more tolerant of surgical interference than in traumatism of the contents of the thorax in their normal condition. It is therefore inferred that the operation upon the thoracic walls and upon the tissues of the lung under abnormal conditions which are indicated, will be warranted in all such cases as have proved safe in the experiments upon dogs and rabbits.

On the other hand it is not a necessary consequence that operations upon the diseased structures of the chest in the human subject shall prove hazardous, because experiments on inferior animals in a healthy state have been unsatisfactory or have turned out unfavorably.

A considerable portion of the data here presented has been the result of my collection of materials for the department of thoracic surgery in the *Annual of the Universal Medical Sciences* during the past four years, and I would refer all who may be interested in this matter to my contributions in Vol. III of each issue, for all details, with the report of numerous illustrative cases under each head of thoracic disorders. Attention is directed especially to the forthcoming issue of the *Annual* for the current year.

It will be found that there are facts presented which lead to different conclusions, and that the practice in like cases has varied widely. But the student who seeks guidance from the experience of others must exercise his judgment in selecting the safest and best plan of treatment after comparing the results obtained by different observers in each case.

The following general inferences may be drawn from the facts:

1. All penetrating wounds of the thorax may be closed hermetically, by suture or otherwise, after allowing the discharge of fluid blood from the opening.
2. Foreign bodies lodged in the bronchi may be removed by incision of the trachea at the lowest available point.
3. Experiments for reaching the bronchi through the chest wall, afford little encouragement in undertaking operation upon the human subject.
4. Medication as a preventive and a curative agency in pleuritic effusion is worthy of trial, before proceeding to the recourse of aspiration.
5. Aspiration is indicated when there are large serous accumulations in the chest and likewise in pneumothorax, but cannot be relied upon for the relief of purulent collections.
6. Partial resection of ribs is attended with better results in some cases of empyema than the complete removal of the segments of several ribs.
7. The excision of a small portion of one rib with the introduction of drainage tubes has been generally attended with good results.
8. Washing out the cavity of the chest is not requisite, except in contamination and decomposition of the contents.
9. The operation of thoracotomy for abscess and gangrene of the lung, should be accompanied with antiseptic applications and with tamponage gauze.
10. Tumors of the mediastinum may admit of interference, but further developments are requisite.

ARTIFICIAL OPENING OF PULMONARY CAVITIES, INSERTION OF RUBBER TUBE AND INJECTION OF CHLORINE GAS.

Read before the Section of Surgery and Anatomy at the Forty-eighth Annual Meeting of the American Medical Association.

BY E. L. SHURLEY, M.D.
DETROIT, MICH.

Mr. President and Gentlemen:—Being a physician, I owe this assembly of surgeons an apology for appearing with a surgical paper. For I know full well that physicians, as a rule, are as incompetent in the practice of surgery as most surgeons are in the practice of medicine. Therefore it is with some hesitation that I venture to submit the following observations and remarks:

The surgery of the thoracic cavity, excepting for the opening of the pleural sac has been heretofore rather forbidden ground, because, as we know, fraught with so many imminent dangers to life. The possibility however, of doing something in a surgical way toward the mitigation or arrest of the course of disease in cases of pulmonary abscess, either benign or tuberculous has occurred to many during years past. As long ago as 1844 a large apex cavity was incised and a drainage tube inserted by Drs. Hastings and Stork. In 1873 Mossler tapped pulmonary cavities and injected iodized and other antiseptic solutions, and from time to time after this, Cayley, Godlee and others tapped such pulmonary cavities and injected iodized and other antiseptic fluids; again in 1879 Mr. Douglass Powell at Middlesex hospital in London, opened up pulmonary cavities and inserted a drainage tube. Since then such efforts have been made at long intervals but with indifferent results only. In later years attempts have been made to excise diseased portions of the lung but always with fatal effect I believe. This latter practice originated from the encouraging results obtained from several experiments made upon the lower animals, in which the thoracic cavity was opened freely, portions of the lung first ligated, and then excised, without producing the immediate death of the animal. It has been observed that nature once in awhile brings about a discharge externally of the contents of pulmonary cavities through the process of ulceration to the surface.

A notable case of this kind was recorded in 1843 in the *London Lancet*, occurring in a man who lived a number of years afterwards. Other cases of the sort have been reported from time to time, and similar results have been recorded in cases of pulmonary abscess in connection with pyopneumothorax and empyema.

For this reason it has for a long time been my conviction that we would be justified in applying our art in imitation of nature in order to bring about such results. However, the difficulties besetting the undertaking are not to be treated lightly; of which I will mention first the difficulty of determining with certainty the location of cavities, and the distinguishing of pulmonary excavations from locular collections in the pleura cavity, or of distinguishing bronchitic cavities from others. I believe it well nigh impossible with certainty to determine the perspective, so to speak, of a pulmonary cavity; that is, whether it be a half inch, or two or three inches from the surface with or without much intervening

pulmonary parenchyma. And it will readily be seen that this is an important point, inasmuch as the cutting through pulmonary tissue in getting to a cavity, opens up two sources of danger; one from hemorrhage, and the other from infection by the contents of the cavity coming in contact with freshly incised surfaces of lung tissue, upon which are exposed open lymph vessels or spaces.

The immediate dangers from hemorrhage, shock and consequent septicæmia are not to be overlooked in undertaking such operations, notwithstanding the protective influence afforded by the modern methods of aseptic surgery. Besides these we must not forget the consecutive accidents to the nervous system such as convulsions, chorea, paralysis, meningitis, etc., which frequently follow operations on the chest, according to Auboin, Cayley, Weil, M. Roupert and others. At the Congress on Tuberculosis of 1891, held in Paris, Paul Poirier and Jommesco presented a valuable paper on the treatment of pulmonary cavities at the apex of the lung, by incision, drainage, and subsequent disinfection with antiseptic fluids. In this paper they reported twenty-nine cases of such operations having been made, which resulted in the amelioration of the condition in fifteen cases, cure in four, immediate death in nine and one result not stated. Their method of procedure consisted in making free incisions, by preference at the second intercostal space (without resection of the rib) down to the pleura, and thence entering the cavity with the thermo-cautery knife. In the cases which I shall briefly present for your attention their method of operation was pretty closely adopted. Although the signal failure of these operations as hitherto recorded, would lead one to hesitate upon the adoption of such means, it occurs to me that the two great causes of failure may be traced to the use of the knife instead of the galvano-cautery or thermo-cautery for making the opening through the pleura and lung, and to the injection of fluids; while a third might be added, consisting of the opening into a free pleural cavity.

Dr. Gibbs and myself have demonstrated to our own satisfaction that chlorine gas is capable of entirely destroying the virulence of tubercle or caseous material whenever the same has been properly exposed to it. Therefore it occurred to me that this agent would be the most desirable one for introduction into a pulmonary cavity providing it could be tolerated; not only for its immediate local effect, but also because of its gaseous nature fitting it to reach not only all of the adjacent diseased parts, but possibly the remote parts of the lung, thus providing a complete plan of local aseptic medication. The question, therefore, would seem to hinge upon some practical method of its introduction. We know by experience that it requires persistent effort on the part of the patient to inhale a sufficient quantity by the natural way to even secure a limited action upon the caseous surfaces exposed to the inspiratory current, and that its introduction is resisted by the glottis. I therefore felt justified in testing its adaptability in this way as soon as opportunity offered. The method pursued in the cases that I shall briefly report was as follows:

After anaesthetization by chloroform, an incision with a bistoury was made parallel with the ribs at the second intercostal space, from near the margin of the sternum for about two and a half inches

carefully avoiding the internal mammary and intercostal arteries; then the muscles were divided by as little incision as possible down to the costal pleura. Having reached the surface of this membrane the bistoury was exchanged for the incandescent galvano-cautery knife with which the pleura and intervening lung tissue was divided, until the cavity was reached. Into the opening a drainage tube (which was previously flanged) and secured to a piece of lead plate or zinc was inserted, the tube being long enough to extend some distance above the surface. The end of this tube was afterwards closed with a plug of absorbent cotton, which was of course removed whenever the cavity was treated. The diluted chlorine gas was obtained by pumping air with a common rubber bulb through a Wolf bottle which had been previously half filled with freshly made chlorine water, and connected by a piece of glass tubing with the tube in the thorax. The air in passing through this becomes strongly impregnated with the gas; and twelve to fifteen bulbs-full can be introduced at a time, and repeated every two to four hours. Contrary to expectation this procedure produced very little uneasiness, and little or no cough. In fact its effect was quite comforting to the patient.

The first case in which chlorine¹ was tried, was a sailor, age 32, who was brought to Harper hospital Oct. 20th, 1892, having suffered from a severe pleuropneumonia, the result of a debauch and exposure. He was very sick for three or four weeks expectorating blood and rusty sputa; suffering from high temperature, rapid pulse and respiration; active delirium and progressive adynamia. He had complained constantly of a great deal of pain in the right side, which required the continual effects of morphine to alleviate. The high temperature, rapid pulse and delirium gradually abated, and on the first of December I was asked to examine him with his attending physician, Dr. Brown. The right pleural cavity was found flat on percussion throughout the lower two-thirds of its extent, and there was but little respiratory murmur at the upper part of the right side of the chest.

Over the fourth interspace and about three inches from the sternum it was discovered that air was passing from the lung into the pleural cavity. At least it could be heard distinctly, accompanied by mucous râles. Believing that nature had perforated the visceral pleura and that there was possibly ulceration of the costal pleura going on, we decided to make an opening just below the spot which was deemed by auscultation to be the seat of ulceration. The patient was carefully placed under the influence of chloroform and I made an opening with a bistoury in the lower axillary region, and inserted a drainage tube without resecting any of the rib. This was followed by the discharge of bloody pus and sputum and subsequent amelioration of the symptoms. We found that the pus from the pleural cavity was quite thick and thoroughly mixed with blood. He continued to discharge this material by coughing, both through the tube and by the mouth. An examination of the sputum on the 16th of December revealed tubercle bacilli, although none were found in the fluid from the pleural cavity. The drainage tube was left in continuously. He was next

¹Chlorine, since examined by the pleural cavity a collection of pus and air in the sinuses.

treated by chlorine gas diluted with air for a period of six weeks and the cavity washed out by peroxide of hydrogen (1 to 10) on two or three occasions.

The patient suffered from persistent cough and the expectoration of bloody sputum for about three weeks,—although this was not caused by the gas. On account of the flowing of sputum into the general cellular tissue he suffered from a series of subcutaneous abscesses, five or six of which were opened; some of these were found to communicate with each other by sinuses. These sinuses were probed from time to time but no necrosed rib was found. The opening from the surface into the lung has now healed up. The man looks well, eats well, and breathes well. He walks about freely—going down town, and coughs very little, excepting in the morning. He takes no stimulant or anodyne. There is still, however, considerable discharge from a fistulous opening in the side of the chest near the point of the incision which has to be dressed twice a day.

This was undoubtedly a case of croupous pneumonia, with empyema, such as Dr. Godlee believes to occur more frequently than is generally recognized.

The man having survived the acute stages, nature evidently set about to make an opening for the pent up material.

By opening up the external parts, inserting a tube, and treating the condition as indicated, art simply assisted the accomplishment of nature's design.

The two cases which I am about to relate both died, and they were operated upon very much after the manner of Poirier and Jonnesco:

Case I.—T. S., Canadian by birth, cook by occupation, married, aged 48. Entered Harper hospital Feb. 4th, 1892, suffering from phthisis pulmonalis, presenting the signs of a small excavation in the upper part of the left lung with considerable hepatization throughout that side.

He remained in the hospital until March 8th, during which time he was treated principally by hypodermic injections of iodine and chloride of gold and sodium and inhalations of chlorine gas. At the time of his discharge he was very much improved, the physical signs showing retrogression of the pulmonary disease. He was heard from occasionally after that as improving, and I believe resumed work, but was taken sick the latter part of November with what was supposed to be croupous pneumonia; and was brought to the hospital again in February of 1893. At this time he was very weak, emaciated, with several good sized cavities in the left lung, also one at the right apex. He suffered from marked hectic fever and considerable diarrhoea. He was treated systematically by various things and the disease for a time was held in abeyance. But later on he gradually lost flesh and strength, and was surely approaching the end. On March 15th, having obtained the patient's consent and that of his friends, I opened one of the cavities of the left lung through the second intercostal space in the manner already stated. The cavity sought for seemed to be quite superficial but was found to be at least two inches from the pleural surface, and cutting through the lung tissue even with the galvanocautery knife, brought on considerable hemorrhage. The hemorrhage soon stopped, however, but after the insertion of the tube the patient seemed to collapse. We thought he would die on the table. However, hypodermic injections of stimulants were administered at once, and he soon rallied and was immediately taken to his bed wrapped up in hot woolen clothing, surrounded by hot bottles, while the hypodermic injections of stimulants—nitro-glycerin and digitalin, etc. were continued at short intervals until he completely reacted which took place in about an hour and a half. He then expressed himself as feeling very comfortable, in fact better than he had for "a long time." He stood the chlorine gas well, and seemed better, but died on the eighth day after the operation, from a sudden and very copious hemorrhage. On the evening of the 15th of March, the day of the operation, the cavity was drained through the tube, and the introduction of chlorine

gas commenced in a cavity on the second intercostal space. The gas was used about every four or five hours, and the patient, the tube being introduced every time. There was no indication of any pain and very little cough was excited by the gas procedure. He always expressed himself as feeling very comfortable after it. The cough, as cost of the cavity, and the cavities being drained out occasionally by turning the tube over to the right side.

The source of the hemorrhage was, as the immediate cause of his death was probably the opening of a good sized pulmonary vessel. Whether this was caused by the mechanical irritation of the end of the tube or the accidental rupture of some old aneurysm can only be conjectured as a post-mortem examination unfortunately could not be obtained.

Case 2.—A. M., German, aged 27, tailor, lived in United States eleven years; both parents died of phthisis pulmonalis. He had suffered from cough for six years when he thought resulted from "a cold." Had had several attacks of hemoptysis with expectorations of blood and fever on and off during this time. He was admitted to Harper hospital February 13th, very much emaciated and debilitated, scarcely able to be up and around the ward more than three or four hours a day.

For some time before his admission he had had constant high temperature, rapid pulse and a large amount of expectoration.

The physical signs showed a large antraetuous cavity possibly bronchiectatic at the upper left apex, with smaller cavities below this and in the lower portions of the lungs. The respiratory murmur at the former situation was purely tubular, and there was at all times well marked pectoriloquy. This large cavity seemed to be very near the external surface. Repeated examinations of sputum showed no tubercle bacilli.

He was placed for a time on a treatment by hypodermic injections of iodine and inhalations of chlorine gas, but showed no marked improvement, except a diminution of expectoration and pyrexia, so that he was rapidly failing and it was apparent would soon die. Now, as the location of the larger excavations seemed to be very favorable for operation I obtained his consent to do it, and on March 21st cut into the cavity at the left apex, through the third intercostal space in the manner previously detailed.

He took the anesthetic very well, and the operation occupied but a few minutes. There was no hemorrhage at the time, and he maintained a tolerably good physical condition throughout. A tube was inserted immediately after the operation, and he was removed to his bed. The examination with the finger at the time showed the excavation to be large, tortuous and smoothly lined. This latter indication led us to doubt whether the cavity had really been reached or not, but by swinging the finger around it was felt to be limited or walled all around, so that, taken together with the fact that the two layers of pleura seemed to be adherent, according to the test given by Poirier, (viz: the ability to see the movement of the lung through the costal layer, and the immobility of the free end of a needle with which the pleural layer was transfixed just previous to the opening) we finally lost all doubt. Dr. H. O. Walker and Dr. P. M. Hickey who kindly assisted me at this time, shared with me the doubt for a time. Moreover the presence, just at the bottom of the excavation, of a good sized pulmonary artery which could be felt by the finger, rendered any further puncturing hazardous. The cavity was drained and treated as in the former case. The patient's cough ceased and for a week he seemed to be improving. But at this time he was taken with diarrhoea which became obstinate, and seemed to reduce his strength very fast. Coincident was this, there was a strong odor of skato, which could be observed at times emanating from the breath. Whether this came directly from the intestinal canal through the esophagus, or whether it resulted from some chemical reaction of the chlorine gas within the lungs, of course could not be determined. I simply mention it as an interesting observation. The diarrhoea continued with more or less violence despite all measures which we could adopt, and he died from exhaustion April 14th.

The temperature during the last week of his life ranged between 101° and 103°. He complained of little or no pain, although after the first two or three days succeeding the operation he had very little morphia. The introduction of chlorine gas seemed to cause no irritation, but always a sense of relief and at no time after the operation did the expectoration amount to very much,—excepting, perhaps the three or four days before his death, when we

removed the tube and stopped all except palliative medication. Perhaps if the operation could have been made earlier, this man might have survived a long time.

The foregoing cases, abstracts of which I have given, do not make a very good showing in advocacy of this plan of treatment I admit. But it must be remembered that they were hopeless cases whose courses were nearly run.

I hope to have an opportunity soon of repeating this method of treatment upon cases that are not so far advanced.

While the results of the treatment of the earlier stages of the several forms of phthisis pulmonalis, (exclusive of general tuberculosis) by the plan of hypodermic injections of iodine and chloride of gold and sodium have been all that could be expected, still in the many cases of advanced excavation and caseation in which all methods of medication seem to fail, it would seem imperative that we should seek new methods of treatment and especially ascertain whether or not surgical procedures will assist nature in staying the progress of this disease in this class of cases.

The particular points which I desire to urge upon your consideration, are, first, those made by Poirier and Jonnesco, viz: to open the cavity freely near the apex *without resecting ribs*, and to use the galvanocautery knife for opening through the lung tissue; and second, the use of chlorine, ozone, bromine or some other antiseptic gas instead of a fluid for the local medication, for the latter it seems obvious can not be well tolerated by even diseased lung tissue outside of the cavity itself. Whereas with the use of a gas which is tolerable and capable of diffusion, we may hope to reach remotely diseased portions of lung which are in process of breaking down as well as to render the caseous material in and about the excavation more or less incapable of producing further infection. Another point to which I desire to call your attention before closing is the question of adhesion between the two pleural layers. It is plain that if the costal and visceral layers are not adherent, it is inadvisable to proceed further with the incision. Now whether the directions promulgated by Poirier and Jonnesco are infallible guides in all cases remains to be seen. However, I think that in the majority of instances all doubt will be dispelled by the insertion of a clean needle and the observation as to the mobility of its free end. I am not here to advocate surgical measures which would prove fatal in all cases, but I trust that the untoward events which I have here presented may lead some possessed of more surgical aptitude to initiate and perfect a better plan for the relief of these universally fatal cases.

DISCUSSION UPON DRS. SHERLEY AND GASTON'S PAPERS.

Dr. DENISON of Colorado—Some experience which I have had in the past year may be of interest to the Section. Eight or nine months ago I had a case of a man who had been having for six or eight weeks recurring hemorrhages from the region of the left infra-clavicular space. All methods at vogue had been employed to stop it but without avail, when I adopted a simple method of bandaging. A collar was put around the right shoulder to act as a fulcrum and two bands were run around the body. Rubber adhesive straps were put on the chest, with all the air possible expelled, and then drawn tighter and tighter. The hemorrhage stopped immediately, and I found to my gratification that within three months the large cavity had disappeared.

Dr. LAFACE of Pennsylvania—Speaking of drainage of the chest, I would like to give a little of my own experience. I had a case of empyema from which I removed nearly a half gallon of pus, removed with a curette as much as I could of a thick pyogenic membrane and packed the cavity tightly with a quantity of sterilized gauze. That man never felt better in his life than he did after that operation. In regard to tumors of the mediastinum: About a month ago in Philadelphia a man came under my care who had an enormous tumor over the sternum. It was impossible to make out the nature of it and I determined upon making an exploration. This revealed it to be of a tuberculous appearance and I scraped away at it until there was a cavity as large as my fist into which I could put my hand and rest it upon the pericardium. I had in that case a tuberculous condition of the mediastinum—what might have been elsewhere in the body a cold abscess. I packed that cavity likewise as in the previous case, with a good result, and shall ultimately perform a plastic operation for the restoration of the part lost. There is no limit to that grand principle of surgery, the thorough widespread principle of drainage, the excision of that which ought not to remain, and the packing with something that has capillary properties.

Dr. McCOMAS of Maryland—I had an interesting case of empyema five years ago in a man 25 years of age. I found, as I thought, an accumulation in the pleural cavity and aspirated, drawing off two pints of pus. I closed the wound and treated as we generally do these cases. Ten days later I aspirated again, removing six pints of pus this time, and then washed out the cavity with boiled water. Ten days later the pus had reaccumulated to such an extent that the liver was pushed down nearly to the iliac crest, the respiration was rapid and the patient cyanotic. I aspirated again and still again, making four times in all and having removed altogether twenty pints of pus. Later I had to remove the bandage on account of the pain which the patient experienced, and then washed out the cavity with tincture of iodine and water. That man is hearty and well to-day, although at first I thought I recognized him as a hopeless case.

Dr. A. H. FERGUSON of Winnipeg—Some time ago I had a case of empyema in a child which was interesting to me. Repeated aspirations at the hands of the family physician had been made without good result before the case came into my hands. The trephining of a rib with drainage failed to close the cavity, and then I resected a rib and packed with antiseptic gauze. I performed a second and a third resection and continued the packing until finally the cavity closed up nicely. In another case in which I operated for the removal of a section of seven ribs and curetting, although the operation only took thirty minutes the patient died from shock with delirium.

Dr. WHITING of Wisconsin—I am not here to teach the leaders of surgery anything, but I want to call attention to the fact that when you put a tube into a hole you have done a bad thing. You have drained the hole and you haven't drained it. The drainage tube, in my judgment, is fraught with more destruction to life than anything I know of.

Dr. MURPHY of Chicago—The lung expands by force of the contraction of the opposite lung. The belief is that when you open the pleural cavity the lung collapses. This is so in the dead subject but not in the living; it expands in expiration and collapses in inspiration.

Dr. DALTON of Missouri—Some time ago a young man 22 years of age entered a hospital at St. Louis with a stab wound in the right thorax in the second or third interspace, about an inch from the sternum. A large quantity of blood and froth escaped at every respiration and we considered him in no condition for surgical interference. Believing he

would die unless the wound was enlarged and packed, a four inch vertical incision was made. The cartilages of three ribs were cut, and with the use of large retracting forceps we got a view of the right lung cut to the extent of one or two inches, bleeding freely and the right pleural cavity full of blood. I caught the edges of the wound in the lung together, drew them to the surface and closed with catgut, cleaned out the pleural cavity and sewed up the wound in the chest wall. The patient rallied from the operation, but died a few hours afterwards. I was glad to find upon post-mortem that the wound in the lung was perfectly closed.

Dr. QUIMBY of New Jersey—I wish to put an emphasis upon the importance of early incisions in pleural effusions. In three cases where I operated before the effusion became purulent I think my success with them was due to the fact that I operated early. Early incisions have a tendency to save the lung.

Dr. SULLIVAN—I will add in regard to those cases where I opened the pulmonary cavity, those which were tuberculous died and those that were non-tuberculous lived. I object to the statement that every case of empyema is tuberculous.

SURGERY OF THE GALL BLADDER, CYSTIC AND COMMON DUCTS, WITH REPORT OF SEVEN CASES OPERATED UPON.

BY W. J. MAYO, M.D.

SURGEON TO ST. MARY'S HOSPITAL, ROCHESTER, MINN.; PRESIDENT OF THE MINNESOTA STATE MEDICAL SOCIETY.

Mr. President and Members of the Southern Minnesota Medical Society:—The rapid advance in abdominal surgery during the past ten years has brought the gall bladder into the field of operation, and in this time more definite knowledge in regard to its pathology and treatment has been gained than during the previous 160 years.

In 1733, Petit wrote the first of his classical essays, and during the succeeding ten years placed the pathology of gall bladder disease upon a sound basis far in advance of his time, but his work was little appreciated until recent years. With the anatomy of the gall bladder, its ducts and their relative position to the liver and duodenum, you are all familiar, and I will omit a description. The physiological function of the gall bladder is a mooted point—the commonly accepted belief is that it is a storehouse for bile to be discharged during digestion.

So late an authority as Landois and Stirling authorize this view. J. B. Murphy logically attacks this question, and as a result of experimental and practical study asserts that it has nearly the same function as the second bulb of a syringe in regulating the flow of bile, causing a steady stream rather than an intermittent current into the duodenum. Cholelithiasis is the most common pathological condition of the gall bladder for the relief of which surgery offers the only rational method. It is gratifying to us as Americans to see the important part played by our countrymen in this work, and to note that to Dr. Bobbs of Indianapolis, is due the credit of priority of performance of the modern operation in 1867. Gall stones, as a rule, are formed in the gall bladder itself as a result of precipitation and accretion. Under some circumstances stones are also found in the hepatic ducts, especially in cancerous obstruction. The diagnosis depends largely upon the history, character and location of the pain,

and often physical examination will reveal a tumor in this region. Jaundice does not appear unless the common duct is obstructed and is far more common in malignant disease, and for the same reason the color of the stool, upon which much stress has been laid, is usually of small importance. The diagnostic value of the finding of gall stones passed with the stool is absolute, but I am inclined to think that such passage of gall stones is less common than generally thought, and certainly the onset, duration and cessation of a colic is no indication that a stone has been passed, but merely that the cystic duct has been obstructed and that either the obstruction has been removed or the bladder has exhausted itself in the effort. When olive oil in large quantities was a popular remedy for hepatic colic, the soap balls passed with the stool, and resulting from the action of the intestinal alkalies upon the oil were erroneously supposed to be the offending bodies, and as such exhibited to the sufferer and his admiring friends. At the present time we hear much less about stones found in the feces. While stones may be passed through the ducts, or by ulceration, into the intestine, externally, or into any neighboring viscous, or after causing years of suffering remain quiescent without producing further trouble, such fortunate outcome is very exceptional, and in the majority of instances operation is the only relief from a life of suffering or death from a complication. Septic infection of the gall bladder, either as a result of stones, or from extension upward through the ducts of a septic process is a not uncommon occurrence, and may result either in chronic inflammation or empyema. Fenger has done much to elucidate this subject.

Large accumulations in the gall bladder are not infrequently confounded with right renal tumors or even with ovarian cysts, and many such mistakes are recorded, especially when dropsy of the gall bladder exists with great retention of catarrhal products as a result of duct obstruction. Injuries of the gall bladder sometimes occur. Some years ago in the practice of my father I saw a case of undoubted rupture of the gall bladder. A boy 12 years of age was thrown from a wagon, the wheel passing partly on to the right side of the abdomen. Acute developed and large quantities of thin bile were aspirated at different times during a month. Complete recovery took place. Operations upon the gall bladder may be divided into three general classes:

First, cholecystostomy, or the simple opening and removal of stones. Following that master of abdominal surgery, Lawson Tait, this operation is usually done at one sitting and the open gall bladder stitched into the incision, forming a temporary fistula. As bile is not septic and does not cause peritonitis, other than the adhesive variety, slight biliary contamination of the peritoneum causes no harm, and this open method enables us to manipulate with the finger inside the abdomen, outside of the gall bladder, which at times is a great aid in extracting stones. It also allows the subsequent escape of overlooked stones. If the contents of the gall bladder be septic upon aspiration after the abdominal incision is made, it is far safer to stitch it into the incision and delay opening for several days until adhesive inflammation has shut it off from the general cavity.

Blind aspiration of the gall bladder has long been known to be of great danger; not, as supposed, on account of the escape of a few drops of bile, but

REPORT OF SEVEN OPERATIONS UPON THE GALL BLADDER OR ITS DUCTS.

Number, Initials, Residence.	Nat. Age, Sex.	Location, Office.	Date and Place of Operations.	History.	Examination.	Operation.	Result.	Remarks.
1. L. R. H., Steep Eye, Minn.	Am. 36, M.	Hospital Staff.	Dec. 2, 1890, St. Mary's Hospital, Rochester.	Colic for several years; during last year continuous pain in right side, has had some morphia constantly.	Emaciated, yellow. Tumor in right hypogastrum.	Incision over tumor, single stone, gall bladder adherent.	R. Fistula closed in three weeks.	
2. F. L., St. Charles, Minn.	Ger. 43, F.	Dr. Chamberlin, St. Charles, Minn.	June 24, 1891, St. Mary's Hospital.	Colic began nine days after childbirth, two years ago. Constant pain and frequent colics.	Indefinite tumor, great tenderness in right hypogastrum.	Incision in right semi-lunaris. One large stone impacted in cystic duct.	R. Great difficulty was experienced in dislodging stone. Fistula healed in two weeks.	
3. G. Z., Dover, Minn.	Ger. 28, F.	Dr. Dugan, Dover, Minn.	Feb. 3, 1892, St. Mary's Hospital.	Attacks of pain, with more or less jaundice during last year. Pain in pelvis.	Liver very large. Small tumor in pelvis.	Incision in R. S. No stone. Common duct blocked by adhesions which were torn loose. Incision in median line. Papillary cyst of ovary removed.	R. Patient improved greatly for six months. In nine months died from malignant papilloma of peritoneum.	
4. E. J. D., Quincy Mills, Minn.	Am. 35, F.	Dr. Chamberlin, St. Charles, Minn.	Aug. 17, 1892, Home.	Repeated colic for attacks of peritonitis.	Patient jaundiced with symptoms of acute obstruction.	Gall bladder very adherent. Peritonitis. Ninety-six stones.	R. Patient died in a few hours. Operation lasted but twenty-five minutes.	
5. S. A. H., Plainview, Minn.	Am. 37, F.	Dr. Walste, Plainview, Minn.	August 29, 1892, St. Mary's Hospital.	Colic for seventeen years. Constant pain in right side.	Pain and tenderness in right hypogastrum. No tumor.	Incision in R. semi-lunaris. Gall bladder adherent. Fifty-six stones sutured to skin.	R. Fistula healed in four weeks.	
6. C. S., Portland, Minn.	Ger. 56, F.	Dr. Adams, Elgin, Minn.	Dec. 6, 1892, St. Mary's Hospital.	Pain for six months. Tumor forming in right side two months.	Movable tumor in right hypogastrum. Empyema gall bladder.	Incision over tumor. Murphy evacuated. Sutured and drained.	R. Fistula healed in three weeks.	
7. W. H., Racine, Minn.	Am. 71, M.	Dr. Plummer, Hamilton, Minn.	April 6, 1893, St. Mary's Hospital.	Colic for two years. Jaundice for two months.	Great debility, cholera, white stools, etc.	Incision R. S. Bladder deep. No stone. Obstruction in common duct. Anastomosis by Murphy's button.	R. The bladder could not be brought to surface. Obstruction could not be removed. The Murphy button worked quickly, and relieved jaundice, etc.	

because of the contents being often septic and the slight leakage setting up septic peritonitis.

Suture of the gall bladder after opening and removal of stones is seldom practiced and the method is condemned as unsafe. This, however, is not logical—the whole question of safety depends on the patency of the ducts. If there be no obstruction to the outflow, so that there will be no tension within the sac, suture and return is a safe procedure. Abbe tests the condition of the ducts by using a syringe and forcing water through them into the intestine; if the fluid passes freely he does not hesitate to trust to immediate suture and return.

The second general class is where the gall bladder is removed. Langenbeck first practiced cholecystectomy and formulated indications for its performance; he gives much too wide a scope to this procedure, and Greig Smith very properly limits its application to single or double stone, where the fundus of the gall bladder can not be sutured to the abdominal wall, or to cases wherein the tissues are too thin or inflamed to bear a suture. It is mainly practiced by a few continental surgeons and is not a popular operation.

The third class is a very important and often perplexing one—wherein obstruction exists either in the cystic or common duct. To suture such a gall bladder to the abdominal walls is to invite a permanent fistula; in any case an annoyance, and if complete obstruction of the common duct exists the escape of all the bile externally leads to debility and eventually death. Fortunately, the recent work of Mr. J. Knowlesley Thornton, Mr. Mayo Robinson, Robert Abbe, and Charles McBurney has given us methods of opening these ducts and removing stones with either suture of the incised duct or drainage. The

latter distinguished surgeon has successfully opened the duodenum and shelled an impacted stone out of the intestinal orifice of the common duct. There will remain certain cases in which the obstruction in the ducts can not be removed, and in these cases entero-cholecystotomy is our only hope of success. Winniwater first sutured the gall bladder to the colon; while this was much better than an external fistula, yet most of the physiological effect of the bile in digestion was lost. Gaston of Georgia, by experiments upon dogs developed a complicated method of suture to the duodenum; but it remained for a brilliant young Western surgeon, J. B. Murphy, to invent his mechanical device by means of which an effectual back door for the escape of bile into the duodenum can be safely and quickly made. In conclusion, I append a diagrammatic report of seven cases in which I have operated upon the gall bladder or its ducts.

SPECIMENS DEMONSTRATING THE OPERATION OF GASTRO-CHOLECYSTOTOMY, END-TO-END ANASTOMOSIS OF GUT, AND THE CONNECTING OF THE GALL BLADDER WITH THE ALIMENTARY TRACT.

AS PERFORMED WITH THE MURPHY BUTTON, AND BY THE MAUSSELL OPERATION.

Read before the Section on Surgery and Anatomy at the Forty-fourth Annual Meeting of the American Medical Association.

BY B. MERRILL RICKETTS, M.D.
(CINCINNATI, O.)

I am sorry, indeed, that circumstances would not permit of my being with you this morning as an-

nounced on the program. However, I must content myself with the time allotted to me this afternoon, a duly appreciated courtesy granted by the chairman, Dr. Murphy having demonstrated his gall bladder operation upon the dog prevents me from making anything more than a passing remark upon this operation. However, I wish to speak more fully upon the various other anastomoses.



No. 1.

That I might simplify matters both in my remarks and demonstrations I have, with the assistance of an artist been able to give charts that are more instructive than words.

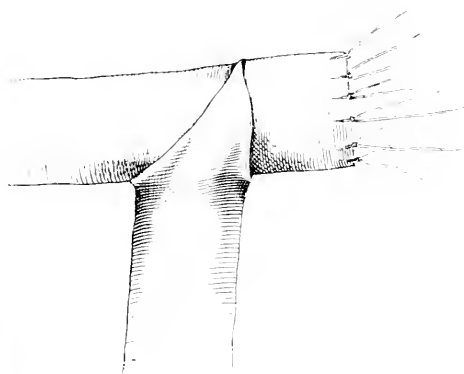


No. 2.

Six of these fully illustrate an end-to-end anastomosis, while four show the operation upon the stomach as suggested by Maunsell of New Zealand, some eleven years ago, but which was not published and made known until one year ago.

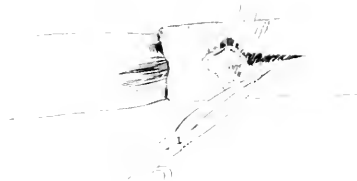


No. 3.



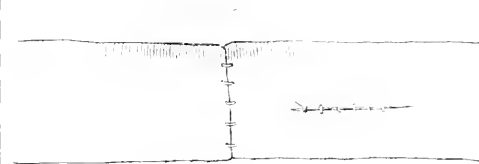
No. 4.

Although I have operated frequently upon the dog in this manner, I know of no person except Dr. Frank Hartley of New York, who has made the operation upon the human being. This Dr. Hartley did in the month of May, 1892, for carcinoma of the gut.



No. 5.

He informed me last November while I was in New York that the patient (a man) was living and doing well at that time. I suppose that we will hear from Dr. Hartley concerning this case.



No. 6.

This operation, when understood, can be made by the average practitioner without much preparation; all that is needed being a knife, scissors, needle and thread.



Fig. A.

With this, as with all other devices for anastomosis, greater difficulty is experienced in gut of small caliber, and I find less difficulty in making connec-

tions with the dog's gut as it approaches the caliber of the average human alimentary tract.



Fig. B.

My work with the Murphy button has been very satisfactory indeed, but the Murphy button is not and will not be found in the possession of 10 per cent. of the practitioners. Then, too, there is noth-



Fig. C.

ing left within the alimentary tract to jeopardize the life of the patient in its passage through that tract. Having not seen Mr. Mammell's description of the

operation, and having depended upon a short statement and one illustration, I have been left to learn of the operation through personal experimentation. I have thoroughly satisfied myself by this means, together with the statements by Dr. Hartley, that his operation was a success, and I am now ready to recommend it as one of the best means we have for the various anastomoses within the abdominal cavity.

No. 1 represents ends to be united.

No. 2 represents the ends of the fixation sutures, which have been drawn through the opening made in the gut for the purpose of invagination. These are the sutures that are removed after invagination has been produced, because the knots are on the peritoneal surface.

No. 3 represents the sutured ends drawn through the opening, and fixation sutures just before removal.

No. 4 represents completion of suturing, all the knots of which are on mucous side.

No. 5 shows partial reduction of invagination and stage of operation when ends of sutures are cut.

No. 6 shows appearance of gut after reduction and suturing the opening purposely made for invagination, also that the knots of sutures are within.

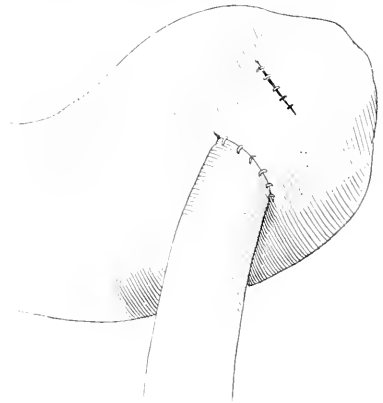


Fig. D.

Connection with the stomach is accomplished by making two incisions in that organ, as shown in Figs. *a*, *b*, *c* and *d*. The object is to insert the smaller into the larger one.

I am sorry that my remarks are so limited, but I feel that, together with the diagrams, enough has been said to fully illustrate the operation.

Medical Detectivism.—Dr. Conan Doyle's tales of detective acumen has made famous one of his medical teachers in the University of Edinburgh. The latest paragraph about Dr. Bell is the following:

"Professor Joseph Bell of Edinburgh is the original of Sherlock Holmes. Some years ago Professor Bell was medical examiner for an insurance company and an Edinburgh man presented himself for examination. After the victim had stripped to the waist, the professor poked him in the ribs and said:—"You have belonged to the Volunteers?" The gentleman admitted that was the fact, but said his volunteering had been done years before. It seems that certain muscles are developed by a military life, and that the professor knowing the man was not a soldier, and seeing those muscles developed on his body, at once jumped to the correct conclusion that he had been a Volunteer."

THE ESTABLISHMENT AND MAINTENANCE OF AN ARTIFICIAL URETHRA ABOVE THE SYMPHYSIS PUBIS IN CHRONIC PROSTATIC OBSTRUCTION.

Read in the Section of Surgery and Anatomy, at the Forty-fourth Annual Meeting of the American Medical Association.

BY D. J. HAYES, M.D.

MILWAUKEE.

Professor of Surgery of the Genito-urinary System in the Post-Graduate School of Medicine, Chicago, Ill.

I propose to call your attention to an operation for the relief of an extremely distressing and painful form of disease in men, the relief of which was very inadequate until of very recent date. I refer to the establishment of a urethra above the pubic bone in chronic prostatic obstruction.

From a series of over two hundred post-mortems prosecuted by Sir Henry Thompson on male patients over 55 years of age, to determine the percentage of those who were affected with prostatic enlargement it was found that about one in three had more or less enlargement, and only about one in seven of those exhibited symptoms of the disease during life. Consequently we may expect about one man in twenty who is approaching 60 years of age to consult us for this difficulty.

As a rule, enlargement of the prostate takes place in all directions, with occasionally the development within it of separate tumors resembling uterine fibromyomata. Sometimes only one lobe is affected, and again the whole trouble may be due to overgrowth of the middle lobe, which when enlarged gives rise to complete retention.

As the gland enlarges, the length of the prostatic urethra increases, often reaching four inches in length. The vesical orifice is thrown up behind the symphysis, and the curve of the prostatic urethra is much increased, which explains the difficulty often experienced in introducing an instrument into the bladder, and has led to the use of specially devised instruments to traverse the deformed urethra.

In advanced prostatic obstruction the greater portion of the bladder is lower than the internal orifice of the urethra, and forms a pouch behind the prostate. More or less residual urine is left in this pouch after each act of micturition. The obstruction as well as the residual urine increases from month to month and from year to year, and undergoes ammoniacal fermentation from the presence and action of putrefactive bacteria, producing irritation and progressive infection. Inflammation extends from the mucous to the submucous and muscular coat. The bladder walls become hypertrophied from overwork. Contraction takes place with loss of extensibility.

The urine which is loaded with mucus, pus and putrefactive bacteria, is forced back into the ureters, distending and producing inflammation in them.

On account of the stagnation of putrid urine in the bladder and ureters, more or less of this urine is left in the pelvis of kidneys, ending in pyelo-nephrosis or surgical kidney, from which the patient dies, but not until after months and perhaps years of the most intense suffering.

Many cases of cystitis due to prostatic obstruction are entirely relieved by rest and attention to the general health, while in more advanced prostatic disease the distressing symptoms may be relieved by withdrawal of the residual urine with the catheter and

thoroughly irrigating the bladder with antiseptic solutions and proper internal treatment. In another class of cases of which I wish to speak more fully the obstruction is more or less complete. Perhaps not a drop of urine can be passed without the use of the catheter. The bladder is much contracted and the use of the catheter becomes a necessity from fifteen to twenty times a day. The increased growth of the prostate makes the canal difficult to traverse, alike for the surgeon and patient. He only experiences half an hour's rest at night when a desire comes to urinate; again another attempt is made to pass the catheter through the deformed urethra. His powers are taxed to the utmost for continuous sleep is out of the question and his health rapidly declines. Among some of the many operations which have been devised from time for the reduction of prostatic hypertrophy may be mentioned, first, the injection into the prostate with a curved needle of a solution of iodine and iodid of potassium (Heine) which not only gave negative results, but proved to be dangerous. Many competent observers have spent both time and money with electricity without showing any brilliant results. The different methods of compression which have been used have not been attended with success, notwithstanding their frequent and continued recommendation. Internal medical treatment has been as ineffectual as compression.

Mercier's method of punching out a portion of the middle lobe through the urethra by a specially devised instrument has had few advocates and was never used to any extent on this side of the Atlantic.

Another operation which is more recent, and with which the name of Reginald Harrison is intimately connected, consists in opening the bladder by a median perineal incision, dividing the obstructing portion of the prostate and retaining a tube in the opening for six or seven weeks; large bougies are subsequently passed to keep the wound open, when finally it is allowed to heal. The low operation has many disadvantages. First, the patient who is generally in a poor condition of health from long suffering is confined to bed for many weeks; secondly, when the tube is withdrawn and the patient is up and around, there is a constant dribbling of urine, and when the opening is allowed to heal, all the old symptoms are liable to recur.

Prostatectomy, supra pubically through the perineum, or combined, has given brilliant results in many cases in the hands of McGill, Guyon, Moullin, Belfield, Keyes and other enthusiastic workers in the department of surgery. As a rule, patients who submit to this operation are men well advanced in life, and worn out by long continued suffering have renal complications, and the mortality must necessarily be high from uremia and sepsis. The question now arises, can anything be done by any other operative measures for the permanent relief of those cases? It can be answered in the affirmative. By the establishment and maintenance of a urethra above the symphysis pubis. The honor of having first planned and performed this operation belongs to Dr. Hunter McGuire. The technique of the operation is about the same as supra pubic cystotomy for vesical calculus. The patient is prepared the same as for any other abdominal operation. The rectal bag is introduced and distended with fluid. The bladder is thoroughly cleansed with a one-sixth per cent. solution of salicylic acid, which has the advantage over other solutions

of removing completely all the mucus and pus from the bladder wall, which is an important point in the subsequent steps of the operation.

The bladder is distended with the same fluid. The supra pubic region is thoroughly disinfected. The incision is made down to the bladder in the usual way and the bladder is opened on a line with the upper border of the pubic bone. The rectal and bladder distension raises the bladder in the pelvis, consequently the peritoneum is not encountered.

After the bladder is opened the interior is thoroughly explored for vesical calculus, tumors, etc. If there is obstruction at the outlet of the bladder due to projection of the middle lobe, its removal should be attempted if the patient's strength will admit. Any of the tissues should not be lacerated during the operation; particularly is this true of the loose cellular tissue surrounding the bladder as it opens avenues for subsequent urinary infiltration. The bladder walls are not sewed in the wound but allowed to drop back into the pelvis. A large gum catheter is introduced through the wound into the bladder and the urine removed by siphon action. When the wound contracts down to the size of a ten or twelve English catheter the opening is maintained by wearing a plug which resembles a tracheotomy tube, at least a portion of the time. When the desire comes to urinate the plug is removed and the bladder empties itself through the artificial urethra with considerable force. The urethra which is now established is from three-fourths to one and one-half inches in length. In the intervals of micturition the recti muscles and other tissues close the opening and there is no dribbling of urine whatever.

Within the past year I have established an artificial urethra above the symphysis pubis in two cases; both were very great sufferers and in both the time had arrived when the introduction of the catheter was difficult both for the patient and surgeon. One of them has kindly consented to appear at the meeting this afternoon. He is a man nearly seventy-two years of age, and has always enjoyed excellent health until about five or six years ago, when his trouble first commenced with frequency of urination, particularly at night. He grew progressively worse, and for the past six months previous to the operation he was not able to leave the house and was introducing the catheter from fifteen to twenty times a day. He was suffering fearfully, notwithstanding the use of large doses of morphine. His urine contained large quantities of mucus pus and bladder epithelium. Although he had been a very great sufferer for some time no evidence of renal disease could be found by either chemical or microscopical examination of the urine, which is exceptional in a case that has had disease in the lower portion of the urinary tract so long. He was very anemic and his health was rapidly declining. He consented to an operation which was performed on April 11, 1893. The preparatory treatment consisted in irrigating the bladder twice daily for three or four days previous to the operation with a saturated solution of boric acid containing one-sixth per cent. of salicylic acid, trit. repens, and salol internally. The bladder was opened in the usual way and in a pocket behind the enormously projecting prostate were found a few small stones which were removed. The bladder was allowed to drop back in the pelvis and a large drain introduced through the wound into the bladder. No

attempt was made to remove any of the projecting portion of the prostate as the patient's enfeebled condition would not admit of it.

There was some temperature following the operation. The bladder was irrigated three times daily through the tube and dilated as much as possible by hydraulic pressure. He was relieved from pain immediately after the operation and has taken no morphine since. His urine is now clear from mucus and pus and he is able to hold his water from three to five hours during the day and only arises once or twice at night. When the wound contracted down to the size of a number 10 English catheter the plug which resembles, as you will observe, a tracheotomy tube, is introduced for at least a portion of the day to maintain the opening. The patient is now able to empty the bladder completely through the artificial urethra which is just one inch in length. The urine is often expelled several feet from the body. There has been no dribbling of urine whatever since he is up and about. He has gained very rapidly since the operation and you will observe that he is in good condition. He eats well and sleeps well and goes to his place of business daily. He is an enthusiastic advocate of the operation and those who wish to examine him may do so.

The next case was a man 64 years of age. He had been suffering more or less for six years; for some months previous to the operation he was passing a catheter from twelve to fifteen times a day. He had a severe cystitis and his bladder was contracted; rectal examination with a sound in the bladder showed the prostate greatly enlarged in both longitudinal and transverse diameters. His urine was loaded with mucus, pus, and occasionally contained small quantities of blood. He had been treated for some time with antiseptic irrigations of bladder and morphine suppositories. The operation was made in the usual way; the bladder walls were found greatly thickened and sacculated.

In the course of two weeks he was up and about, and when the wound contracted down to a number 10 English catheter, which was about six weeks, the plug was introduced to maintain the opening, and worn a portion of the time. There was some necrosis of the prevesical tissues due to contact with the septic urine. To obviate this danger Dr. W. T. Belfield, of Chicago, recommends making the operation in two stages; at the first operation merely exposing the bladder and packing the wound with gauze until granulations are established, five to seven days, then opening the bladder and completing the operation. The urine is now free from mucus and pus, and he is able to hold it from three to five hours at a time. Both patients are enthusiastic advocates of the operation.

The question might be asked: Is this simply a palliative or ultimately a curative operation? The limited time that has elapsed since my operations will not admit of my answering this question from my own personal knowledge. Dr. McGuire who has had a large experience with the operation reports gradual reduction of the size of the prostate with final restoration of the powers of micturition by the natural route. This is not unreasonable to expect when we consider the greater portion of the hyperplasia is due to the disturbance of urination which constantly exists. And when the bladder and prostatic are put at rest gradual absorption of the ob-

structing tissues might take place. No case in the whole field of surgery can appeal more to our sympathies than a man with advanced cystitis due to prostatic obstruction, and in no case should a surgeon stand by and use simple palliative measures when a radical operation performed early will save the patient long and indescribable suffering.

A NEW MATERIAL FOR SURGICAL SPLINTS AND JACKETS, WITH A METHOD FOR APPLYING IT.

Read in the Section on Surgery and Anatomy, at the Forty-fourth Annual Meeting of the American Medical Association.

BY EDWARD A. TRACY, M.D.

BOSTON, MASS.

This material, in its crude form, is old as the hills—for the members of the energetic wasp family have used it, time out o' mind, in the construction of their homesteads. I refer to wood pulp.

There are many varieties of pulp board on the market, and to give their characteristics in detail would needlessly take up your time; suffice it to say they were tried and found wanting. The needful combination of properties sought for was plasticity, toughness, elasticity and rigidity. It took some experimentation to get the desired product, but my task was lightened by consulting my friend, Mr. Charles H. Fish, of Manchester, N. H., a gentleman familiar with every branch of pulp manufacture.

more complex splints, as of the elbow, shoulder, spine, or pelvis, it is serviceable to first cut a pattern of cloth or paper laid over the part in the position it is intended to retain it, and afterwards, with this pattern for a guide, the proper shaped blank can be cut from the sheet of pulp board. The splint-blank should be moistened (best done by means of a brush) with water, or a stiffening solution, just enough to render the material plastic; then it should be carefully molded over the part, with the aid of a roller bandage; after being so retained for a moment, let it be removed and dried. An accurately fitting splint results.

Of the various stiffening solutions tried, that of potassium silicate gives particularly good results. The solution ordinarily sold for surgeons' use and further diluted with water (10 to 50 percent, according to the rigidity desired) can be conveniently used. This solution hastens the drying process, adds rigidity to the splint, prevents perspiration from softening it, and renders the splint antiseptic. These facts are illustrated in the specimen shown, a splint made in fifteen minutes for a case of compound fracture of the right forefinger; during a part of the time it was worn, its distal end was plunged thrice daily into an antiseptic solution and you can witness how it withstood the treatment. (See Fig. 4.)

A solution of dextrine serves well, adding toughness and stiffness to the material. It is convenient for the general practitioner because dextrine (to be had of paint wholesalers) can be kept in powder form and

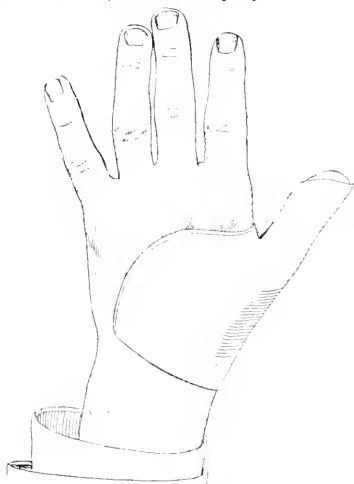


Fig. 1.

The experiments made, and the manufacturing processes employed, might form matter for interesting discourse in the laboratory and the mill; I do not propose to claim your attention for them here, but shall place directly before you a sample of the finished material, and explain how the practical surgeon bends it to his will and produces therefrom a good surgical splint.

A sheet of the material is taken and the splint-blank of the shape intended cut from it. Ordinary arm and leg splints can be outlined immediately on the pulp-sheet and cut without other pattern. For



Fig. 2.

Fig. 3.

Fig. 4.

a solution extemporized at any time. Good results are gotten with water as a moistener, and I recall an emergency case treated last winter where with it, a kitchen fire, and a piece of this pulp board, an excellent splint was made in half an hour for a severe injury of the ankle. The splint was worn for three weeks.

Now that the practical working of the material has been touched upon, a glance at the possibilities of its future use may be permitted me.

An illustrious member of this Association, Dr. Marcy of Boston, struck the keynote on seeing one

of my earlier splints: "The surgeon must make a splint to fit the limb—not the limb to the splint."

For leg, arm and finger splints, it requires no special skill to obtain superior results with my material. A study of the accompanying illustrations will indicate this. No. 1 is that of a splint for fixation of the left thumb, including its metacarpal bone. No. 2 shows an anterior knee splint for making immobile the knee joint; with a reinforcement controlling the quadriceps femoris it may prove useful in fracture of the patella. No. 3 represents a splint molded over the inner side of the right arm as it hung limp by the body, the palm against the thigh.

In complex cases the genius of the surgeon and his handiwork can shine forth in the creation of apparatus suitable for the case.

Apparatus heretofore impossible or rare because of its cost or the necessity for employing skilled tradesmen, will become plentiful.

Finally, knowing the properties possessed by this material, it requires but little foresight to comprehend the evolution in the near future of radically new apparatus for the treatment of various surgical affections.

In concluding, I feel happy to here express my hearty acknowledgment and thanks for suggestions and kindnesses tendered me by Drs. H. P. Bowditch, M. E. Gay, G. W. Gay, H. M. Marcy and D. W. Cheever of Boston; also, to Dr. W. M. Couant, who very courteously placed suitable hospital cases at my disposal, when experimenting on the material.

ON SOME POINTS CONCERNING CLUB FOOT.

Abstract of a clinical lecture delivered at the Children's Hospital, Great Ormond Street, London, May 11, 1905.

BY EDMOND OWEN, F.R.C.S.

SURGEON TO THE HOSPITAL, LONDON, ENGL.; SURGEON TO ST. MARY'S HOSPITAL.

[ABSTRACTED BY A. M. PHELPS, M.D., NEW YORK.]

Mr. Owen recognizes the two forms of equino varus, viz: the congenital and acquired, and also calls attention to the fact that one variety is much more easily cured than the other. He inclines to the belief that pressure in utero is one of the chief causes of the deformity. I quote:

"Probably, after all, the cause of the congenital deformity is the faulty packing of the fetus in utero. Here I show you a specimen of a fetus taken by surprise, as it were, and removed at about the sixth month. You will notice that the heels are markedly drawn up and the soles turned inwards. Often after a premature labor we find the feet folded flat upon the front of the chest, and much more inverted than in the specimen I have just handed round. It is a very suggestive fact that no other variety of club foot is found as a congenital defect. Only once have I met with a congenital instance of *talipes valgus*. I suppose the explanation is, that when the fetus is in utero, the muscular walls of the uterus can easily press and invert the feet against the front of the chest, while it is well nigh impossible for the uterine walls to turn the feet with the soles everted. The extreme inversion is evidently to insure the most convenient packing in utero, the fetus could not be snugly packed in utero with the soles turned out in the position of *talipes valgus*."

He teaches that the treatment should be commenced immediately after birth by manipulation

and fixation. "that the various fibers which are binding the foot in a faulty position may be the more easily stretched."

"Here is a boy whose foot illustrates the contraction of the plantar fascia—a case of paralytic equino varus. The case shows only in a moderate degree the double deformity, but it well illustrates the creasing across the sole; by pressing with the finger when the foot is in a somewhat corrected position, you will feel the very tight band which is caused by the plantar fascia. The structures needing attention, then, are the skin, the tendon of Achilles, the tibialis posterior, the flexors of the toes, the tibialis anticus and the plantar fascia. Last, we come to the anterior part of the internal lateral ligament. This is a very obstinate element in maintaining the deformity after the tendons have been divided. Students, as a rule, do not understand the importance of the internal lateral—the deltoid ligament. It is attached above to the internal malleolus, and below it spreads into the sustentaculum tali, and (which is the important point) forward on to the scaphoid bone. As a matter of fact only a comparatively small part of the internal lateral ligament runs to the astragalus; a good deal of it goes to the os calcis, and still more to the scaphoid bone; so that, if the foot has been cramped in the position of equino varus, it is impossible to straighten it out correctly, unless the anterior part of the internal lateral ligament which runs from the internal malleolus to the scaphoid bone is effectually dealt with. (This dissected specimen of a club foot shows the strong, anterior part of the internal lateral ligament holding the foot rigidly against the lower end of the tibia.)"

"I said a few minutes back that it was a matter of great concern to the surgeon whether the club foot which he was called upon to treat was a congenital defect, or the result of a central nervous lesion; the congenital defect being much more amenable to treatment than the deformity which is the result of infantile paralysis. And so marked is the difference in the result of the treatment in these two classes of cases, that there are some surgeons who absolutely refuse to operate at all in equino varus, which is the result of paralysis. No surgeon can get a very brilliant result in such cases, but with vigorous treatment he may get, as I shall show, a very fair one."

In the treatment of babies suffering from congenital talipes varo equino I quote the following:

"As regards the treatment of the congenital equino varus, as soon as the child has been washed the manipulations are to be begun by the surgeon trying to put the foot into an improved position. He will gain a little every time. He takes the ankle in one hand, and grasping the foot with the other, he flexes the foot; that is, he brings down the heel, and he gently but firmly everts the foot. Every time he goes to see the mother he must resort to this little maneuver, and he must also get the monthly nurse to help in the intervals of his visits. Three times a day, or oftener, the nurse is firmly to flex the foot; and little by little the skin and the ligaments and the tendons will yield, and the foot will come into the improved position."

"Should the case be neglected, it will return to the hospital with a relapse."

"The mention of this word 'relapse' causes me to make a remark in connection with the treatment of club foot; you hear, or at any rate I hear sur-

geons of experience in connection with club foot, say that they never have, or have had, a relapse after treatment, and that they would be ashamed if any of their cases did relapse. When I hear them publicly talk like this, my thoughts revert to Ananias. Relapses there must be in the treatment of club foot, unless the surgeon is constantly watching over the case day after day and week after week, and it may be year after year; and how rarely can this effective supervision be insured. Relapses there are and must be in the practice of every surgeon.

"I never see relapses in cases which I am permitted to handle after operation."

"But to return: The treatment of the simple congenital defect consists, then, in manipulation—vigorous, it may be—so that the anterior part of the internal lateral ligament and other structures may be well stretched. But suppose after several months of this procedure, although the gain is considerable, it is insufficient—something else must be done; and that should be subcutaneous section of the tendon of Achilles. It is inadvisable and useless for the surgeon to struggle against this strong and resisting structure. If he finds that he is not making sufficient progress, let him divide it first and foremost, and he will then obtain a fresh start. If you turn to your works on orthopedic surgery you will find it advised that section of the tendon of Achilles should always be left to the last division; but I say, let this tendon be divided *first* of everything, as it is the most important element in holding the foot in the wrong position."

He explains correctly that division of the tendon of Achilles not only allows the heel to come down, but also the inversion is overcome. I quote:

"Possibly I have not made myself sufficiently clear. Let me show what I mean upon this case. Here is the tendon of Achilles running to its insertion, the heel being in the mid-line. The contraction still takes place in the tendon of Achilles, and the heel, which is fairly movable under the astragalus, becomes rolled inwards. This is not theory, it is an actual fact; and when in these cases the tendon of Achilles is divided, not only does the heel come down, but the inversion is corrected."

"How do you know that any individual case of equino varus that you have to treat, is not one of those cases in which simple division of the tendon of Achilles may not effect so much improvement? Divide the tendon of Achilles first and see. That is the only way to find out. I stand by the assertion that the tendon of Achilles should always be divided first, when we are operating for equino varus. Sometimes this simple tenotomy suffices in the way of operation; often other tendons have to be divided as well."

Mr. Owen graphically pictures a case treated by subcutaneous work in the following words:

"Let us in our charity suggest it is a case of relapse, a case which has been under somebody else, and the child is four or five years old. Evidently manipulations, frictions and massage will not suffice for the effacement of the remaining deformity. The tendon of Achilles is to be divided first. Then, perhaps, the tendon of the tibialis anticus and that of the tibialis posticus, subcutaneously, if you will; and subcutaneously the plantar fascia shall be divided; and subcutaneously everything else shall be divided which prevents your getting the foot into

the improved position. But in my experience this subcutaneous surgery has not been altogether satisfactory. In any case, for instance, the skin prevents due unfolding of the foot. Of course if a surgeon asserts that he never has a relapse, and that he resorts to no more severe method of treatment than that of subcutaneous division of these structures, then I shall say, granting that all he says is true, by all means let him continue; but my experience in hospital practice, and especially with the out-patient class, is that subcutaneous operations do not effect enough. How, then, is a case of relapsed or neglected club foot to be dealt with? You shall perform the subcutaneous divisions of tendon and fascia, if you will, and in a slight case this operation will suffice.

"I remarked a little while ago that the skin formed a considerable element obstructing the reduction of the double deformity; and it was partly in recognition of this fact that Phelps of New York suggested an extremely radical measure in the treatment of talipes. Recognizing the fact also that the days are fortunately past in which open wounds are followed by inflammation, suppuration, or some form of blood poisoning, Phelps boldly suggested that a free incision should be made into the inner border of the sole of the foot, and that every structure which opposed itself to the perfect correction of the deformity should be thoroughly and effectually divided. This open operation of Phelps' is the operation which I am performing a good deal in connection with these cases—not, of course, in the treatment of every young child, or of any child with a slight deformity, but in the case of a child with a neglected, or an extreme deformity. And I am anxious to advocate it as warmly as I can to-day. I have never found any occasion to regret having resorted to Phelps' operation; but on the contrary have every reason for speaking of it in the highest terms. It is performed as follows: The tendon of Achilles is of course first divided, and, with a good deal of brute force, the surgeon does his best to get the foot into the improved position. A vertical incision is then made on the inner side of the foot a little in front of the internal malleolus, over the head of the astragalus. The incision will probably expose the internal saphenous vein, and this is sometimes divided in the operation, though sometimes the surgeon is able to complete the operation without dividing it; but if it is cut it is no great matter. After that he divides the tibialis anticus and, in the lower part of the incision the tibialis posticus, as it runs round to its insertion."

"The plantar fascia is then cut and some of the abductor of the great toe, and then, deep in the sole, the surgeon meets with the long flexor of the toes. Then, using some force still, he improves the position of the foot. Proceeding further he cuts the anterior part of the internal lateral ligament, at the same time exerting more energy upon the foot, and making a wide separation between the head of the astragalus and the scaphoid. Thus he is enabled to get the foot into the straight line, and, breaking through any remaining fibers that resist, he bends the anterior segment of the foot right back, opening the calcareo-cuboid joint, in all probability. When he is satisfied that nothing remains to impede the easy effacement of the deformity, he gently fills the gaping wound with mercuric gauze, and encloses the foot in lateral splints of house flannel which have been soaked in creamy plaster of Paris. In fixing up the

foot it is by no means necessary to use force or restraint, for no resisting elements remain. It is advisable in fixing the foot to have the deformity over-corrected, trusting to the growth of granulation tissue to fill up the wedge shaped cavity. Sometimes the dressing has to be reapplied next day, but as a rule, the foot remains undisturbed for ten or fourteen days. In some cases, indeed, I have allowed a longer interval to elapse before disturbing the first dressing."

In my earliest operations, I was half afraid lest the anterior segment of the foot should slough, but I have never had such apprehensions realized. In fact, it looks as if it might almost have been by design that the large artery of the foot, the external plantar, was specially placed along the outer part of the sole so that it might offer no hindrance to the surgeon who contemplated a resort to Phelps' open method of operating for talipes equino varus. In the course of eight weeks—more or less—the wound is quite healed, epidermis has grown over its surface, and the mass of granulation tissue which filled the space is being converted into strong fibrous tissue for the consolidation of the foot.

"I must just briefly allude to other operations. Possibly next time I shall have to say more on this subject, but merely for the sake of making comparison between Phelps' operation and the other operations which pass under the name of tarsotomy—cutting out a piece of the tarsus. In Phelps' operation nothing is cut away. But in the operation of tarsotomy it may be that the cuboid is removed, or that a wedge is taken from the outside of the foot, the base of the wedge being outwards and implicating various bones of the foot. Or it may be that the astragalus is taken away, so that the structures running from the leg to the foot are slackened, and that the os calcis may fall into its position between the two malleoli. But whichever of these forms of tarsotomy is adopted, there is—there must be—a considerable loss of tissue, for the improvement in the position of the foot is effected by a shortening of the external border of the foot. But in Phelps' operation the improvement is effected by the sacrifice of no tissue whatever, but by the insertion of a wedge of space, as it were, on the inner side of the foot. Thus, when the various resisting structures have been divided, a large gap exists between the head of the astragalus and the posterior aspect of the scaphoid bone."

"I show you here a boy whose case was most unpromising for any operation for talipes: the boy with infantile paralysis on whom I was demonstrating a little while ago. Unfortunately, I have no cast or figure to show the position in which the foot was before his operation. Kindly take my word for it that the deformity was extreme and the prospect unpromising. I performed Phelps' operation upon the foot, dividing everything, and now we have the foot in a very fair position: I think we may say a very excellent position, with no inclination whatever to relapse. Now I am sure of this, that no subcutaneous operation could have effected such an improvement as this open operation has effected, and no tarsotomy could have brought about so great and real an improvement, because in that operation the foot is necessarily robbed of most important elements. The result in this case, so far as it goes, is extremely satisfactory. On being made to walk the

patient gets his foot very flat, as you see. A most important point in this operation, and one on which Phelps insists very strongly and rightly, is that the malposition must be *over-corrected*. Relapse is not very likely to take place, but if you get (if I may use the expression) well to windward of the defect, it matters less if contraction does take place. It is a little heterodox to say that after an operation on club foot the foot should be put in the over-corrected position. In the textbooks you will probably find the advice still given to put up the foot in the old position for a certain length of time, so that the plastic effusion which takes place between the cut ends of the tendon may be gradually stretched. But the answer to that is that the ends of the tendons should be as wide apart as possible, that the little inflammation which is set up by the operation will be followed by the formation of a certain amount of granulation tissue, that this granulation tissue will be converted into fibrous tissue, and by this means a sufficiently long splice may be put into the tendon; and not only a longer splice than you would get if you put up the foot in the old position again, but a stronger splice. If you were putting the foot up in the old position and then gradually stretching the union between the cut ends of the tendon, with each stretching you would be sure to get an attenuation of the uniting mediums and a weakening of the tendon. You would get a less strong band of union between the cut ends than if you boldly and at once put the foot up in the over-corrected position."

"Here is a baby on whom Phelps' operation was performed for double congenital equino varus. Now it is said, and I think very fairly, that in a young child so severe an operation as that of Phelps should not be resorted to. I think it is fair criticism, but I will say that if Phelps' operation is going to give a favorable result in a biggish child, why should it not be resorted to in the case of a little child? In *every* case of a little child I would not resort to Phelps' operation; but here is a very little child, not a year old, with double equino varus, on whom I did perform Phelps' operation on each foot, and see how strong the feet are, and in what a very satisfactory position they remain. This child I have seen nothing of since it left the hospital after the operation months ago; that is to say, there has been no after treatment needed. There is nothing like a flail-like condition in the feet. They are quite solid. If we had done a simple subcutaneous tenotomy in this case, and sent the child away, the mother or friends would not have been able to look satisfactorily after the child, and in all probability, relapse would have taken place. My experience has been mostly with hospital patients. There are other surgeons who deal chiefly with private patients, and of course they can have them longer under supervision, and show excellent results with subcutaneous tenotomy. But, by the hospital surgeon, the open operation has but to be practiced to be appreciated."

"What about a Scarpa's shoe? It is quite out of date. If it is used, unless the child is seen almost every day, it will almost certainly give rise to an excoriation or a sore place. Plaster of Paris is far better. But in the early cases the less, if any, retentive apparatus, the freer the leg and foot, the better for the subsequent development."

"Here is a boy sixteen months old, and these are casts of his feet before operation. The case is not

now quite so satisfactory. On the right side there is still a little inversion, notwithstanding all the structures named having been divided. The inversion which persists is, I think, sure proof that after Phelps' operation a limp splay foot is not the result. On the right side, the foot is in a very excellent position, but on the left side, there is just this little inversion, which I believe will be easily corrected by simple manipulation. I do not think that any further operation is needed. I have not seen this child for months."

"It is a point in favor of Phelps' operation, that when you have divided all resisting structures, there can be no more contraction of them. You have done the work and the child will hardly require looking after. As we are going to operate this day week, on this boy (case previously referred to), I shall be able to show exactly the method of treatment; but I may say in passing, that after the large wound has been made, the cavity is generally stuffed with a little mercuric gauze, and that the foot is then fixed in the position of over-correction. I here show you this other boy, operated on two years ago, when he was a year old. This was a case of extreme equinovarus. There is no attempt at inversion here, and the boy, who has had plaster of Paris on, if he could stand could get his foot well to the ground. The foot has nothing like a flail between the anterior and the posterior segment of the foot."

RELIEF FROM PAIN IN LABOR.

Read before the Section on Obstetrics and Diseases of Women, at the Forty-fourth Annual Meeting of the American Medical Association.

BY I. N. LOVE, M.D.

PROFESSOR CLINICAL MEDICINE AND DISEASES OF CHILDREN, MARION-SIMS COLLEGE OF MEDICINE; EDITOR MEDICAL MIRROR, ST. LOUIS.

As physicians, we may well ask ourselves if we sufficiently appreciate the importance of saving our patient pain. I will say that pain in the abstract is conservative, that it is the announcement on the part of nature that something is wrong and needs correction, and that we should be very guarded in relieving pain for fear of removing nature's flag of distress rather than removing the cause, but the arguments which will apply to pain which is an evidence of disease are not in my judgment apropos to pain as an accompaniment of parturition.

In the primitive state, undoubtedly woman was possessed with great muscular force and absence of nervous sensibility. Civilization, social customs, modern habits of life have developed the nervous centers at the expense of the muscular tissues, and we have in these latter days women who may truly be termed sensitive plants, whose muscular force is below par and whose nervous systems are "on edge" as it were.

I have made it a rule for many years to insist upon a thoroughly cleared out condition of the alimentary canal upon the part of every woman under my care during the entire term of pregnancy: at the same time I have encouraged elimination on the part of the other excretory organs by the liberal administration of Garrod-Spa water, freely flushing out in this way the kidneys at frequent intervals. The activity of the skin I have encouraged by frequent warm baths at bedtime. This latter has aided in the direction of a greater degree of restfulness which is important.

As every one knows, the average woman is overstipated; doubly so during pregnancy, and there are double reasons for making efforts to remove this condition, because the interests of two people are involved instead of one. When I have evidence that labor is near at hand, I give my patient an increased amount of purgation. Immediately following the termination of labor I again purge freely with a view to the better clearing out of the alimentary canal and the removing of accumulated poisons. When I graduated in medicine, the instruction was given me to wait until the third day after confinement before evacuating the bowels. The same argument presented in favor of purgation as a preventer of peritoneal inflammation following abdominal sections, rather than opiates, will apply to the parturient woman. Constant, careful regard for all of the excretory organs, the keeping of the animated system of sewerage thoroughly cleared out, will in my judgment in the majority of cases eliminate puerperal convulsions from the nosology of the accoucheur. So much for elimination.

Now with regard to the best good of our patient from the standpoint of prevention of pain. We all know that the pregnant woman is prone to having her nervous system out of joint; in fact, the condition in itself is a severe test to the female nervous system. It is needless to recall to your mind how the very beginning of pregnancy is announced in many cases by peculiar nervous phenomena. During the entire term the imagination of the woman often becomes exalted or depressed. Her disposition is irritable. In many cases she is continually between two fires: upon the one side the greatest gloom, upon the other an excessive joy. Suspicion, jealousy, general sensitiveness are present, which under other conditions are never dreamed of. Nervous pains abound, migraine, facial neuralgia, toothache, itching in various parts of the body, together with smarting and other evidence of irritation of the peripheral extremities of the nerves. The most grave nerve troubles sometimes are present; eclampsia, chorea and often mania. Truly we have evidence in favor of the thought that pregnancy is a severe test to the stability of the nervous system.

It is absurd to talk of pregnancy as being a physiological condition; as much so as the eating of one's dinner and the digestion of the same. Under primitive conditions it probably was so, but surely not under the conditions which prevail in this latter decade of the nineteenth century. How many of us have seen the last months of the pregnant woman made miserable by continual aches and persistent pains throughout the abdominal region and other parts of the body where there has been a disturbance of the circulation owing to pressure upon the vessels. Unless this condition of affairs receives attention the average pregnant woman is in poor shape for meeting the ordeal which faces her at the close of her nine months' siege. I consider it our duty to guard the nervous system during this siege as carefully as we have guarded the eliminative organs. We will find that attention to elimination will help us in our service as a pain reliever during these months of trial. The engorgement in certain parts of the body is less; the removal of ptomaines and other poisons, the activity on the part of the secretory system of glands renders the nerve centers less sensitive and less easily demoralized. At the same time

we should save our patient every possible pain during this entire period. The warm baths at bedtime, suggested as aids in the direction of elimination, also favor the soothing of the nervous system and a complete rest at night. Massage given by a skilled masseuse preferably, is beneficial.

The excruciating pains complained of in the lumbar and abdominal regions can be relieved to a marked degree by rubbing the surfaces with a liniment composed of equal parts of chloroform, tincture of iodine, tincture of belladonna, tincture of opium, tincture of arnica and olive oil. If the restlessness and pain be great toward the latter weeks of pregnancy, in spite of the measures suggested, it is our duty to furnish a more positive relief in the form either of a combination of bromide of soda and chloral, ten or fifteen grains each, to be repeated to the extent of securing rest, or even now and then the administration of an opiate. I believe, however, that it is our duty to deliver personally to our patient the remedy desired and not to write a prescription, in order that no knowledge may be had upon the part of the patient as to the nature of the remedy taken and that we may the better limit it. I have occasionally found a dose of ten or fifteen grains of sulphonal or antikamnia of service at bedtime. One thing I insist upon, that my patient shall not know the remedial agent administered.

We will suppose, now, that the period of labor has commenced and that the suggestions previously given have been observed. The first stage of labor is often tedious, particularly in the primipara, with frequent and persistent nagging pains.

I cannot better state my position than by reporting a single case which is illustrative of a large number:

Mrs. R., the mother of four children. Called hastily in the absence of her usual medical attendant, she seemingly anticipating the time by about two weeks. Age 32. Four previous confinements all long continued and exhausting and terminated with forceps, the reason being given that smallness and compactness of build on the part of the patient precluded natural delivery. Had never been given chloroform for the reason that the physician did not believe the patient was a good subject and besides did not believe in giving chloroform in labor. Bowels had not been moved for three or four days. Instructed the nurse to give an ounce of castor oil together with twenty drops of turpentine, to be followed in four hours by enema of two quarts of hot water administered by the medium of a fountain syringe with a large size soft rubber catheter in place of the usual rectal nozzle, the same to be introduced two-thirds of its length, the enema to be repeated unless a large and free action should be secured. Digital examination revealed a natural presentation with a rigid os in the first stage of dilatation. Giving the patient assurance that everything was in good shape and that I desired to give her a good night's rest, I administered one-fourth of a grain of morphia, hypodermatically, together with fifteen grains each of bromide of soda and chloral by the mouth, the latter to be repeated in two hours. The hour being late and inasmuch as the usual attendant of the patient was absent and she was extremely anxious and nervous, I decided to remain during the night and asked that I be shown to my room. This was 11 o'clock. At 8 o'clock in the morning I was awakened and informed that no services were needed. Two or three liberal actions had been secured from the bowels; the patient had rested in spite of this interruption comparatively well, sleeping a good part of the time; occasionally disturbed by an unusually severe pain. The rest, however, had been pronounced. Digital examination revealed a complete dilatation and the second stage of labor well advanced. The pains soon became very frequent, long and severe. The bearing down resorted to. At once commenced the administration of chloroform, proceeding it by a stiff toddy, giving free inspiration during the pain with a good mingling of air. Relaxation was rapid and the obtundity of pain produced by the chloro-

reform was profound and this assisted the disposition to bear down and within an hour an unusually large child, the first boy, was born. Placenta followed soon afterwards. Contraction of the uterus was complete. The patient gave assurance of the fact that she had never had so easy a time; that she had hardly known what pain was. It will be observed that the forceps were not necessary. Another purgative dose of oil was immediately ordered and instructions given to the nurse to give a small dose of bromid and chloral if necessary to secure rest during the day.

The patient from the beginning was given whatever she wanted to eat, bearing in mind only that excessive quantity should not be given at any time, owing to the fact that digestion would not be as energetic in bed as in health; in other words, the puerperal state does not preclude good food. The patient ought to be extra well fed in order to build up against the long drain and pressure under which she has labored; besides she has to meet an emergency in the direction of feeding two people instead of one, and this should be constantly remembered. Within five days she might safely have sat up. Suffice it to say that she made the best recovery in her experience. She thrived and her baby thrived better than ever before. It is needless to say that she from this time forth was a convert in favor of elimination, tranquilization, rest and freedom from pain, together with the best of food as a series of essentials to the successful emergence from the puerperal state.

I close this rambling paper by presenting the following conclusions:

1. Every pregnant woman throughout the entire period of her pregnancy should have the most careful attention given to her organs of elimination and to proper exercise.

2. Her nerve force throughout the ordeal must be economized, and particularly is this necessary during the last days and hours of her engagement.

3. The well being of herself and her child is involved in this matter of elimination, exercise and tranquilization.

4. Rest is the great encourager of repair as well as growth; repair to the exhausted force of the woman, thus assisting the proper growth of the unborn child.

5. Pain long continued is dangerous, particularly to those not well endowed by nature for the bearing of pain, and as we never think of ignoring the element of shock in our surgical injuries, no more should we ignore it in the parturient state.

6. The rasping destructive injury to the grosser tissues of the human body are often observed by all surgeons. The more complete the surgical management of the case, the completest possible rest after the injuries favors the completest healing, and yet scars may remain.

7. We should save the nervous systems of the mothers of the world from the rasping, destructive traumatism produced by labor, and at the same time we should favor rapid repair, never losing sight of the fact that while the healing may be complete, scars yet remain, and in nerve tissues are much more difficult to recover from and are accompanied by greater interference with proper performance of function than in other more vulgar tissues.

8. Balm sleep is not only "tired nature's sweet restorer," but also the restorer of burdened, fretted, fagged out, wounded, wrecked nerve structures.

9. Graves, the great Irish physician only asked that there be placed upon his epitaph, "He fed fevers." Every thoughtful, warm-blooded, scientific and helpful physician might well ask that there be placed upon his tomb the epitaph, "He gave to his beloved sleep; he saved his patient from pain; not recklessly but intelligently, judiciously, thoughtfully, humanely."

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, IN LIVING POSTAGE,
PER ANNUM, IN ADVANCE, \$3.00
SINGLE COPIES, 10 CENTS

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
501 N. WABASH AVE., CHICAGO, ILLINOIS.

All members of the Association should send their Annual Dues to the
Treasurer, RICHARD J. DUNGLISON, M. D., Lock Box 1274, Philadelphia, Pa.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION

This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Dunglison, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues and subscription for THE JOURNAL. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

SATURDAY, AUGUST 26, 1893.

JEAN MARTIN CHARCOT.

Throughout the civilized world, wherever the language of medicine is understood, there is sincere regret that CHARCOT is no more. This distinguished medical man was graduated in medicine at Paris in 1853, and died at Morvan, France, August 17, 1893. He was director of the great Hôpital La Salpêtrière at the time of his death, in which institution he had been interne forty years ago. His residence was in the ultra fashionable quarter, the Faubourg St. Germaine.

He early commenced the study of difficult questions, turning his attention especially to diseases of the liver and spinal cord. The list of his works in the Index Catalogue is a long one, and the less elaborate studies will be found scattered throughout neurological literature.

The current press dispatches from Paris give the following general statement:

"He organized in 1879 an anatomo-pathologic museum, a laboratory with photographic apparatus, hydrotherapeutic rooms, and began with a series of lectures a clinical course on nervous diseases which has been translated into all the living languages. In 1883 he was a member of the Académie des Sciences, a member of the Clinical Society of London, and frequently received applications for consulting visits from the courts of Europe.

Locomotor ataxia, St. Vitus' dance, hysteria, hypnotism, an infinity of disorders and apparently mysterious effects, received from his patient investigations unexpected enlightenment. His pupils adored him. Marks of distinction were literally showered upon him from sovereigns and learned societies of all nations.

He retained an admirable faith in science, despite the disillusion which were inevitable. He found pleasure only in the thought that he might contribute a stone to the mysterious edifice which would be completed in the distant future.

He published in 1853 "*Etudes pour servir à l'histoire de l'affection décrite sous le nom des nodosités des jointures, goutte Asthenique primitive, rhuma-*

tisme articulaire Chronique," and in 1857, "*De l'Expectation en Médecine*;" in 1860, "*De la Pneumonie Chronique*;" in 1867, "*La Médecine Empirique et la Médecine Scientifique*," a parallel between ancient and modern methods; in 1868, "*Leçons Cliniques sur les Maladies des Vieillards et les Maladies Chroniques*;" in 1873, "*Leçons sur les Maladies du Système Nerveux*;" in 1875, a second edition, with plates and figures, of his work on the diseases of the nervous system; in 1877, "*Leçons sur les Maladies du Foie, des Voies Biliaires et des Reins*," and numerous essays in the *Archives de Physiologie*, of which he was a director.

His capacity for incessant labor was amazing. In 1878 he produced the "*Iconographie Photographique de la Salpêtrière*;" in 1880, a great treatise on "*Les Maladies du Cerveau*;" in 1881, a study of "*L'Albuminurie*;" in 1884, another great work on the nervous system; in 1887, in collaboration with RICHET, one of his pupils, who was a skillful artist and is a famous physician, "*Les Démoniaques dans l'Art*."

There is not a serious work on nervous diseases which is not studied with references to CHARCOT. There is not a practicing physician at the present time free of indebtedness to the lessons of CHARCOT.

And to American physicians, it may be added, a visit to Paris will not be the same since CHARCOT has gone. His mastery of his chosen field, his genial manner, his welcome to strangers and his wonderful diagnostic powers, caused him to be much sought by foreigners, and his decease leaves a vacancy not easily filled.

STUDIES OF HEREDITY.

The recent translation and publication of PROF. WEISMAN'S essays upon heredity, and kindred biological problems, has opened anew the very interesting controversy which has centered about his theories. DR. WEISMAN is a professor of physiology and biology at the University of Freiburg, who has for many years made very exhaustive studies of the problems of heredity. His conclusions differ widely from many of the popular theories, and are considered the most scientific and candid studies published. In some of his last essays he points out the errors of his former theories, and the way in which he made them, and asserts that all scientific facts depend on theories which are frequently found to be wrong, and are given up for more accurate hypothesis.

He affirms that theories alone are valueless without a firm basis of facts, and that a collection of facts without some theory of coherence or relation are worthless. Theories are plummets with which to sound the depths of the ocean of unknown phenomena. He claims that his theories of heredity are supported by the present knowledge of this subject, but are open to revision and correction from further study and research.

One of these theories is that the reproductive germ cells are practically immortal and are transmitted from generation to generation without

variation. The substance of the germ cells, the germ-plasma, has remained in perpetual continuity from the first origin of life. The extreme variations to which the organism is subjected, do not alter the germ cells, and reappear in the next generation. The germ plasma or substance of the reproductive cells continues the succession of the species, while natural selection and chemical fluctuations of the molecules of the organism vary widely, changing the individual. Hence the transmission of acquired characters is impossible, for the germ plasma is not formed anew in each individual. He believes that heredity depends on the fact that a small portion of the effective substance of the germ plasma remains unchanged during the development of the ovum into the organism, and this part of the germ plasma serves as a foundation from which the germ cells of the new organism are produced. The germ plasma may be represented as a root stock from which plants arise at intervals, representing the individuals of successive generations. This germ plasma is derived from that which preceded it, and its molecular constitution can not depend upon the individual in which it happens to occur, but such individuals only form the nutritive soil at the expense of which the germ plasma grows. The tendency of heredity of which the germ plasma is the bearer, depends upon this very molecular structure, and hence only those characters can be transmitted through successive generations which have been previously inherited, viz., those characters which were potentially contained in the structure of the germ plasma. It also follows that those other characters which have been acquired by the influence of special external conditions during the lifetime of the parent cannot be transmitted at all.

These conclusions are studied and exemplified in a very conclusive way. The re-appearance of like qualities of parents in the children are explained by environment, nutrition, natural selection and other forces. He urges very emphatically that mutilations and organic defects of the body can not be transmitted, because contrary to the doctrine of survival of the fittest.

The natural tendency is to eliminate and throw out the defectives and degenerates from injury and disease, and it would be opposed to nature to perpetuate them to the next generation.

Lessened vigor, and incapacity to resist adverse influences appear in the children followed by early death. The direct transmission of disease germs which fasten themselves to the sperm or germ cell, and are thus transmitted from one organism to another, are proved to be highly probable facts. The disease of the silkworm is transmitted in this way, and the tuberculosis, syphilis, and smallpox germs, may in all probability follow the same law of trans-

mission. Artificially produced epilepsy is explained in certain cases as following direct from microbic origin which is transmitted in this way. The two parental germ plasmas are very complex substances, and consist of a number of ancestral germ plasmas of different proportions, which combine in different degrees of strength. From these combinations different ancestral forces are increased or retarded; along this line, natural selection separates and breaks up, or perpetuates the germ cells.

Many of these studies and theories have an intense interest to every physician. The author has an exceedingly frank way of presenting his conclusions, and the apparent facts on which they are based; claiming only their probable correctness, and inviting the reader to join with him in farther study. It is evident to the reader that these complex biological theories, are no more fanciful than those which daily confront him in the practice of medicine. Also, if the many medical problems were discussed with the scientific breadth and frankness of this author, we should have less to unlearn and put aside in daily study.

THE YELLOW FEVER.

On the morning of the 10th August the country was startled by the announcement of two deaths from yellow fever having occurred in Pensacola. On July 22 the Spanish steamship *Leonora* arrived; on the 26th a sailor was taken to the hospital; on 27th a second, on 28th a third, on 29th a fourth. Two were discharged, and by the 1st August the two remaining cases had developed into yellow fever; the vessel was then sent to the Gulf Quarantine Station.

This was practically the first announcement for years that the disease had passed beyond the quarantines. The arrival of vessels infected with yellow fever at points on the Gulf and at South Atlantic ports has occurred almost weekly for the last eight weeks. The announcement of the deaths at Pensacola was made by the Board of Health, and even if the Board were mistaken in one case, at least one of the cases was regarded as suspicious by some of the best yellow fever experts in the country. Being thus authenticated, it naturally created a panic and an exodus from the place of all those who could get away; with the consequence of the quarantine of other cities and States against Pensacola; and it looked for a day or two as if the country was going to suffer from "shot gun quarantine" and the horrors incident thereto. The action of the Pensacola Board of Health was in striking contrast with the action of similar bodies previous to 1881, when as a rule efforts were made to hide the existence of a disease, and yellow fever was not pronounced epidemic until more deaths occurred in a week from that disease than from all other causes. One point of the controversy between the

Sanitary Council of the Mississippi Valley and a Board of Health was the non-reporting of the existence of cases in a certain locality, thereby causing a quarantine by that organization against that place.

The States in the Sanitary Council organization in April, 1879, agreed to promptly report the first cases of yellow fever. The American Public Health Association also adopted a like measure in 1884. It was not, however, until Dr. JOSEPH HOLT became President of the Louisiana State Board of Health that the custom became general, as he announced promptly all authenticated and even suspicious cases.

The situation was intensified a few days after the Pensacola affair, by the announcement that Dr. BRANHAM of the Marine Hospital Service had yellow fever at Brunswick, Georgia. Late in June the captain of the bark *Anita Becard*, died of yellow fever on Satula river, near Brunswick. DR. CARTER, of the Marine Hospital Service was sent there to prevent its spread. DR. BRANHAM relieved DR. CARTER, and soon after was attacked by the disease, and on Aug. 19, died. The last time Brunswick suffered from yellow fever (1875) the first death occurred on August 20th. The most experienced yellow fever experts have been in charge for the last two weeks and every possible precaution has been taken to prevent the spread of the disease. As we go to press the dispatches announce another case of yellow fever at Brunswick, and a general exodus from that place in progress.

The highest point north that yellow fever has occurred in the valley of the Mississippi was in August 1854, when a patient came up the river on a steamer from New Orleans to Rock Island, and two nurses who attended him contracted the disease and one of them died. Going farther south in 1873, four railroad laborers at Centralia, who were transferring hides which had been sent from Shreveport, where yellow fever had prevailed, were attacked by the disease. In 1878, one hundred and five refugees from the yellow fever districts suffered with yellow fever in different parts of the State north of Cairo; of these there were twenty-four deaths, the greater portion of them occurring in the city of Chicago—and in not a single instance did those who attended them contract the disease. In that year a number of the attendants at the quarantine station below St. Louis contracted the disease. It is a well established fact that yellow fever will not spread unless there has been a continuous mean temperature of upwards of 70° for some considerable time. It is safe to assume from the experience of the past and judging by the temperature, that yellow fever will not spread this time anywhere north of St. Louis and by September 1st, anywhere north of the Ohio river. Fortunately for the State of Florida, and for the country, that State now has a State Board of Health, and a State health officer of great experience and untiring energy.

ANIMAL EXTRACTS IN EARLY MEDICAL ANNALS.

The modern use of prepared animal organs and animal extracts has probably not yet attained to such therapeutic rank as would lead the Committee on Revision to introduce this distinct class of remedies into the National Pharmacopœia. And yet for such action respectable authority and precedent are not wanting, since in the Dispensatory made by the "College of Physicians" of London, as we learn from the famous edition of "NICH. CULPEPER, Gent. Student in Physick," (of which the second edition was published in 1650), there was an entire section devoted to "Parts of Living Creatures and Excrements," from which possibly some *fin de siècle* clinician might even now obtain a few available hints that might direct his investigations for new specifics, as he will find some curious precedents for those lately brought into use. Thus *Cerebrum* is anticipated in the following: "The brain of Sparrows being eaten provoke lust exceedingly." "The brain of a Hare being roasted helps trembling; it maketh children breed teeth easily, their gums being rubbed with it; it also helps scaldheads and falling off of hair, the head being anointed with it." BROWN-SEQUARD'S *Spermine* is suggested by this note: "Cocks' stones nourish mightily, and refresh and restore such bodies as have been wasted by long sickness; they are admirable good in Hecktick fevers, and (GALEN'S supposed incurable) Marasmus, which is a consumption attending upon a Hecktick fever; they encrease seed and help such as are weak in the sports of Venus." The next is of similar but more potent character: "The yard of a stag helps fluxes, the bitings of venomous beasts; provokes urine and stirs up lust exceedingly." *Cardine* is possibly prefigured in this paragraph: "The bone that is found in the heart of a Stag is as sovereign a Cordial, and as great a strengthener to the heart as any is, being beaten into a powder and taken inwardly; also it resists pestilences and poison." The next might be termed *Pneumonic*: "The lungues of a Fox well dried (but not burned) is an admirable strengthener to the lungues; see the Lohoch of Fox lungues." *Hepatic* is forestalled as follows: "The liver of a Duck stops fluxes and strengthens the liver exceedingly. The liver of a Frog being dried and eaten, helps quartan agues, or as the vulgar call them third-day agues." The next might be termed *Vesical*: "A Sheep's or Goat's bladder being burnt, and the ashes given inwardly helps the *Diabetes*, or continual pissing." Among the peculiar remedies may be noted "Unicorn's horn;" "the head of a cole-black Cat, burnt to ashes in a new pot;" "the skul of a man that was never buried" beaten to a powder and given inwardly; "the fat of a man" used as an ointment and powdered Mummy for internal use.

Suggestions are made elsewhere with regard to the

use of centipedes, woodlice, earthworms, land scorpions, grasshoppers, the flesh of vipers, for various morbid states, with much apparent confidence in their alleged virtues.

Another work which appeared about the same time as the preceding, was, "Health's Improvement; or Rules Comprizing and Discovering the Nature, Method and Manner of Preparing all Sorts of Food used in this Nation." It was printed at "The Sign of the White Horse in Paul's Churchyard 1655," and was written by "that ever famous THOMAS MUFFETT, Doctor in Physick," but it did not appear until after the death of the author, when it was corrected and edited by CHRISTOPHER BENNET, doctor in Physick and Fellow of the College of Physicians in London." From this interesting work we will take but two therapeutic hints: "Pithmarrow running all along from the hinder brain (whereof no doubt it is a portion) to the end of the backbone or chine of beasts, is no doubt much harder and drier than the brain itself, especially towards the further end of the back; which dryness makes it less loathsome to the stomach than brains are; yea, furthermore, it strengtheneth that body which is able to concoct it. Many are of opinion that Cawdles made strong with the pitte of a Steer and yolks of newlaid eggs, do by a secret property restore nature, and recover the weakness of loyns caused by venery. MONTAGNANA maketh a singular confection of divers marrows to that purpose, which I will not set down in English, least wantons be too bold to follow their follies."

Thus history repeats itself, even in therapeutics. Upon reviewing the remedies in use by the leading practitioners of medicine two centuries and a half ago, one can sympathize with the author of "Tristram Shandy," who declared that "the physicians here are the errantest charlatans in Europe or the most ignorant of pretending fools. I withdrew what was left of me out of their hands and recommended myself entirely to Dame Nature."

Possibly the willingness of the Pilgrim Fathers to leave their former homes and settle in the wilderness was in some measure to be ascribed to the medical practice which prevailed in Europe at the time; if so it is highly appropriate in this Columbian year, to make a claim for the tardy recognition of the part which medical science had in stimulating exploration and emigration in the sixteenth and seventeenth centuries.

CHOLERA.

The intense heat that has prevailed in Europe during the past week has caused an increase of cases of cholera, and its spread to hitherto uninfected localities. There are now twenty-six districts infected in Russia, and within the last week there has been a decided increase of cases in Moscow and St. Peters-

burg. The official report for the week past, shows a total of 2,372 cases and 951 deaths. The express train service between Russia and Bulgaria, Turkey and Servia has been suspended. Express trains now run between Belgrade and Paris only. In France there has also been an increase and a marked tendency to spread to the interior from the south. There has also been an increase at Naples, and the disease has spread to Salmoia, Campobella and other villages in Italy. So far but few cases have been found in Spain. The Austrian Government is charged with concealing cases, for commercial purposes, in Hungary. There is undoubtedly an increase in Austrian Galicia. Cholera has also appeared at Brabillio, Solina and Galatz in Roumania. As expected there was an increase of cases at Antwerp. The Imperial Board of Health announces there have been thus far this summer only four cases of cholera in Germany. Three of the persons attacked died. These are reported as having eaten tainted meat imported from districts in Russia in which cholera has prevailed. The following extract from a recent Berlin letter will explain the situation.

"Although the authorities are taking unusual precautions to prevent and suppress cholera, no disturbance of railway or other traffic is apparent. Only the emigrants from the stricken districts of Russia are disinfected. If the emigrants are destitute they are sent at the public expense to America or elsewhere. The orders to turn back all destitute emigrants trying to cross the Russian frontier have failed to accomplish much. By one kind of fraud or another the steady stream across the border is kept in motion.

In Berlin the emigrants are swindling the Relief committee and other people ready to help them. No matter how much money they show at the border to facilitate their admission to the country, they are likely to delare themselves destitute as soon as they reach Berlin in order that they may have their expenses paid."

At Bremen the embarkation of Russian emigrants on the North German Lloyd steamships has been prohibited. This should have been done before. Why should this country receive immigrants from cholera infected countries? We are constantly running the risk of cholera, at the same time adding thousands to our already great number of unemployed. While it is true great precautions are taken, still there is danger.

Upon the whole the situation is favorable, particularly when it is taken into consideration that there are so many places that are infected, and with the exception of Russia, the disease is practically controlled by the extraordinary efforts made by the different governments. Cholera is thus shorn of much of the suffering and loss of life which has heretofore followed in its track. The probabilities are that within a short time there will be a decrease of the pandemic.

No new cases occurred among the *Karamania's* passengers quarantined on Hoffmann Island, and the same were discharged after being there eighteen days. There is still danger, and there is still need for vigilance. The American quarantine system is on trial.

DISINFECTION OF PHTHISIC SPUTA.

With the progress of bacteriological knowledge, come the various practical suggestions that make such knowledge useful to mankind in preventing the spread of infectious diseases, and rendering them less virulent. It is now well known that the phthisical sputa is the principal means of propagation of tubercle, outside of the body. Clinical observation long ago demonstrated that persons in close personal contact with phthisics for a protracted period of time were extremely liable to contract the disease, and now that we know the cause, we should quickly employ effective means of destruction of the fatal bacilli.

REMOUCHAMPS (*Revue des Sciences Medicales*, July, 1893), has employed carbonate of sodium in boiling water as a cheap and practical means of destroying the tuberculous contents of spittoons and particularly of handkerchiefs. He demonstrated its efficiency by an experiment as follows:

On some squares of linen he spread the expectoration from phthisical patients and demonstrated the specific bacilli in great abundance. After drying, he placed these cloths in a vessel and sprinkled them thoroughly with soda carbonate, and poured on them two liters of boiling water, in which they remained during the night. The next morning he expressed the contents of the linen squares into a glass vase. Three guinea pigs received an intraperitoneal injection of two cubic centimeters of the liquid taken from the bottom of the vase. Four months afterward neither of the three animals had become tuberculous.

This principle is used in several of the European hospitals in the disinfection of spittoons. BARD (*Revue des Sciences Medicales*, July, 1893), has invented a sort of galvanized iron wire grate capable of holding sixteen spittoons. These are placed in a tank of boiling water for eight to ten minutes, and they require no watching or special attention. BARD believes that carbonate of soda is unnecessary.

In phthisic wards, dry sweeping should not be practiced, for it is well known that sweeping may put dried sputum in suspension in the air. When a wooden floor is necessary for such wards, the joints should be kept well calked with some terebinthinate substance or frequently kerosened. The parquet floors are superior to any other, as they have no open crevices. The use of the broom should be forbidden. Frequent washing the floor with antiseptic solutions and drying with the squeegee will be found useful. The squeegee, as is well known, is made of a piece of wood having a strip of rubber set in a groove in its under part, and well mounted on a handle.

Handkerchiefs used by phthisics should be well powdered with carbonate of soda and plunged in boiling water for ten minutes, after which, at con-

venience, they may be safely sent to be laundered with other linen.

SPECIAL TRAIN OF THE JOURNAL.

The special train of the JOURNAL OF THE ASSOCIATION for the Pan-American Medical Congress will leave Chicago at 8 A. M. Sept. 3, from the new Illinois Central depot, 12th St. and Park Row. Buy your tickets over the "Big 4" at the excursion rate announced elsewhere. The railroad company promises that the accommodations of this train will be the best they can furnish.

HEALTH OF CHICAGO FOR THE FIRST THREE WEEKS IN AUGUST.

Week Ended:	Total Deaths.	Under Five Years.	Death Ratio per 1,000.	Modern Cholera.	Other Infections.	Other Diseases.	Diphtheria.	Scarlet Fever.	Rubeola.	Cerebro-spinal Meningitis.	Whooping Cough.	Phthisis.	Pneumonia.	Brachitis.	Diarrhoea.	Faetor Fumens.	Parotitis.
August 5	69	39	21.92	151	56	11	6	18	5	1	9	4	15	6	1	1	1
" 12	74	35	21.59	185	52	11	8	8	7	1	10	12	9	12	1	1	1
" 19	63	35	18.78	208	2	15	11	11	1	1	4	8	9	18	1	1	1

From the foregoing it will be seen that the health of Chicago for the three weeks under consideration has been very good, especially for the last week. In fact, in no year for the last twenty-five has the death rate been so low for the time under consideration. The health of the other large cities of the country is also good at this time.

SOCIETY NEWS.

The Association of Military Surgeons of the National Guard of the United States.

Abstract of the Proceedings of the Third Annual Meeting, held in Chicago, Ill., August 24, 25, and 26, 1893.

(Continued from page 287.)

THIRD DAY—MORNING SESSION.

Dr. CHARLES B. EWING, U. S. Army, read a very interesting paper entitled

THE SELECTION OF THE SOLDIER.

in which he drew the following conclusions:

1. That the rules and regulations governing the examining surgeon in the physical examination of the recruit, be separate and distinct from those that govern the recruiting officer, who is not a medical man.
2. That the room in which the examinations are made should not be less than twenty feet square, well lighted and ventilated.
3. That the unit of measure be as small as possible, and that the metric system be used.
4. That the recruit be measured in the horizontal instead of the upright position, as at present, so that the large number of men now rejected as being below the standard be saved to the service.
5. That this method of measurement be used so that the exact value of height be obtained in its relation to the other physical equivalents of age, as they are governed by nativity.
6. That weight be determined by a uniform system, the

metric, and that the apparatus consist of scales of the simple bar and weight pattern rather than the old style.

7. That special pains be taken to fix the physical equivalent, so that its proper relation to height, weight and age can be determined for each separate nationality.

8. That the chest girth be changed to conform to the present standard of weight and height.

9. That special attention be given this, so that proper ideas may be obtained in the relations of this physical equivalent of weight, height and age, as it affects each particular race in this country.

10. That data be collected from our present statistics in relation to age, weight, chest girth, chest expansion and capacity, of each separate nationality, so that a better and more exact basis of selecting the recruit can be made.

11. That the spirometer or some modification of it be used as an aid in determining vital chest capacity, also that callipers be authorized so as to measure depth of chest.

12. That the present method of determining hearing be modified.

13. That the test for vision be changed, and that the prismometer be placed in general use for the determination of simple refractive defects.

14. That it be no longer obligatory to determine with such exactness the age and size of piles, but that this condition be left to the discretion of the surgeon.

15. That the paragraph relating to varicocele be expunged, as our present instruments of precision can not measure the fine pathological distinctions insisted upon.

Dr. FRANK R. KEEFER of Fort Stanton, N. M., contributed a paper entitled "Observations on the Physical Examination of Recruits," which was referred to the Committee on Publication, without being read, in the absence of the author.

THIRD DAY—AFTERNOON SESSION.

At this session it was decided to publish a monthly Military Medical Journal, to be devoted to the professional interests of the Army, Navy, Marine Hospital Service and National Guard of the United States. The publishers to be the F. A. Davis Company of Philadelphia.

Dr. CHARLES SMART, U. S. Army, contributed a paper on
THE MEDICAL DEPARTMENT OF THE ARMY.

which was read by Dr. B. J. D. IRWIN, U. S. Army, in the absence of the author.

The great war of the rebellion demonstrated that an efficient system for the care of the wounded was one of the grand divisions of military sanitation, and continued efforts have been made to build up our methods on the foundation of experience which was then gained; that war enlarged our views, and it lasted long enough to enable us to develop a system based upon the enlargement, and to show us what was needful to the successful carrying out of the system. We began the war with methods that were borrowed from Europe. We ended with methods that were developed by the cries of our wounded for relief.

In 1887 a law was passed establishing a hospital corps, and since then the best energies of the department have been devoted to perfecting the organization of this corps and formulating methods by which it will accomplish its work, not only under conditions of peace, but under those of Indian or of modern warfare.

A paper was read on

THE DIAGNOSIS TAG IN THE FIELD.

by Dr. VALERY HAVARD, U. S. Army. The diagnosis tag conspicuously fastened to the clothing of the patient shows at once that he has already received first aid. The brief entries written upon it give further information as to the identity of the patient, the nature of the disability, and the treatment pursued. But these entries, doubtless written in a hurry, are perhaps not very legible; they may have been defaced by blood, rain or dirt, hence the necessity of using a tag that will give as much information as possible at a glance and independently of any writing upon it. For this purpose colors seem to be most useful. In the French, German, Italian, and perhaps other European armies, two kinds of tags are described, one white, the other red. The

white tag denotes that a patient is so desperately wounded as not to be transportable; the red, that the patient can stand transportation. Thus, a look at the tag gives an idea of the gravity of the injury, and to some extent of what can be done with the patient. The author's tag consists of a white and two colored borders; on the body are the printed headings of the entries to be made; the borders are separated from the body by a perforated line so as to admit of being very easily torn off. The left border is red, and the right blue. On the red is printed "transportable," and on the blue "not transportable." In case of a simple flesh wound, whether the patient is or is not able to walk, both colored borders are torn off, leaving only the white body of the tag. If a man is severely wounded, unable to walk, but able to be transported, the blue border is torn off, leaving the red. If a man is desperately wounded and cannot be moved without extreme danger to life, the red border is torn off leaving the blue.

Dr. LAWRENCE C. CARR of Ohio National Guard, Cincinnati, followed with a paper on

THE QUALIFICATIONS FOR AND THE STATUS OF A MEDICAL OFFICER IN THE NATIONAL GUARD.

He said but two States in the Union required any qualification from a surgeon of the National Guard. All that is necessary in the other States is for the commanding officer to suggest the name of some one in his discretion to the Governor. Another factor was the great lack of courtesy from the heads of the military departments of different States to officers in other States, tending to impair the service. It does not seem to be the policy of the War Department at present to allow the regular service and the National Guard to come in contact.

Dr. CHARLES E. WOODRUFF, U. S. Army, read a paper entitled "Military Medical Problems."

Dr. A. H. OUDMAN-DUMESNIL of St. Louis, Mo., read a short paper on

THE PREVENTION OF CUTANEOUS PARASITIC DISEASES IN SOLDIERS,

in which he said the recruit should take a full bath and after this a careful inspection of his body made. His hair should be cropped close and always kept so. His clothing should be changed as often as compatible with circumstances, and should not only be washed but subsequently subjected to dry heat so as to thoroughly sterilize it. Such an operation can be easily carried out and will insure thorough cleanliness. The bath should be taken at least once a week, and upon each occasion the surgeon should inspect the soldier before he is permitted to assume his clean clothing. After the bath a light sponging of the entire body, scalp and face should be made with some antiseptic. Under no excuse should soldiers be permitted to escape the bath, disinfection and subsequent inspection. Infected cases should be treated immediately and segregated, thus removing to a distance the focus of infection. The observance of some such method would practically free a body of soldiers of filth, vermin and parasitic disorders, and, at the same time contribute to making them more alert, attentive to their duties, more efficient and cheerful and correspondingly better disciplined.

The last paper on the program was read by Dr. GEORGE H. HALBERSTADT of Pottsville, Pa., entitled "Camp Cooking Stoves."

The following officers were elected:

President—Col. N. Sonn of Chicago.

First Vice-President—Col. B. J. D. Irwin, U. S. Army.

Second Vice-President—Col. Louis W. Reed, of Norristown, Surgeon General of Pennsylvania.

Secretary—Col. E. Chaney of St. Louis, Mo.

Treasurer—Major Lawrence C. Carr of Cincinnati, O.

A vote of thanks was extended to the Illinois State National Guard, to Dr. and Mrs. SESS for the admirable manner in which they entertained the members of the Association; after which the Association, on motion, adjourned to meet in Washington, D. C., the first Tuesday in May, 1894.

American Electro-Therapeutic Association.—The following is the preliminary program of the American Electro-Therapeutic Association, which will hold its third annual meeting in Chicago, September 12, 13, and 14:

Discussion 1—1. "What are the Possibilities of Electricity in the Treatment of Fibroid Growths." Discussion will be opened by Dr. J. H. Kellogg of Battle Creek, Mich. The

following among others have been asked to take part: M. le Docteur Georges Apostoli of Paris; M. le Docteur Georges Gautier of Paris; Dr. La Torre of Rome; Dr. Augustine H. Golet of New York; Dr. A. Laphorn Smith of Montreal; Dr. Franklin H. Martin of Chicago; Dr. Margaret A. Cleaves of New York; Dr. G. Betton Massey of Philadelphia; Dr. George F. Hulbert of St. Louis; Dr. E. L. H. Metcalfs of New York.

2. "The Influence of Frequency of Interruptions and Character of Induced Current Waves upon Physiological Effect." Discussion will be opened by Professor J. W. Morton of New York. The following among others have been asked to take part: M. le Prof. d'Arsonval of Paris; Prof. Du Bois Reymond of Berlin; Mr. Newman Lawrence of London; M. le Docteur Larat of Paris; Prof. Edwin J. Houston of Philadelphia; M. le Docteur Apostoli of Paris; M. G. Weiss of Paris; Dr. W. J. Herdman of Ann Arbor, Mich.; Mr. J. J. Carty of New York; Dr. J. H. Kellogg of Battle Creek, Mich.; Dr. A. H. Golet of New York; Dr. S. Weir Mitchell of Philadelphia; Dr. A. D. Rockwell of New York; Dr. Frederick Peterson of New York; Dr. W. F. Hutchinson of Providence, R. I.; Dr. Georges Gautier of Paris; Dr. Franklin Martin of Chicago.

Papers:—"The Nutritional Effects of Static Electricity." By Prof. W. J. Morton, M.D., New York.

"Electro-Medical Eccentricities." By Newman Lawrence, M.I.E.E., London, England.

"The Graphic Study of Electrical Currents in Relation to Therapeutics." By J. H. Kellogg, M.D., Battle Creek, Mich.

"The Action of the Continuous Current within the living Tissues as distinguished from the local Polar Action." By Prof. W. J. Herdman, M.D., Ann Arbor, Mich.

"The Therapeutic Application and the Theory of Alternating Currents." By Dr. Georges Gautier, Paris, France.

"The Treatment of Fibroid Tumors with Electricity." By Dr. Georges Gautier, Paris, France.

"Induction Coils." By Mr. A. E. Kennelly, of the Edison Laboratory.

"Electrolysis in Tumors of the Bladder." By Robt. Newman, M.D., New York.

"The Present Position of Electricity in the Treatment of Ectopic Gestation." By A. Brothers, M.D., New York.

"Electro-Therapeutics in Salpingitis." By W. B. Sprague, M.D., Detroit, Mich.

"Report of a Case of Ascaris cured by galvanism." By Hoffer Walker, M.D., Toronto, Canada.

"The Primary Action of the Galvanic Current on the Blood. It increases the amount of Ozone it contains, as shown by Chemical Tests of the Blood in the Arteries." By J. Mount Bleyer, M.D., and M. M. Weil, M.D., New York.

"The Conservation of Energy as a Successful Factor in Electrotherapy." By Horatio R. Bigelow, M.D., Philadelphia. "Synovitis treated by Cataphoresis." By F. H. Wallace, M.D., Boston, Mass.

"The Use of Static Electricity in the Treatment of Incipient Insanity." By W. F. Robinson, M.D., Albany, N. Y.

"Further Study of Electrical Anesthesia and Frequency of Induction Vibration." By W. F. Hutchinson, M.D., Providence, R. I.

"The Absorption of Fibroid Tumors by Mild Electric Currents." By R. J. Nunn, M.D., Savannah, Ga.

"Some Observations on the Fine Wire Coil or Current or Tension." By H. E. Hayd, M.D., Buffalo, N. Y.

"The Treatment of Subinvolution by Electricity." By C. C. Cannaday, M.D., Roanoke, Va.

"Successful Treatment by Electrolysis of four additional Cases of Esophageal Stricture with Exhibition of Two Cases." By D. S. Campbell, M.D., Detroit, Mich.

"The Treatment of Dysmenorrhea by the Galvanic Current." By A. Laphorn Smith, M.D., Montreal, Canada.

"Notes upon some Uses of Galvanism in Surgery." By W. B. D. Beaver, M.D., Reading, Pa.

Several other papers of equal interest have been promised, but the papers have not yet been received.

MARGARET A. CLEAVES, Secretary.

Pan-American Medical Congress.

WASHINGTON, D. C., August, 1893.

The Transportation Committee of the Pan-American Medical Congress, which meets in Washington, D. C., September 5th to 8th, 1893, makes the following announcement in regard to reduced rates for delegates and members of their families from all sections of the United States, also

from the Pacific Coast, Ports of Mexico and Central America:

Delegates from the territory of the Trunk Line Association east of Pittsburgh and Erie and Buffalo, will be accorded one and one-third fare for the round trip on the certificate plan.

The lines combined in this territory are as follows:

Grand Trunk Ry., N. Y. C. & H. R. Rd., West Shore Rd., D. L. & W. Rd., N. Y. O. & W. Ry., Pennsylvania Ry., Cent. Rd. of N. J. Ches. & Ohio Ry., Lehigh Valley Rd., N. Y. L. E. & W. Rd., Balt. & O. Rd., Phil. & Read. Rd.

Delegates from points in New England States in the territory of the New York and Boston Lines Passenger Associations, will be accorded one and one-third fare on the certificate plan.

Delegates from points in Central Traffic Association, embracing the territory from Buffalo, Pittsburg and Parkersburg, W. Va., in the East to Chicago and St. Louis on the West will be accorded one fare and one-third on the certificate plan.

Delegates from points in Southern Passenger Association, embracing the territory South of the Ohio river and Potomac river and East of the Mississippi river will be granted one and one-third fare on the certificate plan.

Delegates from points west of the territory of the Central Traffic Association can avail themselves of the World's Fair excursion tickets as far as Chicago and secure from Chicago the fare and a third on the certificate plan to Washington.

Delegates from South America, Pacific Coast, points of Mexico or Central America, can secure from point of starting round trip tickets to Chicago at the World's Fair rate, either by way of San Francisco or New York. The latter can secure from New York the fare and a third on the certificate plan on application to the ticket offices of either the Penn. R.R. or B. & O. R.R.

The certificates referred to must be secured at the time of the purchase of the ticket to Washington on which, properly signed by Dr. H. L. E. Johnson, Chairman of the Transportation Committee, the reduced rate will be allowed returning. To be more specific the full fare is paid on the going trip to Washington and a two-thirds reduction is allowed when the ticket is purchased in Washington for the return trip. These certificates must be obtained at the ticket offices at the time the ticket is purchased. Be sure to state that you are a delegate and will be in attendance at the meeting. Respectfully, yours,

DR. H. L. E. JOHNSON.

Chairman, Committee Transportation.

1400 L Street, N. W., Washington, D. C.

The Journal Train.

Office of

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.
CHICAGO, August 21, 1893.

To Delegates and Their Families:—

The Pan-American Medical Congress will convene in Washington, D. C., September 5.

The Pan-American train from Chicago and the northwest, run under the auspices of the Journal, will leave Chicago, 8:30 A.M., Sunday, September 3, via Big Four from Central Station, 12th Street and Park Row. The train will consist of palace sleeping cars, and run through without change via the popular Big Four and the picturesque Chesapeake & Ohio railways, passing through Indianapolis, where the Indianapolis, Peoria and St. Louis delegations will join the train, and at Cincinnati that delegation will also join the train.

Excursion Rates.—A rate of one and one-third fare on the certificate plan has been authorized. Any person attending the Congress can get this rate. Buy a first-class limited ticket to Washington, and take a certificate from ticket agent at starting point, stating you have paid first-class fare going, and when properly signed by the Secretary of the Congress it will entitle you to one-third fare returning.

Persons going via Chicago should buy excursion tickets to Chicago and purchase Washington tickets there.

Be sure that your ticket reads, via the Big Four and the Chesapeake & Ohio Railway, Chicago office, 234 Clark street. Rates always as low as via any other route. Leave Chicago, Big Four railway, 8:30 A.M.; leave Indianapolis,

Long Traction Hip Splint, with Proper Method of Applying & Extension," by Henry Long Taylor, New York City. "Improved Apparatus for Paralysis Disease," by Henry Long Taylor, New York City. "Apparatus for the Treatment of Infantile Convulsions," by Henry Long Taylor, New York City. "The Rotatory Orthopedic," by Dr. Noble Smith, London, England. "Observations on the Rotary Lateral Curvature of the Spine, with Special Reference to its Cause and Treatment," by John A. Wood, New York City. "Recurrence in the Treatment of Potts Disease," by John A. Wood, Brooklyn, N. Y. "Causes Contributing to Failure in the Treatment of Hip Joint Disease," by J. M. Phelps, New York City. "Some Remarks on the Treatment of Infantile Paralysis," by John A. Kuhn, New York City. "Orthopedic Work done at the Vanderbilt Clinic of New York, from January, 1896, to June, 1897," by John Riddle, Chicago, Ill. "A Case of Acute Arthritis of the Hip of Infants, with some Comments on the Etiology of Infantile Paralysis," by John A. Kuhn, New York City. "The Orthopedic Treatment of Infantile Paralysis," by I. A. Weigel, Rochester, N. Y. "Gymnastic Apparatus for scoliosis," by I. A. Weigel, Rochester, N. Y. "Practical Points in the Treatment of Hip Disease," by B. S. Reginald H. Sayre, New York City. "Chiro Hand," by Reginald H. Sayre, New York City. "Gastrostomy for Relief of Esophageal Stricture," by Ernest Laplace, Philadelphia, Pa. "On the Treatment of Hemorrhoids," by E. C. Holcomb, St. Louis, Mo. "Lewis's Modern Latin Treatise on Anatomy," by G. Frank Lloyd-Loom, Chicago. "The Bacteriological Aspect of Asclepius Surgery," by Robert Reynolds, Washington, D. C. "Laprotomy in the Early Stages of Appendicitis," by I. N. Quinby, Jersey City, N. J. "John A. Wyeth's System governing the Use of the Various Anesthetics," by John A. Wyeth.

SECTION ON HYGIENE, CLIMATOLOGY AND DEMOGRAPHY

PRELIMINARY NOTICE.—The Headquarters of this Section will be at the Hotel Richmond, corner of 17th and H streets, N. W., the property of which, Major F. W. Coleman, has kindly offered, reduced rates for the use of this Section. The Section will be delivered on Tuesday, Sept. 6, at 4.30 P. M., at the place which shall be assigned by the committee on halls. Regular sessions will be held on Wednesday and Thursday, Sept. 6 and 7, from 10 A. M. to 1 P. M. and from 3 to 5 P. M., and a final session on Friday, Sept. 8, from 10 A. M. to 1 P. M. The Director in charge of the U. S. Naval Museum of Hygiene, that building will be open for inspection by members of the Congress from 9 A. M. to 1 P. M. daily, on Wednesday, Thursday and Friday, Sept. 6, 7 and 8. THOMAS.

ALBERT L. GIBON, M.D., U. S. N., Exec. Pres., Washington, D. C.
 PETER H. BRYCE, M.D., English-speaking Sec'y, Toronto, Can.
 PEDRO JOSE SALICRÚ, Spanish-speaking Sec'y, New York City.

"The Climate of Jamaica," by J. C. Phillips, Kingston, Jamaica.
"Les Mœurs Prophylactiques Contre les Epidémies," by R. B. De Lacerda, Rio de Janeiro, Brazil.
"Practical Measures in the Prevention of Cholera," by Wm. H. Welch, Baltimore, Md.
"Solare la Patologia del Dipartimento Fluviale di Loreto," by Leonidas Arendano, Lima, Peru.
"Oeula Retrospectiva Sobre la Organización de la Sanidad en los Ejercitos Espanoles," by Felix Estrada y Castro, Madrid, Spain.
"Consideration of the Relative Value of High and Medium Altitudes in the Treatment of Pulmonary Tuberculosis," by Karl von Krock, Asheville, N. C.
"The Climate of the Santa Cruz Mountains," by James Henry Clark, Jamaica, California.
"Other Treatment of Phthisis," by Charles Denison, Denver, Colo.
"The Distribution of Disease by Isthmian Practice, or the Direct Resultability of the Republic of Colombia," A. In the Burial and Incineration of the Dead, by John C. Adams, New York City.
"The Three Climates of Jamaica," B. W. L. Is Co.
Tropical, Temperate and Mountain Climates; Jamaica considered as a Tropical Island, by John C. Wise, Washington, D. C.
Brief Consideration of Elephantiasis Aratum, as Observed in the Samoan Islands," by John C. Wise, Washington, D. C.
"On the Climatology of Egypt," by Dr. Grant (Gee), Cairo, Egypt.
Hygiene and Demography of the Tropics," by Dr. G. K. Whitwell, London.
"Need of Research in Preventive Medicine," by J. M. Postle-Hughes, III., "The Effect of Advanced Civilization on Disease," by E. J. Moody, Plainfield, Iowa.
Necessary Laws that Should be Enacted by the Legislatures of those States which are afflicted with Epidemics,
to Control Infectious Diseases." The Cause and Prevention of Pepsiphia;" "The Limitation and Prophylaxis of Tuberculosis;" "The Role of Municipal Sanitation in the Limitation and Eradication of Cholera," by Alois F. Berg, U.S. Consal, Bagdad, Asiatic Turkey.
"On the Climatology of Puerto Rico," by Pedro Jose Salazar, Secretary of the Section, New York.
SAYRE, David Hodge, Washington, D. C. Lithon, Medical Director

SECTION ON OBSTETRY

[illegible][illegible]

SECTION ON MEDICAL JURISPRUDENCE.

[illegible]

TREATMENT OF DISEASES OF THE MIND AND NERVOUS SYSTEM

[illegible]

SECTION ON DISEASES OF CHILDREN.

[illegible]

SLE 110X ON FILMS 10100, Y.

"America in Philosophy"—Past, Present, and Future, by Isaac Ott, Executive President of Section, Eastern P., *Philosophy of Nature*, by Joseph B. S., New Orleans, La., "The Effects of Lesions of Certain Parts of the Brain upon the Motor Processes," A. E. T. Beebe, Jr., Philadelphia, Pa., "The Mechanism of the Reflexes," G. B. B. B. B., Italy, "The Glomerular Action of Iodine," W. S. Carter, Philadelphia, Pa., "On the Absorption of Iron in the Animal Body," A. B. MacCall, Jr.,

MISCELLANY.

He reads the Journal.—The editor of the *Pittsburgh Medical Review* reads the JOURNAL carefully, and a recent number of that valuable periodical points out a typographical error that escaped the eye of the proof reader of the JOURNAL some numbers back. He does well when he reads the JOURNAL. People are always improved by reading carefully the excellent original papers exclusively furnished the JOURNAL. The medical news, always fresh, crisp and sparkling as it appears in the JOURNAL, refreshes the reader like a mid-summer draught from a cool natural fountain, and even advertisements when they appear in the JOURNAL have an added charm and an interest to members of the Association which they can not take in advertisements when they appear elsewhere.

Sir B. W. Richardson.—Dr. Richardson, the well known sanitarian and editor of *Ischpamid*, has been knighted by the Queen of England, among those receiving "birthday honors." Dr. Charles Cameron has been made a baronet on the same occasion.

Local Anaesthesia from Aristol.—Several observers have called attention to the soothing effects of aristol when applied to painful exposed surfaces. This has been especially noted when aristol has been employed as a dressing for burns, bed-sores, and blisters, or for irritating ulcers. At the same time, the analgesic action of aristol does not interfere with the strong healing power necessary to a prompt cicatrization of denuded areas, while it seems to favor the growth of normal granulating surfaces. It is not easy to say just how far the power of aristol as a local anaesthesia may be made useful in the operation of minor surgery, but some recent experiments point to a probable new field of usefulness for this remedy in the direction cited. The following paragraph from the *Kansas Medical Journal* is quite significant as showing that the advantages of aristol as an analgesic have not passed unobserved: Dr. S. M. Riggs has made some interesting experiments in the use of aristol as a local anesthetic. A hypodermic injection of a solution in glycerine was made on a kitten with the result of complete local anaesthesia. The animal made no resistance to a cutting operation and was apparently unaware of being injured. The advantages of using as a local anesthetic the same drug which was afterward to be applied to the operation wound as a cicatrizing would of course, be very important.

The William F. Jenks Memorial Prize.—The third triennial prize of five hundred dollars, under the deed of trust of Mrs. William F. Jenks, will be awarded to the author of the best essay on "Infant Mortality during Labor, and its Prevention." The conditions annexed by the founder of this prize, that the "prize or award must always be for some subject connected with Obstetrics, or the Diseases of Women, or the Diseases of Children," and that "the Trustees, under this deed for the time being, can, in their discretion, publish the successful essay, or any paper written upon any subject for which they may offer a reward, provided the income in their hands may, in their judgment, be sufficient for that purpose, and the essay or paper be considered by them worthy of publication. If published, the distribution of said essay shall be entirely under the control of said Trustees. In case they do not publish the said essay or paper, it shall be the property of the College of Physicians of Philadelphia."

The prize is open for competition to the whole world, but the essay must be the production of a single person.

The essay, which must be written in the English language, or if in a foreign language must be accompanied by an English translation, should be sent to the College of Physicians of Philadelphia, Pennsylvania, U. S. A., before January 1, 1896, addressed to Horace V. Evans, M.D., Chairman of the William F. Jenks Prize Committee.

Each essay must be typewritten, distinguished by a motto, and accompanied by a sealed envelope bearing the same motto and containing the name and address of the

writer. No envelope will be opened except that which accompanies the successful essay.

The Committee will return the unsuccessful essays if reclaimed by their respective writers, or their agents, within one year.

The Committee reserves the right not to make an award if no essay submitted is considered worthy of the prize.

College of Physicians of Philadelphia, N. E. corner Thirtieth and Locust streets, James V. Ingham, Secretary of the Trustees.

Eleventh International Medical Congress.—In consequence of the sanitary condition of several of the European States, which prevents their medical men leaving home, and following the advice of many of the most prominent scientists, both Italian and foreign, the executive committee of the above Congress has decided, by a large majority, to postpone the meeting till April, 1897.

The exact date of the inauguration will soon be fixed.

THE PUBLIC SERVICES.

Naval Delegates.

Secretary Herlieth has detailed Medical Director A. J. Gorgas, Surgeon C. A. Siegfried, Surgeon H. G. Berger, and Passed Asst. Surgeon D. M. Gultenas representatives of the Navy Department at the Pan-American Medical Congress which is to meet in Washington, D. C.

Army Delegates.

Special orders from the Adjutant General's Office, Washington, D. C., dated August 18, detail four officers to represent the Medical Department of the Army at the Congress. They are Colonel Bernard J. D. Irwin, assistant Surgeon General; Lieutenant Colonel Dallas Bache, deputy Surgeon General; Major David L. Huntington, Surgeon, and Major Charles Smart, Surgeon.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from August 12, 1895, to August 18, 1895.

Lieut. Col. JOHN H. JASPER, deputy Surgeon General, retirement from active service August 12, 1895, by operation of law, under the provisions of the Act of Congress approved June 30, 1892, is announced. By direction of the President.

First Lieut. HABELAN, E. McVAY, Asst. Surgeon (San Carlos, A. T.), is granted leave of absence for one month, to take effect when relieved by another medical officer, with permission to apply for an extension of fifteen days.

Major HENRY R. PHELPS, Surgeon U. S. A., is granted two months' leave of absence, when relieved from duty at Fort Wayne, Mich.

First Lieut. JAMES D. GLENNAN, Asst. Surgeon U. S. A., is granted leave of absence for twenty days, to take effect upon the conclusion of his examination for promotion.

Navy Changes. Official list of changes in the Medical Corps of the U. S. Navy, for the week ending August 19, 1895.

Surgeon A. M. MOORE and P. A. Surgeon C. W. RUSH, placed on retired list.

Asst. Surgeon R. M. KENNEDY, promoted to P. A. Surgeon.

Medical Director J. H. CLARK, Medical Inspector C. H. WHITE and Surgeon J. L. NELSON, ordered as members medical examining board.

P. A. Surgeon M. F. GATES, from Naval Hospital, Portsmouth, and recorder naval medical examining board, September next.

P. A. Surgeon A. R. WESTWORTH, ordered to Naval Hospital, Portsmouth, N. H.

Medical Director A. C. GORGAS, Surgeons C. A. SIEGFRIED and H. H. BERGER, ordered as delegates to Pan-American Medical Congress.

Surgeons B. S. MCKIE and L. G. HENSENBERGER, to Naval Academy to examine applicants for admission to Naval Academy.

LETTERS RECEIVED.

(A) Adams, S. S., Washington, D. C.; Alden, C. H., St. Paul; (B) Buckley, E. W., St. Paul; Bishop, S. S., Chicago; Boyers, J. S., Decatur, Ind.; Breaky, J. K., Alma Center, Wis.; (C) Christian, E. A., Pontiac, Mich.; Cone, Andrew, New York, N. Y.; Cole, R. Beverly, San Francisco; Chancellor, E., St. Louis; Cobb, Myron W., South Bend, Ind.; (D) Duhring, L. A., Philadelphia; (F) Ferguson, A. H., Winnipeg, Manitoba; (G) Gibbons, Henry, Jr., San Francisco; (H) Hughes, C. H., St. Louis; (J) Johnson, W. J., Chicago; Jones, Thos. R., Milwaukee; (L) Love, I. N., St. Louis; Laidley, L. H., St. Louis; (M) McKelvey, Geo. L., Philadelphia; Moulin, E., Rome, Italy; Malsbary, G. E., Cincinnati; McClary, C. E., Syracuse, N. Y.; (P) Pepper, Wm., Philadelphia; Parke, Davis & Co., Detroit, Mich.; (R) Raymond, J. P., Kansas City; Reed, C. A., Cincinnati; (S) Smith, A. Noal, Dover, N. H.; (T) The Ruggles-Gale Co., Columbus, Ohio; (V) Vetter, J. C. & Co., New York, N. Y.; (W) Woodbury, Frank, Philadelphia; Wyckoff, R. M., Brooklyn, N. Y.; Waukesha Lithia Spring Co., Waukesha, Wis.

The Journal of the American Medical Association

VOL. XXI.

CHICAGO, SEPTEMBER 2, 1893.

No. 10.

ORIGINAL ARTICLES.

LACTATIONAL INSANITY.

Read in the Section of Obstetrics and Diseases of Women, at the Forty-fourth Annual Meeting of the American Medical Association.

BY GEORGE H. ROHE, M.D.

SUPERINTENDENT OF THE MARYLAND HOSPITAL FOR THE INSANE; PROFESSOR OF THERAPEUTICS, HYGIENE AND MENTAL DISEASES IN THE COLLEGE OF PHYSICIANS AND SURGEONS, BALTIMORE, MD.

Nearly all writers upon insanity describe the mental derangements occurring during pregnancy, the puerperium, and the nursing period under the collective title "puerperal insanity." Careful observation will, however, show certain points of distinction which may be noted, both in the symptomatology as well as in the causative factors of these mental disturbances.

Those authors who classify puerperal insanity into the insanity of pregnancy, of the puerperal period proper, and of the lactational or nursing period, arbitrarily assume that the latter begins six weeks or two months after labor. In a general way this limitation though arbitrary may be accepted, for obstetric authors count as belonging to the puerperium that period of time occupied by the involution of the parturient organs which is usually stated to be six weeks.

Prolonged or excessive lactation is given as the chief cause of insanity occurring during the nursing period. In most cases this is probably true, yet there are some cases in which the disease must be attributed to other etiological factors.

Recent careful study of insanity during the lying-in period has shown its frequent dependence upon septic puerperal processes. Certain observations of my own presented to this Section at the last annual meeting may, I think be regarded as confirmatory of this view. In studying the causes of insanity during the period of lactation, however, not sufficient discrimination has hitherto been exercised by writers upon the subject, although Gooch as early as 1829 called attention to the necessity of such discrimination.

Even in cases where the psychical symptoms of the attack are carefully recorded too little attention has been paid in my opinion to the bodily condition. Of course such marked characteristics as anemia or unusual emaciation could not fail to be noted by the most superficial observers, but the cases where a careful and thorough examination of the condition of the bodily organs has been made are rare. In insanity the psychical phenomena are generally so striking as to overshadow bodily anomalies and thus these fail of notice.

Among the most recent authorities, however, Dr. Bevan Lewis regards the exhaustion and sequelæ of labor, and defective uterine involution as important

etiological factors, especially in the earlier cases of lactational insanity. Levisstein-Schlegel also, lays stress upon local diseases and displacements of the pelvic organs as causes. "It appears," says this author, "that the local (pelvic) irritations acting upon the central organ (brain) are active, both as determining the duration as well as the course of the mental disorder."

The following cases of insanity beginning during the nursing period have been admitted to the Maryland Hospital for the Insane in the last two years.

They form 7.4 per cent. of the total number of women admitted during this period. The cases may be classed clinically as melancholia two, mania one, and confusional insanity two. Of the latter, one died and the other progressed to profound consecutive dementia. The case of mania was discharged after six months' treatment practically recovered. One case of melancholia was discharged recovered after repairing a badly lacerated cervix uteri; the other case is still under treatment though much improved.

Case 1.—A. H., a well developed Jewess, 27 years of age; been married three years and is the mother of two children, the youngest being five months old. There is no family history of insanity. The patient's parents are sober and industrious. She has not used alcohol or opium. About ten years ago she had an attack apparently of a hysterical nature from which she recovered completely.

About five months previous to admission she gave birth to a child. The labor is reported to have been normal in all respects. Four months afterward she had an inflammation and abscess of one breast and immediately following it a change in her mental state was noticed. She would talk to herself and imaginary people. She lost interest in her home occupations and in her children. These symptoms increased. She became noisy, talkative, restless, running about the house and screaming at the top of her voice. When spoken to she paid no attention. Her husband and friends lost all control of her. Her language became exceedingly vulgar, profane and obscene. She was always trying to divest herself of her clothing. There were evidently hallucinations of hearing.

On November 2, 1891, she was admitted to the hospital. The symptoms mentioned above were present. In addition her appetite was very poor, she was restless, running up and down the ward, screaming, laughing and crying at intervals, constantly unbuttoning her clothing, disarranging the things in her room and soiling her bedding and clothing. She slept badly and kept her roommate awake most of the time.

A note dated November 21, 1891, says: "She is still restless, talkative night and day, refuses to eat until threatened with forcible feeding, wants constantly to undress herself, very untidy, annoys her roommate at night, soils her bed and room."

This condition continued until December 30, when she became much more composed, less talkative, and more cleanly. She also showed interest in her surroundings and in the visits of her friends.

Her improvement continued from this time and on May 22, 1892, she was discharged well. At this date May 20, 1893, she remains well.

Case 2.—Mrs. M. B., a cultivated white woman of American descent, 49 years of age. She has had five children. Her disposition was always cheerful before she was taken with her mental trouble. Hereditary taint was denied, but

her father was intemperate. Her first attack of mental derangement, melancholic in character, came on four months after the birth of her youngest child. From this attack she recovered in four months. Four years later she had a similar attack from which she recovered in six months.

The present attack began suddenly three weeks before admission. She had simple melancholia, was low spirited, cried, lost interest in her daily pursuits and had delusions of having committed the unpardonable sin. She had no suicidal tendencies. On admission September 10, 1892, no hallucinations were discoverable. She took no interest in her surroundings, desired to be alone and avoided the other patients. She was often found in her room crying. She would not volunteer any remark, but when pressed would manifest the old delusion of having forfeited the mercy of Providence.

This patient is still in the hospital, but has greatly improved since her admission. She is more lively, at times quite cheerful, takes interest in the happenings about the house and the welfare of the other patients, walks out in the garden on pleasant days, and if no relapse occurs will soon be able to return to her home and family.

Case 3.—Mrs. F. W., a white woman 38 years of age, married eleven years and mother of five children. Distinct hereditary history of insanity. Her last child was born in March, 1890. Four months afterward she showed the first symptoms of mental derangement. Previously she had always been neat, industrious and cheerful. No history of the habitual use of opium or alcohol could be obtained. About a week preceding the outbreak she complained of a peculiar sensation in her head and very profuse menstrual flow. The attack came on suddenly with delirium followed in a few days by mania. She fought, swore, talked incessantly, was restless and unable to sleep. Her conversation was incoherent and disconnected. She twice attempted suicide, once by jumping from a window and the second time by hanging. She was committed to an asylum where she remained two years and thence transferred to this hospital on October 22, 1892.

When received she was in a condition of advanced dementia. She is apathetic, listless, refuses to talk, is dirty in her habits, soiling her clothing and bedding constantly. Saliva is always dribbling from her mouth and adds to the repulsiveness of her expression. She requires constant urging to take her food. Sleep is good. Her physical condition is bad. A vaginal examination a short time after admission revealed a bad laceration of the cervix but no appreciable abnormalities of the uterus or ovaries.

At the date of writing she has passed into deeper dementia.

It would be hazardous to express the opinion that attention to the laceration of the cervix at the proper time might have stayed the progress of the mental alienation; but shall the neglect of the physician who for two years saw this patient every day, who was or should have been familiar with her history and who failed to inform himself of her bodily condition by a thorough examination, be passed over in silence? Did he do his whole duty by this woman?

Case 4.—Mrs. I. H., a white woman of English birth, 32 years of age, and the mother of three children. She has been married ten years. No history of insanity in the family. Her disposition was cheerful; she was industrious and exceptionally neat in her household. She was not addicted to the use of opium or alcohol. Her labors had all been normal, and the menstrual flow had always been regular and normal. Since the birth of her last child her physical health had gradually failed. Six months after the last labor she began to get careless about her house; her disposition changed. She became talkative, irritable, forgetful, indifferent to the condition of her children. She would gad about among the neighbors, and accuse them of spreading stories about her. All this time she continued to nurse her child, and when admitted to the hospital, eleven months after the birth of the child, her breasts were very tumid.

She was brought to the hospital March 2, 1892, a typical case of confusional insanity. She was very much emaciated and anemic. She was incessantly talking in the most confused and incoherent manner. Occasionally the delusion was apparent that she fancied her neighbors talking about her, but her attention could not be concentrated upon any subject. Her condition was more nearly that of acute delirium than of mania. She had no appetite and slept only after the administration of hypnotics. She soiled her clothing and bed.

Her physical condition which was bad at the time of ad-

mission did not improve. Her tongue became very dry, her pulse rapid and weak, and in spite of stimulating and nourishing diet and rest in bed she grew weaker and died on March 20, eighteen days after admission.

The pelvic organs in this case were normal. The history points to the exhaustion of the nursing as the cause of the mental aberration. Earlier stimulation with removal of the source of exhaustion might have saved her life.

Case 5.—Mrs. L. B., aged 28 years, white, was married eighteen months before admission. Three months after her marriage she had a child the paternity of which was admitted by her husband. No history of insanity in her family. Five months after her labor she began to grow depressed and troubled about her disgrace. She became listless and careless in her household duties, would often be found crying, was restless and twice attempted suicide. She was admitted to the hospital on December 9th, 1892, with simple melancholia. She has no delusions. Her conversation is rational and connected, but she is very much depressed. She begs to be allowed to go home or to die. At intervals she brightens up somewhat but again becomes depressed. Her nutrition is fairly good, temperature normal, pulse eighty and regular, tongue slightly coated, urine normal in quantity and composition.

Vaginal examination revealed a ruptured perineum, and a deeply lacerated cervix, the tear on the left side extending nearly to the vaginal junction. The right ovary was tender and probably adherent.

One month after admission her improvement not having been very marked, the cervix was stitched up with silk-worm gut. The improvement was notable from the day of the operation. The patient became cheerful, happy, interested in the work about the ward, and was discharged completely recovered three weeks later. At the present writing she continues well.

It will be observed that there is nothing distinctive in the symptomatology of these cases; nothing except the outbreak during the nursing period, by which they could be recognized as "lactational insanity." Hence the term, "lactational insanity" in no way designates an especial form of insanity.

Gooch, with the clearness of the accurate clinical observer says: "If a physician was taken into the chamber of a patient whose mind had become disordered from lying-in or nursing he could not tell by the mere condition of her mind that the disease had originated in these causes." Stress is laid upon this fact because the question is often asked whether puerperal and lactational insanity do not have characteristic symptoms.

The prevailing impression is that the preponderating proportion of these cases are cases of mental depression or melancholia, but this is not borne out by statistics. The cases of mania and melancholia are nearly equal.

The average proportion of puerperal insanity in its widest sense to all insanities in women is about 10 per cent. Among these the cases of lactational insanity number on an average 35 per cent. This is based on a total of 1,053 cases of puerperal insanity from various authorities, of which 371 were lactational.

The practical question of prognosis is difficult to settle by aggregate statistics. Clouston reports thirty-one out of forty recovered and three more discharged much improved, the percentage of actual recoveries being 77.5 per cent. One in forty died. Lewis reports 65.6 per cent. recoveries and 12 per cent. deaths. Ripping had 42.5 per cent recoveries and 5 per cent deaths, and Schmidt (Berlin Thesis, 1880) only 28.8 per cent recoveries and 6.3 per cent of deaths. Without further details these widely discrepant results are difficult of explanation.

Gooch, writing at a time when most physicians regarded insanity as merely a disorder of the mind unconnected with physical processes, states the

problem of treating mental disease with a force and clearness not exceeded by any modern writer. He says: "We have no power by medicinal agents of relieving a disordered mind, *excepting indirectly through the disorder of the body with which it is connected*. It is therefore impossible to stir one step in the treatment of the disease without first ascertaining what this disorder is, or, if different in different cases what they are, how to discriminate them and whether experience shows that one is more common than the other." Bevan Lewis, writing from the standpoint of the alienist, says: "In most instances our patient's bodily condition claims the chief attention." The indication for treatment is therefore primarily the bodily condition, and this can be ascertained only from a careful physical examination and not from a study of the psychical manifestations. If the examination shows profound anemia, loss of appetite, etc., it is incumbent on the physician to inquire closely into the functions of the digestive, circulatory, respiratory and pelvic organs, the condition of the breasts, the existence of local sources of irritation or exhaustion in the chest, the abdomen or the pelvis. Physical abnormalities to which the mental disturbance is traceable will not always be discovered, but when found will render the treatment more rational and its results more certain.

The treatment of lactational insanity resolves itself simply into the exercise of the general principles of therapeutics. Remove sources of irritation, correct aberrant functions, restore wasted strength. These principles if consistently carried out will usually lead to success.

THE ESSENTIALS OF SUCCESS IN VAGINAL HYSTERECTOMY.

Read in the Section of Obstetrics and Diseases of Women, at the Forty-fourth Annual Meeting of the American Medical Association.

BY HENRY T. BYFORD, M.D.

Professor of Gynecology in the College of Physicians and Surgeons of Chicago; Professor of Clinical Gynecology in the Woman's Medical College of Chicago; Professor of Gynecology in the Post-graduate Medical School; Gynecologist to St. Luke's Hospital; Surgeon to the Woman's Hospital, etc.

The experience of gynecologists is gradually establishing the fact that the removal of the uterus through the vagina is not in itself a very dangerous operation. Of course there is a mortality connected with all operations involving any considerable amount of cutting, but there is nothing about the one under consideration involving any special, unavoidable danger. What there is comes not so much from the danger of the operation as from certain avoidable circumstances which may be considered under three heads, viz: 1. Unsuitable cases for operations; 2. Imperfection in the technique; 3. Mistakes in the after-treatment.

It would be absurd to maintain that unfavorable circumstances can always be avoided in practice, yet there is much to be accomplished in that direction, and a great majority of the deaths due to the operation ought not to occur.

1. *Unsuitable Cases for Operation.*—Unfortunately, the great majority of cases are unsuitable ones—they are usually neglected cases of malignant disease that come to us too late. Sometimes the patient does not apply soon enough for treatment; at other times the physician does not promptly recognize the nature of the trouble. The parts about the uterus are infected, the patient has septicemia, is anemic, or perhaps has some kidney or heart complication;

or she may be too old, and yet pleads to be given her only chance for recovery.

It is our duty to examine carefully as to these conditions and select our cases more carefully. In the majority that come up for operation the malignant disease has so far advanced that we are quite certain that it will return, and in that case we should not operate except under the most favorable circumstances, lest we hasten death. Yet such is done every day. When there is great probability of a cure by operation, there is seldom septicemia nor profound anemia; and any kidney or heart trouble can be rendered much less harmful by preparatory treatment, and thus favorable conditions be obtained. A large proportion of the present mortality will be obviated when it comes to be recognized by the general practitioner that hysterectomy is for the early or simple cases instead of those already far advanced. Cases are being constantly sent to the gynecologist for a hysterectomy in which the entire pelvic cavity is infiltrated, and the medical attendant, after dilly-dallying until the fatal die is cast, finally announces that the only hope of a cure lies in a hysterectomy.

2. *Imperfection in the Technique, and (3) Mistakes in the After-treatment.*—Given a proper case for hysterectomy, a fatal result is due almost always to errors in the technique. So many methods have been described, and so many different maneuvers recommended that the beginner is almost necessarily at sea and is sure to employ some plausible but disastrous modifications and innovations, with a result that adds immensely to his unenviable experience. I have found that it is not the particular method employed that influences the results, except in one way, viz: in employing methods and maneuvers to suit the particular case.

I have used ligatures exclusively twenty-four times with one death; the forceps exclusively in nine cases with no death; both forceps and ligatures on the stumps in seven cases with no death; forceps to stumps and catgut to vagina and connective tissue in four cases with no death; and ligatures to stumps and forceps to vagina and connective tissue in one case with recovery. I have usually separated the bladder before making my posterior incision, but sometimes have opened the peritoneal cavity behind first. I have usually ligated or clamped from below up, but have sometimes retroverted the uterus and put on forceps from the peritoneal end of the broad ligament. I have a few times cut away portions of the cervical end of the uterus, other times I have bisected the organ. I have sometimes ligatured the vagina the first thing, at other times the last thing—at other times put forceps to its edges, and at other times have let it alone. The great thing is to see what is to be done and no more, and to do the thing required and only that.

First of all we must secure against hemorrhage. When the vagina is of fair size and the cervix can be pulled down, ligatures are best because we can take a proper amount of tissue, tie it firmly and safely, and have nothing in the way to prevent us from tying the next section of the broad ligament securely, and finally have plenty of free room for ligaturing or pinching arteries in the vagina or connective tissue, or of sewing up the edges. Many a woman, however, has lost her life because the surgeon could not or else did not take time or pains to tie securely. Yet he ought always to feel when he is

through that the patient is not in the least danger of bleeding to death. Forceps are less desirable, because after the first one is put on it is in the way and hampers all subsequent maneuvers, because he can not always be sure that some tissue may not slip out of them, or that some old instrument, or some untried one, may not bend, break, unclasp, cut the tissue or press injuriously upon some viscus. An abundance of tissue should always be left on the uterine side of the forceps to prevent slipping, for it will all slough off at the blades, and the operation be just as thorough as if we did not leave so much tissue.

In case, however, the vagina be narrow, or the cervix can not be pulled down, or the connective tissue be too greatly thickened and altered by old inflammatory action, the surgeon should not employ the ligature, because he can not be sure of tying tightly and securely. He should then ligature such tissue about the cervix as he can ligature well, and put forceps on the rest, or should use forceps exclusively. He can usually place a forceps as far as the finger can reach, or he can place a forceps on the base of either broad ligament, cut off the intervening part of the uterus, pull the rest down a little, and place forceps higher up, cut away some more and so on (*morcelement*). It is a great mistake to attempt to include too much tissue in one pair of forceps. If we include the whole of the broad ligament the base, being thicker, will be well compressed, while the thinner upper portion may slip out and bleed. It is better to put a pair on the cervical portion or base and another on the upper portion on either side. There is a tendency to use forceps too long and slim. They should be short and thick that they may not spring at the end, or project too far out of the vulva and strike the pillow placed under the patient's knees. There are large arteries in the sacro-uterine ligaments that are sometimes not included in the first row of ligatures or clamps. These should always be sought for before the operation is finished. In seeking for these bleeding vessels without knowing where to seek them, it has happened that the upper ligatures or forceps have been loosened by rough handling.

The next thing to do is to take the proper care of the peritoneum. Imperfection of technique in this respect is the cause of the many deaths from peritonitis, ileus and septicemia that have occurred. While ligaturing requires the most operative skill, the management of the peritoneum requires the greatest judgment. If the intestines have been properly prepared by purging, dieting and intestinal antiseptics, there will be but little trouble in avoiding interference with them during the removal of the uterus. When the uterus is taken away there is a gap in the peritoneal cavity between the stumps, into which a knuckle of intestine is apt to fall. It is the management of this intestine and the gap under it that requires the use of sound judgment, for the advice given by different operators as found in the literature is contradictory.

In the first place we must remember that the stumps will slough, or at least the ligatures will become infected. Hence, one great problem is to prevent infection of the peritoneal cavity and septic peritonitis. To do this we must remove all debris from the pelvic peritoneal cavity, first with the sponge and, if we have operated upon a septic uterus, next by washing it out with a stream of sterilized

water. If we leave debris there infection will follow as surely as the night will follow the day, for inside of forty-eight hours the contiguous stumps will stink. Having cleaned the pelvis we must prevent the adhesion of an intestine between the stumps with its accompanying danger of ileus and septic peritonitis. There are several means of doing this. The first and most important is to draw forward the omentum if, as is often the case, it has not presented itself, and place it under the intestine so as to contract the adhesions with the stump or peritoneal edges and thus leave the intestine free. If we have used ligatures on the stumps we can draw the stumps together, not pulling on the ligatures, below the omentum and sew them together, thus fixing them extraperitoneally. If practicable it adds to the safety of the patient to catch the anterior and posterior cut edges of the peritoneum and stitch them to their respective anterior and posterior vaginal edges and thus close the raw connective tissue surface, or stitch them to the united stumps, leaving an opening on either side to drain the peritoneal side of the stumps. If we have used forceps we can not approximate the stumps accurately, but can put the omentum between their upper ends. Nor can we sew the peritoneal edges to the vaginal edges. In fact, the presence of the forceps prevents us from doing any satisfactory sewing. We will have to depend upon the shielding omentum or upon a gauze tampon to hold up the intestines. And it is just here that a serious mistake is many times made; and that is to place the tampon high up among the intestines in order to hold them away from the stumps and drain the peritoneal cavity. Those who do thus forget two things, viz: that the peritoneal cavity above does not want draining but merely wants to be let alone, and that the gauze that drains the peritoneal cavity will irritate it and infect it, because infection exists in the contiguous necrotic or ulcerating stumps. The conditions would be different could we depend upon keeping the stumps aseptic. Besides, when we remove the gauze we have a foul cavity whose walls are partly formed of intestines. There is also danger of paralysis of the adherent intestines with serious results, or of ileus from a kink of compressed and adherent intestine. I believe that the vagina should always be tamponed with iodoform gauze, but in case the peritoneum can not be shut off above, the tampon should be against omentum above, and should only be put high enough to drain the stumps, and never project above them. In case there be raw tissue in the pelvic peritoneal cavity the gauze may project only far enough backward to drain these, and should be against the very bottom of the pelvic cavity and not project upwards. The less gauze that extends beyond the peritoneal edges, providing it drains the raw surfaces, the better. Drain adequately what needs drainage, but do not drain a bit more. When the gauze is removed it will usually be necessary to douche the vagina with antiseptic solutions. If the gauze has reached the intestines there will be danger of the solution breaking through the adhesions into the peritoneal cavity, as I have known to occur in two instances, happily not in my own cases, with fatal results. The adhesions, although firm in character, are sometimes not extensive enough to stand the pressure. If the gauze has not been placed too high it can remain from four to five days without causing irritation or any rise in temperature. I find that I have less temperature by

leaving the tampon for at least four days. The douche should not be given until six or eight hours after the gauze has been removed, in order to give the parts to contract, and there should be a return douche, given without force and with a return tube placed beside the syringe point. After that, antiseptic solutions should be used every six or twelve hours without the return tube. The patient should, if possible, be kept on her back for eight or ten hours or until the omentum has become adherent over the peritoneal opening or wound.

All of these particulars may not seem important, but if carried out will be followed by a recovery without tympanitis, without abdominal tenderness, without high temperature and, I am almost tempted to say, without danger.

I have adhered to them in thirty-seven cases, being careful to omit no detail that would add only a little to the security of the patient, and have had the good fortune to lose only one patient from the operation, although I am sorry to say that, owing to the advanced stage of disease, a large proportion of the cases of malignant disease of the cervix have died later of a recurrence. Nearly all cases of malignant disease of the uterine cavity have remained well.

To recapitulate:

1. Operate only on cases in which we can operate in healthy tissue.
2. Use the method and maneuvers adapted to each individual case—not adhering rigidly to any one for all cases.
3. Ligature enables us to do a more complete operation than forceps, but forceps should be used when ligatures can not be applied with accuracy.
4. When possible, place omentum between the intestines and the stumps.
5. Draw the ligatured stumps together, and attach the peritoneal edges either to the vaginal edges or to each other.
6. Pack iodoform between the blades of the forceps, but do not allow the packing to project upward between the intestines.
7. Leave the packing for four days as a rule.
8. Begin douches about eight hours after the packing is removed and use a return tube the first time.
9. Keep the patient on the back for forty-eight hours.

Venetian Building.

VENTRAL HERNIA FOLLOWING LAPAROTOMY—ITS CAUSE AND MEANS OF PREVENTION.

BY HENRY O. MARCY, M.D.
BOSTON.

Although we live in the era which is denominated revolutionary in the science and art of surgery, he who proposes modifications to long-established rules should do so only after the most convincing evidence upon his part of their manifest advantage and importance. It is in this spirit that I ask the judicial consideration of my surgical friends to the following brief communication:

Laparotomy, from a great variety of causes, is now becoming so frequent that any method of improvement in its technique or results becomes of much greater importance than formerly. The attention of surgeons to the more essential factors of the opera-

tive procedures within the abdomen has very naturally caused the peritoneum to assume more consideration, and as it often treated by even practiced surgeons, seems to be looked upon as a trivial matter. However, it is estimated that about 10 per cent. of all laparotomies result in ventral hernia and in order to lessen or prevent this it is quite the standard rule to apply a strong abdominal support to be worn for months. Only within a few days I have seen a patient with a painful ventral hernia upon whom laparotomy for the removal of the uterine appendages was performed in the largest hospital in New England about eight months ago. The incision scarcely exceeded three inches, and immediately upon recovery the patient was fitted with an abdominal supporter with bars like drawers to prevent the slipping of the bandage and this had been kept tightly laced even to the floating ribs, in her instance a most uncomfortable and valueless support. With our present results there is a demand to revise, and improve if possible, the methods of operation. The importance of including the peritoneum within the sutures was early shown by Sir Spencer Wells and he advised the approximation of the divided edges of the wound with the utmost care.

During the last eight years I have employed exclusively the buried tendon sutures in the closure of all abdominal wounds, except for a few months, during which time catgut was substituted for tendon, because of the difficulty I had in obtaining a supply of tendon from Australia. For more than ten years preceding this, I had used the buried animal suture in a great variety of wounds, and was led to its adoption in laparotomy because of its exceptional value in the reinforcement of the weakened structures, especially as demonstrated in operations for the cure of hernia. My method from the first has been essentially the same. The peritoneum closed separately; this may be effected by suturing in a variety of ways. For ease and rapidity, if for no other reason, the *oblique* suture is to be preferred. I employ usually the double continuous tendon suture which is easily and rapidly taken by the use of a needle with the eye near the point, and which by re-threading with the opposite end, permits the introduction of the suture from either side through the same puncture. The result is an even, continuous and close apposition of the serous surfaces of the peritoneum, retained at rest without undue constriction. A fine tendon should be selected for this purpose. When one of the recti has been incised, as is usually the case, it is better to rejoin the muscle by a row of sutures. This finished, I consider the accurate coaptation of the thick investing fascia (*linea alba*) of the first importance. This is preferably effected by a line of sutures taken in a similar manner to the one closing the peritoneum. The more or less thick layer of fatty tissue is preferably brought into apposition by one or two light lines of running sutures, usually taken with a medium-sized, full curved Hagedorn needle, introduced from side to side deeply through the uninjured structures. Care is taken that the introduction of the needle commences exactly opposite the emergence of the preceding stitch, the importance of which is twofold. First, that the coaptation of the edges of the wound may be accurately effected; and secondly, if not less important, that the suture itself may cross at right angles to the divided tissues, so that when drawn

upon, it accurately coapts the lips of the wound and is not interposed between the injured parts. The skin is united by the use of a fine full curved Hagedorn needle introducing the stitches in precisely the same manner as just described. I have called this the *parallel suture* because each stitch is taken through the deep layer of the skin only, and is inserted exactly parallel to the line of the division of the skin, and the wound closed by collodion seal, and if each stitch is taken, entering directly opposite the emergence of the one preceding, it will be noted that when the suture is drawn upon the coaptation is accurate without puckering, and that it crosses the wound exactly at right angles to it. When a suture is introduced in this way, with precision and care, the divided edges of the skin are brought in contact with an accuracy impossible to secure by any other method, and yet the suture is completely buried. A layer of collodion, reinforced with a few fibers of cotton applied to the well dried skin completes the dressing. If the operation has been conducted with aseptic care, the wound must remain aseptic. In most instances it is immaterial whether a bandage and pad be applied, although after the removal of large tumors the support of the relaxed abdominal walls is usually a comfort.

In quite three hundred laparotomies, where a complete closure of the wound has been thus effected, I recall but two cases of ventral hernia following the operation. In one the most pronounced, the incision was necessarily a long one where I removed a large uterine myoma, but the hernia was attributable far less to the length of the wound than to the extreme thinness of the abdominal wall, which had become atrophied in an extraordinary degree because of the projection of the tumor, which had the appearance of having taken "deck passage."

In the second, there is a small opening through the fascia, very probably caused by separation and non-union of its edges.

Undoubtedly one of the most common causes of hernia is the routine use of drainage tubes, by which a portion of the wound is necessarily kept open, so that primary union cannot take place, and a portion of the wound heals by granulation. Although I have never refused operation, whenever I have felt the patient's condition demanded, I find the use of the drainage tube in my practice has scarcely exceeded 3 per cent. A second and common cause of ventral hernia is the imperfect coaptation of the parts by the use of the interrupted suture; even when taken with the utmost care, they constrict the tissues at intervals and are usually tied very tightly, in order to prevent bagging or separation of the abdominal wall between the sutures. This necessarily narrows, perhaps even to a third, the thickness of the coaptated structures, and if any of the enclosed tissues are separated, it is necessarily that portion midway between the loops of the stitches; the thickened, reinforced connecting tissue fascia (linea alba) upon the integrity of which the parietes depend in the resistance of intra-abdominal pressure. The importance of thus closing the abdominal incision appears sufficient to warrant emphasis to be made upon it, since the results of other operators, as well as my own experience, confirm the exceptional value of this procedure.

The suture, itself aseptic, aseptically buried, in aseptic wounds, marks one of the greatest advances in modern surgery, and he who is master of the

technique of its application has acquired a distinctive accomplishment of inestimable value and importance. Somewhat recently I examined the history of about six hundred operative cases thus treated in my private hospital with the result of less than 2 per cent. of suppurative wounds.

DR. JOSEPH EASTMAN of Indianapolis, said an aseptic wound with an aseptic suture, closed in the manner in which Dr. Marey had repeatedly described it, marked one of the most important eras in modern surgery.

DR. M. B. WARD of Topeka, Kan., was pleased with kangaroo tendon, and had seen it used by Dr. Marey. He thought that 10 per cent. of hernias following abdominal section was an erroneous estimate. He had only had two cases of ventral hernia in his practice. One was in the person of a fleshy lady whose weight was 196 pounds, who went home three weeks after operation. He is unusually painstaking in closing the abdominal incision.

DR. WILLIAM H. HUMISTON of Cleveland, Ohio, had had but two cases of hernia in his practice following his operation, and since adopting three rows of sutures he has had none. He got this method from Billroth's clinic.

DR. HENRY T. BYFORD of Chicago, had seen a good many cases of hernia following operations, but was quite sure they did not come from the suture material used in closing the abdominal incision. He thinks it makes no difference what material is used so long as the parts are brought together properly. If they are not properly coaptated they will not remain united, and hernia follows. An objection to the buried animal suture is that it becomes absorbed at the end of from two to four weeks, if not properly prepared, and the parts may suppurate before they become very strong.

DR. LEWIS SCHOLLER of Des Moines, Iowa, agreed with Dr. Byford that it matters little as to the material used in closing the abdominal incision. He thought the interposition of peritoneum or fat between the united parts was the chief cause of hernia.

DR. A. H. CORDIER of Kansas City, Missouri, demonstrated his method of suturing, on the board. He passes one suture through all the tissues, and maintains that it can be done so as to secure as nearly as it is possible to do it coaptation of peritoneum to peritoneum, fascia to fascia, etc. The skin is retracted, and the needle passed in sloping towards the median line.

VAGINAL LIGATION OF A PORTION IN THE BROAD LIGAMENT OF THE UTERUS FOR UTERINE TUMORS.

Read in the Section of Obstetrics and Diseases of Women, at the Forty fourth Annual Meeting of the American Medical Association.

BY FRANKLIN H. MARTIN, M.D.
CHICAGO.

The operation consists in the ligation from the vagina of more or less of the broad ligament with its vessels and nerves, the extent of the ligation depending upon the result sought, from a simple ligation of the base of the ligament, including the uterine artery and branches of both sides, without opening the peritoneum, to a complete ligation of the ligament of one side, including both uterine and ovarian arteries, with partial ligation of the opposite ligament, without opening the peritoneal cavity, if possible, but doing so if necessary.

The doctor reported five cases; two of these were reported in his first report of the operation. The result in the five operations were given up to date.

Case 1, in which the operation was incomplete on account of insufficient ligation of one ligament, has not resulted as

favorably as one could wish. Tumor not materially affected. Hemorrhages ceased temporarily. Subsequent reports show hemorrhage increasing again. The patient thinks that the tumor has increased somewhat. Dr. Martin has not had an opportunity to examine the patient in several months. On the whole the hemorrhage is less than formerly and the tumor not materially increased, although the operation cannot be said to be a success.

Case 2.—Patient had large tumor, eight by five inches in diameter and suffered severe pain and constant hemorrhage for several years. In a state of complete invalidism.

Patient left hospital on the eighth day. She was operated on the 3rd of December, 1892. I have seen this patient every month since the operation was performed. The hemorrhage has ceased completely. There has been very scanty flow at the menstrual period. All pain has ceased. The uterus had materially reduced in size at the end of one month. At the end of three months it was but little larger than a normal uterus. The patient's health has improved so that from a state of almost complete invalidism she was transformed into a comparatively strong and healthy woman. The improvement was progressive from the day of the operation.

Case 3.—Was sent to me by Dr. Stanley of Missouri. Patient married woman of about 30, no children, with a bleeding interstitial fibroid of the uterus enlarging that organ to diameter of four by three inches. The tumor was so comparatively small I decided to ligate but one side. The patient was out of bed in ten days. The results have not been ideal. The flow has been decreased in quantity. One month after the operation at the time I saw her last there has been no appreciable change in the uterus. She writes four months after the operation, the flow is about one-third the time in duration, and one-third the amount that it was formerly. Otherwise not improved.

Case 4.—Mrs. S., aged 36, menstruation has always been profuse and has been constantly increasing since the age of 20. Last five years till thirteen months ago has had profuse flowing, twenty-one days in each month, while the last thirteen months it has been constant and exhaustive. Patient confined to her bed. Suffers severe pain much of the time. December 19, in the presence of the post-graduate class I made an exploratory for the purpose of removing a uterine tumor if possible or of removing the appendages. I was unable to accomplish either operation on account of universal intestinal adhesions over surface of the growth. The abdomen was closed and when the patient was sufficiently recovered to stand another operation I performed my operation upon her. This was January 5, 1893. On account of the comparatively large sized tumor filling as it did the pelvis almost completely and extending to the umbilicus above, the operation was a difficult one. I succeeded, however, after considerable dissecting in including the entire base of each ligament with its principal blood channel and branches. The flowing ceased immediately and the patient was relieved of her drain for over two weeks.

She then had a few days flowing which resembled an ordinary menstruation. She has rapidly and steadily improved since that time. She has menstruated regularly but scantily and without pain. She can at this time, five months after the operation, attend to her duties as a housewife, and considers herself cured. The tumor has reduced in size until it is no longer noticeable as a deformity and so that the patient herself is no longer conscious of its presence.

Case 5.—German, married, age 30. When referred to me by Dr. Geer of Chicago, there had been constant hemorrhage for three months; diagnosis, fibroid tumor about size of four months pregnancy. Patient operated on January 5, 1893. Had a little subsequent temperature, and one month after ligation from left broad ligament came away from becoming infected from the vagina. Four months after operation the menstruation only lasted two days, very scanty, no pain. Fibroid diminished in size until uterus is about normal. Patient claims that she is cured.

NEW HOSPITAL FOR INSANE.—At the last session of the Michigan legislature there was appropriated \$75,000 for the establishment of a new hospital for the insane, the present accommodations being overcrowded. There are now confined in the Kalamazoo asylum 1,100 patients; Pontiac 900; Northern asylum at Traverse City, 600; criminal insane at Ionia, 250; Wayne county, 250; Dearborn, 100; scattered in jails and county houses, 2,000. The increase of insanity in the State is from 150 to 200 cases annually.

THE MANAGEMENT OF PATIENTS AFTER CELLIOTOMY.

Read at the Section on Gynecology and Obstetrics, at the Forty-fourth Annual Meeting of the American Medical Association.

BY CAREY KENNEDY FLEMING, M.D.

LECTURE ON CELLIOTOMY AND ASSOCIATED OPERATIONS, AS GIVEN AT DENVER, ARIZONA, ST. LOUIS, AND AT A HOSPITAL FOR GYNECOLOGY, IN DENVER, NOVEMBER, 1892.

In looking over the ground for a subject to present to the Section on Gynecology at this year's meeting of the American Medical Association, I have had two objects in view: first, that the subject should be one of common interest, and second, that it should be brief. For these reasons I have selected the above title for my paper.

The remarks to be made are based upon my own experience, and one hundred cases of celliotomy occurring in the practice of Dr. Thomas H. Hawkins of Denver; and I have been fortunate enough to have had the opportunity of studying the after treatment of each case. These cases have varied, covering the whole range or field of abdominal surgery. I cannot hope to offer anything original, but if I succeed in bringing out a discussion of the subject, possibly I will be pardoned for reading before you a paper so imperfectly prepared.

The first symptom requiring our attention after the patient has been placed in a warm bed, and recovered from the anæsthetic is nausea and vomiting. For this serious and sometimes alarming sequela we have been in the habit, as a preventive measure, of administering just before giving the anæsthetic, the following prescription:

R. Tinct. nucis vom. gtt. xv—xxv.
Spts. frumenti, 5 i.
Sig.: Before giving anæsthetic.

This, in some cases, acts beneficially in preventing the nausea and vomiting after the operation, and especially so when ether has been the anæsthetic. This vomiting is sometimes quite persistent, requiring the greatest ingenuity on the part of the surgeon to combat it, also harmful to the patient, both from its depressing and mechanical action. For this condition it has been our custom to administer hot water frequently in tea-spoonful doses, this in some cases acting quite nicely; carbonated mineral waters have also served a good purpose; champagne gives good results when there is or has been a tendency to collapse. Ice water or sucking ice I believe to be decidedly harmful. Morphine injections have been recommended by some writers, but according to our experience the secondary effects are most deleterious, always increasing the nausea.

Thirst. A condition which annoys the patient as much as nausea, is controlled somewhat by leaving the abdomen well filled with warm or hot sterilized water (if it has been necessary to flush out the abdominal or pelvic cavities); this fluid or water is rapidly absorbed by the peritoneum, quenching the thirst to a considerable degree; warm water per rectum acts often in the same way, while water administered by the mouth increases the nausea, making matters decidedly worse; the less we put into the stomach for forty-eight hours after the operation the better.

Pain.—Shall we give opiates to control the pain? I answer emphatically, no, excepting with those patients who have acquired the morphine habit, and of course in this class of cases it is necessary to give

morphine hypodermically in doses sufficient to control them. Morphine or opium, I believe, except in that class of cases previously mentioned, kills more patients than do celiotomies: it prevents secretion and elimination as well as stops peristalsis, causing increased thirst, nausea, tympanitis and increases the danger of sepsis and peritonitis. Restlessness is more urgent call for narcotics than is pain. In those cases where we are unable to control the patient otherwise, we are in the habit of giving fifteen to twenty drops of the deodorized tincture of opium per rectum, as often as is required.

Laxatives.—The use of laxatives may be commenced as early as the second day and certainly not later than the third day after the operation, and continued until peristalsis is re-established. For this purpose it has been our custom to give small doses of calomel in powders of one-tenth grain each every hour until we get the desired effect. Some patients are unable to take calomel without causing nausea: this being the case we rely upon salines and rectal enemas of warm water, sometimes containing glycerine and sulphate of magnesia. The bowels should be moved thereafter at least once in two days.

Drainage.—In regard to drainage in abdominal section we are accustomed to use either of two methods: first, the sterilized glass tube; second, sterilized iodoform gauze. The tube being used in those cases where pus has escaped into the peritoneal cavity, and the gauze in those cases in which we have had considerable hemorrhage, or where we fear or anticipate secondary hemorrhage, as in "bleeders," or to pack abscess cavities.

The glass tubes are usually removed in twelve hours unless otherwise indicated, and the abdomen closed by a suture which has been kept in situ for that purpose. In those cases in which the gauze has been used its removal is commenced on the second day and removed gradually, taking from twenty-four to forty-eight hours to remove the first packing. This, if necessary, is replaced by a smaller quantity and the track allowed to heal from the bottom by granulation.

Tympanitis.—A very important question is, how to prevent colic or abdominal distension after these operations? One important preventative is to refrain from the use of opiates for as I have already mentioned opiates paralyze the peristalsis, causing the accumulation and retention of gases in the intestines, giving rise per se to more or less abdominal uneasiness and pain and interfering with the peace and comfort of the patient. For this troublesome condition we have used quinine enemas or hot water injections, and the use of laxatives, as already mentioned, for as soon as peristalsis commences flatus is passed and the patient becomes quite comfortable. I will say in this connection, that the long rectal tube, as advised by some writers, has been but of little use in the majority of our cases. We have received more benefit from the rectal injections of a pint of warm water containing the sulphate of quinine in 10 grain doses, repeating the enemas of warm water in four hours if necessary, and the quinine twice in twenty-four hours.

Reopening.—The indications for reopening, I consider to be as follows, viz: hemorrhage, sepsis and peritonitis. When secondary hemorrhage occurs, the symptoms are the same as from hemorrhage of

any other wound; if the symptoms cannot be controlled it is our duty to reopen and flush the abdominal or pelvic cavities with hot sterilized water; this acts as an astringent and removes the clots. Afterwards pack thoroughly with iodoform gauze in the region where the greatest surface has been denuded by separation of adhesions. This has always controlled secondary hemorrhage for us. If the hemorrhage should be caused by the slipping of a ligature from the pedicle, the bleeding stump must be caught and a new ligature applied, afterwards removing all clots from the abdominal cavity by flushing with the sterilized water.

Not having had much experience with sepsis following celiotomy, my remarks will necessarily be limited. Still, I believe reopening and flushing out to be indicated as well as active purgation by the use of salines. In cases of general or local peritonitis the cause is undoubtedly sepsis, consequently the treatment is to reopen and flush out the abdominal or pelvic cavities and any pus pockets which may be found, also use salines to produce active purgation.

Diet.—In regard to the diet, as I have stated previously, the less we put into the stomach for the first forty-eight hours the better, either in the way of foods, drink or medicaments.

After the first two days if there is no nausea present any liquid food, such as milk diluted with lime water, kunyiss, broths and teas are very acceptable to the patient, but if nausea is present rectal feeding of predigested broths or milk is indicated.

If we are careful at the beginning in feeding our patients, it is only a question of a few days until they can have almost any easily digested foods they may desire.

SUSPENSIO UTERI.

Read in the Section of Obstetrics and Diseases of Women, at the Forty-fourth Annual Meeting of the American Medical Association.

BY H. A. KELLY, M.D.

PROF. GYNECOLOGY AND OBSTETRICS, JOHNS HOPKINS UNIVERSITY, BALTIMORE, MD.

Cases of retroflexion of the uterus which can not be relieved by palliative treatment, and in which there is good reason to believe that the position and posture of the uterus have a causative relationship to persisting aches and pains, are suitable cases for the operative treatment of the retroflexion.

It should be accepted as a cardinal fact that no retroflexion should be treated by a direct operation when associated with a relaxed vaginal outlet unless the latter be repaired at the same time or as soon after as possible. In some cases it will be proper to lift up the vaginal outlet, neglecting entirely the retroflexion. In other cases the retroflexion and the relaxed outlet will be treated at the same sitting.

The best operation for retroflexio uteri is the one which is applicable to the greatest number of cases, producing the largest percentage of recoveries, and the best permanent results with the least risk.

The operation which I shall describe answers these requirements more fully than any other. It is simple, not dangerous, and its results are uniformly good.

An incision two inches long is made in the median line of the abdomen nearer the symphysis than in an ordinary celiotomy.

After incising the peritoneum it is caught at the middle of the incision on either side with a pair of

artery forceps and pulled outside the wound, and the forceps dropped in the abdomen. This insures enough peritoneum remaining after the suspension of the uterus to allow the perfect closure of the abdominal wound, otherwise the sutures used to suspend the uterus tend to rob this part of the wall of its peritoneum.

The finger then glides down behind the symphysis over the top of the bladder on to the anterior face of the retroflexed uterus, which is hooked up and drawn forward into antelexion. Two sutures of medium sized silk are used for the suspension.

The abdominal wall on the left side of the incision is hooked up by two fingers until its peritoneal surface is exposed within for an inch. Then with a small, stout, curved needle the suture is passed so as to grasp about one-quarter of an inch of the peritoneum, and some of the fibers of the rectus muscle. The fundus uteri lying behind the symphysis is exposed by crowding the intestines back with fingers, retractors or sponges on stalks, the needle is then boldly passed through a portion of the posterior surface of the uterus below the fundus, about the same amount of uterus being included as that taken up on the abdominal wall; the suture is then drawn through, and finally the peritoneum and a part of the rectus are caught as on the opposite side of the incision. The suture is drawn taut and at once brings the uterus snugly up in slight antelexion to the abdominal wall and at the same time approximates the three peritoneal surfaces (uterus, and abdominal wall on both sides) transfixed by the suture; the suture is then tied and a second, which is introduced with greater facility than the first, transfixes the uterine tissue a little below the first, and thus when it is drawn up to be tied, lifts the uterus a little farther into antelexion. When the sutures are both tied, the finger is introduced into the abdominal cavity and a careful examination is made to see that the intestines and omentum have not been caught at any point above or in front of the uterus. The peritoneum and the abdominal wound are closed in the same manner as after an ordinary celiotomy. The uterus is thus suspended in antelexion to the anterior abdominal wall by two buried silk sutures. A few weeks later the uterus is found upon vaginal examination to be in a position of easy mobile antelexion, without any apparent connection with the anterior abdominal wall.

I have taken for criticism in this connection all my cases operated upon by any abdominal operation in the Johns Hopkins hospital, not including those performed since the first of the year. Out of eighty cases referred from the dispensary by my assistants and from private practice by myself, forty-four were found suitable for operative treatment.

Forty-seven operations were performed; three cases requiring a second operation. Twenty-eight were married women; sixteen were single; twenty-eight had borne children and averaged about three each.

There were no deaths, and as far as I have been able to learn, no discomforts arising from the operation.

A simple suspensory operation was performed in twenty-three cases. Other operations were performed at the same sitting in twenty-one cases.

SURGICAL TREATMENT OF UTERINE FLEXIONS.

Read in the Section of Obstetrics and Diseases of Women at the Forty-fourth Annual Meeting of the American Medical Association.

BY M. B. WARD, M.D.

PROFESSOR OF GYNECOLOGY IN THE KANSAS MEDICAL COLLEGE, TOPEKA, KANSAS.

It is my desire to briefly consider the propriety of doing an abdominal section, in suitable cases, for retro-displacements of the uterus.

It is, perhaps, unnecessary that I should preface my remarks with the statement that he who dares to recommend such radical measures for an ailment so insignificant in character, is certain to be severely criticized, and perhaps charged as having an unnatural desire to use the knife when milder measures meet all the indications. It is better, however, to give our views in our own way, from our own standpoint, and cultivate that generous spirit which allows others to do the same.

In my experience, it has been extremely difficult and very often impossible to afford permanent relief in a large majority of cases of chronic retroflexion, by methods usually recommended. It is comparatively easy to give temporary relief in many cases, if we will persistently treat the patient by placing her in the knee-chest position, and gently raise the fundus and tampon the posterior vault with cotton wool, saturated with boroglycerine. I refer to this method because I consider it a good, if not the best plan of treatment. When it is impossible to replace the uterus in the normal position on account of adhesions, this treatment softens the adhesions, relieves engorgement and gives comfort. But the larger number of our patrons will give histories of long suffering, many attacks of pelvic peritonitis—some mild, and some severe—which will readily indicate that serious complications must be overcome before the uterus can be brought forward to the normal position. It is this class of cases that I am considering in this essay.

What shall we recommend as the best plan of treatment? My custom is to say to the patient that the local treatment will give comfort and, if she can exercise due patience, she *may* be permanently relieved. I always inform them of the possibility of failure. The next plan recommended is to do an abdominal section, break up the adhesions, remove the appendages—if they are diseased, bring the uterus forward and close the abdomen, all of which may be done in a few minutes safely—and your patient will speedily and permanently recover. I am again anticipating unfavorable criticism on account of the apparent unconcern which I manifest toward those much talked about little organs—the ovaries. I do not wish to be understood as one who ignores the right inherent in every woman to possess these, as well as all other organs which of right belong to her; but I do wish to be placed in that class who throw aside sentimentality and treat conditions in a common sense and scientific manner. When surgical measures are indicated as the only source of relief, we should not refuse to employ them, even though it may be found necessary to remove organs adjacent to the uterus. Let me explain still more fully my views on this subject. Many times an operation by section for retroflexion may be successfully performed without the necessity of removing the appendages, but it will be necessary in these

cases to take extra precaution against a recurrence by fixing the uterus in its normal position, by shortening the round ligaments, or by ventral fixation. I should not by any means remove healthy ovaries when operating for retroflexion by the section method. Should I find the ovaries diseased, then I would not hesitate to remove them. There is a proviso, however, that I wish to insert in this connection, namely: when the patient is young and would naturally wish to bear children, I should not then remove the ovaries, unless they were so altered by disease as to make fecundation impossible. In view of the fact that it is not always easy to define the extent of the destruction of normal ovarian stroma, we should give the would-be mother the benefit of all doubt and leave undisturbed the suspicious ovary. On the other hand, should the patient be the mother of several children—and there is no reason why she should have more children, unless she herself desires them, I should not be so particular to give the suspicious ovary a chance to assert its normal function, if to remove it would promise great relief to the sufferer.

From my no inconsiderable experience, I am prepared to make the statement, that it is only occasionally necessary to make the fine distinction before mentioned, for in nearly all cases of chronic retro-displacements, the appendages are seriously involved and therefore diseased beyond any question.

The most satisfactory feature of the operation now under consideration, is the fact, almost universal, that the uterus will remain permanently in the anterior position without support, if the appendages are removed. It is surprising how emphatically nature asserts herself when the *guy ropes* are cut which hold the uterus in abnormal position. Immediately the uterus will go forward—almost with a bound—and reminds one of a sapling that has been bent to the ground and held, but which quickly returns to the upright position as soon as the force which binds it down is removed. So charming are the results of this operation in cases where the patient has suffered greatly for years, and has been subjected to all sorts of methods of treatment, and without permanent relief, until she has formed unfavorable opinions of the profession, that he who relieves her by this method is classed, and justly too, with the greatest of benefactors.

The next objection to this method, which I anticipate will be advanced is, that the danger to life is too great to operate in the abdomen for a condition which does not, of itself, destroy life, but only causes suffering and perhaps may do permanent harm only by establishing nervous sequelæ; this is the most important question to be considered in this connection. If it is a fact that the operation recommended is to result fatally, then of necessity we should only perform it as a dernier resort. But I contend that this operation should not give any greater mortality rate in properly selected cases than would amputation of a finger in properly selected cases. What I call properly selected cases, are those who have the endurance which will justify us in doing any kind of surgical operation of sufficient magnitude that complete anaesthesia and confinement in bed for two or three weeks would necessitate. That there is a degree of danger in any operation goes without saying and, therefore, it would be a mistake to assure the patient and friends that there

is not some danger in this method; but it could be said with propriety that in the uncomplicated cases the mortality is about nil. Not more than 2 per cent. should perish. It is customary to fortify one's statements, when treating of a subject of this character by reporting cases, and I should gladly do so on this occasion, except for the reason that it is entirely unnecessary in view of the extensive experience of all present. Suffice it to say that there are a goodly number of ladies in my State who would gladly make testimony touching the renewed health—almost renewed life—they are enjoying; the result of this operation. No death has occurred to dampen my ardor, but I am always and at all times looking out for possible complications, by stating to the patient and friends that something may occur, and am on my guard, expecting something to occur that would cause all to grieve.

It is possible that I should have occupied more of the valuable time of this Section by a more detailed and elaborate classification of cases that should be subjected to abdominal section for the cure of displacements of the uterus; but I am obliged to leave to the generosity of my confrères to give the essayist the benefit of the doubt—as we would say in law—and convict him by trial before pronouncing judgment. In other words, I am not anxious to operate in the abdomen, if other methods less dangerous can be employed with good results.

PROLAPSE OF THE FEMALE PELVIC ORGANS.

Read in the Section of Obstetrics and Diseases of Women at the Forty-fourth Annual Meeting of the American Medical Association.

BY HENRY PARKER NEWMAN, M.D.

Prof. of Gynecology, Chicago Post-Graduate Medical School; Prof. Clinical gynecology and Obstetrics, College of Physicians and Surgeons; Gynecologist to Chicago Public and West Side Free Dispensaries; Physician and Surgeon to St. Elizabeth Hospital; Surgeon, (department diseases of women) Chicago Post-Graduate Hospital; Secretary of the Chicago Gynecological Society; etc., etc.

It is my desire to call attention, briefly, to prolapse of the female genital organs, with particular reference to their hernial nature; regarding them as having a similar etiology, and the same pathological significance as hernia in other situations, and amenable to analogous lines of treatment.

The classic division of hernia into cephalic, thoracic and abdominal is incomplete without the important group comprised in the title of this paper; and, in view of their frequency and importance, they should enjoy an individual classification in herniology.

For accuracy and convenience, we would designate four major classes: cephalic, thoracic, abdominal and pelvic hernia.

The etiology of these affections, in general, comprises such predisposing and exciting causes as defective development, including congenital malformations and inherited tendencies; depraved muscular tone through debilitating disease, and trauma.

While the majority of cases are generally attributed to traumatism, this may often in itself be the result of defective development, and inherited or acquired weaknesses or malformations.

Again, defective development represents not only the malformations of foetal life, but the results of arrested growth at the period of ripening or puberty.

Nature aims to furnish at birth suitable rudimentary pelvic organs, and it is exceedingly seldom that she fails to do so.

In the interference of artificial influences with the natural formative conditions of puberal activity, it is to be found the proper explanation of many abnormalities of development.

It is an error to designate them as fetal malformations. Under existing conditions of custom and education the female pelvis, with its complex mechanism and its importance to the race, receives altogether insufficient recognition and conservation during puberty and adolescence.

Consequently, it is too poorly fortified against the demands made upon it during menstrual and child-bearing epochs.

In the face of our boasted civilization and enlightenment, we must admit that the representative of budding womanhood who is addicted to corsets, heavy skirts and high-heeled shoes; lives on hot bread, pastry, pickles and sweetmeats; and, in our cities, is in the highest grade at school, up six flights of stairs; and burns the midnight oil in the pursuit of knowledge or pleasure, is not the exception but the rule.

She is either ignorant of, or oblivious to the fact that she has an important set of generative organs which will probably be called upon one day to fulfill the purposes of their being, and that the proper performance of their future functions depend largely upon the judicious care bestowed upon the general health during the crises of development.

Rational treatment, therefore, of most gynecological diseases may begin before the affection has reached the surgical stage. This is particularly true of pelvic hernia. An ounce of prophylaxis is worth a pound of pessaries.

The general practitioner, the family physician, has his opportunity before the specialist, and it is for him, when occasion offers, to urge upon the parents and guardians of young girls the necessity of attention to the regimen of the actively formative period of puberty.

Good food, sensible dress, a proper interchange of exercise and rest,—insist upon these things, general practitioners, for the sake of humanity's ultimate good, even if you take some bread out of the mouths of the specialists, into whose hands most neglected cases drift. The humanitarian gynecologist can well spare it. But it is not probable that his entire revenue from this source will be summarily cut off.

There is another factor in the production of pelvic disease which will furnish enough of its own victims to "keep hot the pathway to the office of the gynecologist," to quote an apt expression from a recent writer in a western journal.

I refer to trauma in childbirth, and some of the prevalent evils of puerperal management, which render the normal process of reproduction a formidable menace to the after-health of the parous woman.

Many women whose puerperal histories go to make up some obstetrician's brilliant percentage of recoveries, have escaped (by the grace of God, and through no fault of the accoucheur,) with their lives, but with wrecked constitutions and dismantled pelvises.

These cases, with subinvolution and torn pelvic floor, loss of tonicity of uterine and vaginal supports,

furnish frequent examples of all degrees of pelvic hernia, and a strong argument in favor of preventive therapeutics.

In a former monograph I have referred to the excellent results to be expected from direct professional supervision over the entire period of gestation from the earliest months to the completion of labor.

But the consideration of prophylaxis in pregnancy, childbirth and the puerperal state is not the object of this paper.

I have wished simply to indicate its relation to downward displacements of the pelvic contents, and would emphasize the fact, once more, that it is easier to prevent such conditions than to remedy them.

Guard against the possibility of ruptures and lacerations during labor; repair at once such as are unavoidable; and use every effort to secure proper involution and a return of constitutional tone and muscular vigor, as far as is consistent with a normal puerperal state.

For the actual existence of pelvic hernia,—cystocele, rectocele, prolapse of uterus and vaginal walls,—prognosis and treatment depend upon the nature, degree and duration of the condition.

Much may be done in all cases, (minor cases of recent origin may sometimes be cured,) by systemic treatment, attention to regimen, tonics, massage, faradism, local astringents, and removal of weight and constriction from the abdomen, with the view in all cases of encouraging the retentive power of its walls.

Proper action of the pelvic diaphragm is essential to the healthful condition of the pelvic viscera.

This cannot be accomplished with constriction at the waist, or any impediment to free abdominal respiration.

All local treatment has for its aim the restoration of the prolapsed organ, and its retention in the normal position.

A hernia is a surgical disease and calls for surgical treatment, which admits of wide interpretation and includes all mechanical means from simple air-pressure and gravitation in postural treatment to the radical operation of removal of the offending organ.

Simple restoration can usually be accomplished by taxis, preferable in the genupectoral position.

Exceptional cases, such as uterine prolapse with inversion, hernia with adhesions or incarceration, may prove irremediable, and require special treatment, palliative or radical, as best suited to individual indications.

The retention of the replaced organ is not always an easy matter, and calls for great judgment in the selection of appropriate methods.

The simple tamponade, combined with astringents and medicinal agents is extremely useful as a palliative measure, and in the treatment of complicating disorders, as chronic congestions, hyperplasias and inflammatory exudates.

But we can hardly expect permanently gratifying results from their use, except in recent and minor cases.

The same may be said of most other therapeutic agents and mechanical appliances, including the much-abused pessary.

The idea of both pessary and tampon is based upon the supposition of auxiliary pelvic support for its retention.

This is, unfortunately, just what is lacking in most cases, and steps must be taken for its restoration before either can be satisfactorily used.

The operation of perineorrhaphy, as done to-day is simple in technique, quickly performed, and efficacious in restoring the perineal body, and even where the laceration is complete is rarely followed by any but good results, if done for rectocele, or prolapse of the posterior vaginal wall.

In the same way the various colporrhaphies are most excellent in their sphere, that of reducing the volume of relaxed and prolapsed vaginal walls, but we mistake the pathology when we regard colporrhaphy as quite analogous to perineorrhaphy.

The latter removes the cause of the affection for which it is done, while the former may or may not do so.

In one instance we operate upon a substantial body, capable of sustaining the prolapsed viscus which had escaped by reason of the laxity or laceration of that body; while in the other, we have to deal with simple mucous membrane which, sooner or later, must again yield to the same opposing forces, unless the cause be removed.

It is even more fallacious to expect simple constricting of the vagina to remedy a hernia of the uterus, without any attempt to restore the anatomical relations of the parts, particularly the correct angle of uterine and vaginal axes.

A large and heavy uterus, with its abdominal supports weakened and stretched, and fundus and cervix perpendicular to the pelvic canal, will soon burrow its way through the cicatricial vaginal tissue by its own weight, supplemented by the vis-a-tergo of intra-abdominal pressure.

This tendency can be happily overcome by bringing the fundus forward into its normally anteverted position.

The three most serviceable operations to secure this result are, shortening of the utero-sacral ligaments; abdominal fixation of the fundus, or ventrofixation; and shortening of the round ligaments.

The latter, which is known as the Alexander-Adams operation has more to recommend it, in my judgment, than any other procedure.

It is founded upon the principle not of suspending the uterus, but of using the round ligaments as guy ropes to steady the organ in its normal anteverted direction, and bring it into auxiliary relation with the natural retentive forces of the abdomen.

The operation is simple of accomplishment, may often be done without general anaesthesia, and has given me such uniformly satisfactory results that I heartily recommend it to those who desire to master its improved technique, which I have already detailed in former publications.

In conclusion, I would re-emphasize these points:

1. Pelvic hernias should be recognized and classified as such, and not as diseases of the uterus and adnexa; and their treatment should be based upon hernial pathology.

2. Prophylaxis, in the formative stage of puberty, as well as in pregnancy and labor, is of the utmost moment in this class of cases.

3. Operations upon the pelvic floor or vaginal walls, while indispensable in their place cannot be relied upon alone to cure all hernia of the pelvic viscera.

4. The ideal treatment is to be found in the com-

bination of operations for repair, and those for accessory support from above, and these may all be accomplished at the same sitting, saving the delay and annoyance of repeated operations.

Venetian Building, Chicago.

VESICO-VAGINAL FISTULA: ITS ETIOLOGY AND TREATMENT.

Read before the Section of Obstetrics and Diseases of Women, at the Forty-fourth Annual Meeting of the American Medical Association.

BY AUGUSTUS P. CLARKE, A.M., M.D.

CAMBRIDGE, MASS.

Vesico-vaginal fistula may be described as a pre-natural opening between the bladder and the vagina. The communication may be located at the cervix or at the fundus of the bladder. Sometimes an opening from the urethra into the vagina takes place; an opening thus established is usually smaller and less jagged than is one situated in the neck or in the fundus of that viscus. Urethro-vaginal fistula may result from the compression to which the parts are exposed during parturition. It will be observed that the urethra in its oblique descent under the arch of the pubes toward the meatus urinarius occupies for some distance the anterior portion of the vaginal wall; this position exposes the urethro-vaginal tissue to many accidents during a difficult or tedious parturient process.

In those cases in which the fistula is situated in a higher segment of the bladder, sloughing that has often caused an opening may have been superinduced or hastened by labor. Many conditions which are dependent on pregnancy favor the development of fistula; such conditions predispose to disease the vesical tissues which finally require only the super-vention of parturition for an actual occurrence of the morbid process.

An acute cystitis may come on during the course of pregnancy; in such cases there may be an extended vascular injection of the mucous tissue. Brownish or discolored patches may occur in the vicinity of the neck and fundus of the bladder; there will occur at first more or less induration or alteration of the vesical walls, and later there will be present a fibrinous and purulent exudation at different foci or in areas in which serious and degenerative changes have taken place. The disease may be limited to the mucous lining of the bladder; in cases in which there may be some renal complication the morbid process may penetrate the layers of the muscular coat and involve the peritoneum posteriorly in its upper zone or may implicate the vaginal wall anteriorly in its lower section. Suppuration may be dependent on the presence of minute abscesses occurring in the parietes of the bladder; ulcerative processes may also have so continued as to have led to softening, maceration, commencing gangrene or destruction of portions of the mucous and subjacent muscular structures.

Not long since I was called to an autopsy of a woman aged 37 years; she had died of acute pneumonia complicated with other serious troubles. There was found a degenerative change which had taken place midway between the fundus and the neck of the bladder. The mucous, the connective and the muscular plains in limited areas were observed almost entirely destroyed; the integrity of

the organ was only kept intact by the vaginal tissues which also had become exceedingly attenuated. The patient had suffered from two miscarriages; there was also a recent corpus luteum. There was no history of unusual suffering from vesical disturbances. It is, therefore, fair to presume that had the last pregnancy continued until the end of the full term, the strain upon the tissues incident to parturition, however carefully managed, would have been followed by the appearance of a vesical opening through the vaginal wall. Chronic cystitis may result in vesical fistula. The irritation excited in the mucous coat effects an alteration of the membrane; the parietes become thickened, indurated and from the exudation of matter the parts assume a fatty or homogeneous appearance. Ulcerative and suppurative processes are liable to supervene and finally lead at some point to the presence of complete fistula.

I have notes of an autopsy on the body of a lady aged 36 years, who having suffered from the effects of chronic cystitis died of cardiac disease. The kidneys were found to be congested and to be in the initial stage of granular degeneration. The bladder was somewhat contracted; the mucous tissue between the neck and fundus had undergone degenerative changes. The epithelium or basement membrane in patches was destroyed; the muscular tissue beneath was implicated. Narrow bands of the muscular coat which had been deprived of its interstitial and connective tissue could easily be caught up on a small probe. The vaginal wall in places was much thickened, while in other places it was well nigh perforated; the bladder contained a considerable quantity of urine, though the vaginal wall opposite the ulcerated points was exceedingly attenuated. The autopsy was made twelve hours after death. The patient had suffered from an accidental abortion and had also borne one living child since she first began to suffer from the cystitis. Her entire escape from an actual occurrence of complete fistula through the vaginal wall considering the pathological condition of the cystic tissues was indeed remarkable.

Emmet¹ formerly attributed in large measure the occurrence of vesico-vaginal fistula to childbirth. Out of 202 cases which came under his care at the Woman's hospital in New York, 171 were ascribed to this cause. He considered the condition of the bladder often affected the progress of labor. When the bladder was distended the labor would be retarded and would consequently prove an indirect cause of fistula. Marriage, late in life, he also considered may have some relation to the accident. The progress of labor occurring after such late marriage, may be retarded through want of elasticity in the soft parts. Instruments employed to terminate labor have been regarded as another cause. According to my own experience, however, it is difficult to see how the proper employment of instruments can enter into the factorage of causes when it is considered that such agencies brought into activity do materially abridge the hours of labor. It is an undoubted fact that the duration of the parturient process exercises an important part in the causation of vesico-vaginal fistula for the reason that the injury is often incurred in the first or in the second labor.

In cases in which the labor is unduly prolonged,

neglect to empty the bladder at proper intervals may be laid down as an exciting cause of the accident. This should be regarded as especially so in those cases in which there has been cystitis. Some nurses who have been regarded as well trained, and even physicians of extended practice, occasionally fail in preventing in labor the bladder from becoming unduly distended. The reason given for such course in attendance is the fear that when the use of the catheter has once been resorted to it will have to be continued. This practice with such has been followed not only during the hours of labor but after its termination also, provided the patient has not demanded immediate help on account of severe suffering, or has not given indication of some passage of urine. Though in my own practice I endeavor to abstain from becoming too officious and from interfering with nature's normal processes yet I cannot but entertain much solicitude respecting the condition of the bladder especially in those cases in which there has been a history of recent cystitis. By following this method of procedure in a series of 2,500 consecutive obstetric cases coming under my care during many years of my private practice I have succeeded in preventing in every instance the occurrence of a vesico-vaginal fistula. In two cases which have come into my practice for treatment the fistula was caused by the removal of calculi through an excision above the neck of the bladder. In one instance a fistula was produced by an abscess occurring in the vaginal fornix. The opening, however, finally closed spontaneously. In one case to which I was called the injury was the result of an accident to the patient; she fell on a sharp instrument which piercing the right labium majus penetrated the vaginal wall just over the neck of the bladder. The length of the wound was nearly two centimeters. The application of sutures of annealed iron wire gave partial cure, which was subsequently completed by the employment of aseptic sutures of kangaroo tendon.

For severe cases of chronic cystitis Emmet's operation for artificial vesico-vaginal fistula is a valuable expedient. The chief objection to this method of treatment according to the records of my own cases is the difficulty in effecting a speedy closure of the incision, for when the opening has been allowed to remain for several months, without closing, the bladder becomes pre-naturally contracted; the tissues also become thickened and indurated. Sometimes this condition of the structure of the bladder has supervened before the artificial opening has been made. With such factors to be dealt with the ordinary methods employed for closing the incision are often found in great measure ineffectual. A. F. McGill,² F. R. C. S., surgeon to the Leeds Infirmary, has given a description of an operation for vesico-vaginal fistula through a supra-pubic opening in the bladder; the operation is conducted somewhat after Professor Trendelenburg's method for supra-pubic cystotomy. Two cases are mentioned; the first operation was necessitated for the closing of a fistulous opening through the vaginal wall, accidentally made while attempting to remove an epithelioma involving the floor of the urethra for its whole length as well as part of the anterior vaginal wall, and base of the bladder. The edges of the fistula were brought into apposition by means of supra-pubic drainage

¹ Principles and Practice of Gynecology, 1870.

² Lancet, 1884, 10, 100. See Retrospect, part xxiii.

a complete and spontaneous cure resulted. The other case was an ordinary one; the injury followed labor. In this the operation through a supra-public incision into the bladder effected a cure. In cases in which a repeated operation fails to give relief the author advises that this method should be tried.

William Duncan 'M.D., M.R.C.P., assistant obstetric physician at the Middlesex hospital, London, reports a case of extensive vesico-vaginal and recto-fistula cured by means of flaps dissected up as thickly as possible from the left side of the vagina with its lower end on the inner surface of the left labium majus. The flap measured one inch and three-quarters in length, and one inch in breadth. Carbolic lint was placed under the flap; eighteen days after the formation of the flap the operation was completed by freshening the edges of the opening into the bladder and fitting the flap to the fistulous track with the vaginal mucous membrane toward the bladder. Wire sutures were employed; a self-retaining rubber catheter was introduced into the bladder. The parts united and the fistulous opening was much diminished. Repeated attempts at operative interference finally effected entire closure of the bladder. The retro-vaginal rent was closed by taking a flap from the right wall of the vagina in a manner similar to the one taken from the left side. After the edges of the fistula had been pared the flap was fixed to the margin of the opening by means of silk and catgut sutures. This led to a perfect union and a final cure. The same author reports a case of vesico-vaginal fistula caused by extensive sloughing of the anterior vaginal wall. Closure of the vaginal wall after the method of Simon was resorted to for relief.

Hertel (*Francoeur*, 1888) after splitting the vesico-vaginal septum around the opening turned in the edges of the vesical and vaginal mucous tissues respectively. Each is united by deep and superficial sutures. Several advantages are gained by this method. Aside from splitting the septum around the fistula no further denudation is required. This method precludes the necessity of removing to any great extent the cicatricial tissue; by reason of this an important advantage is gained, for when there is much cicatricial tissue in the vaginal wall it is often quite impossible to effect its entire removal. The mucous membrane at its edges after the division of the fistulous septum can easily be brought together; the abraded surfaces after being placed in such apposition readily unite. By the adoption of this method there is no loss of tissue. The operation can if necessary be repeated; if unsuccessful the tissues will be found to have escaped from serious injury from the operative interference.

In an elaborate paper read at the Ninth International Medical Congress at Washington, 1887, by Dr. Nathan Boseman³ of New York, emphasis is laid on the importance of dividing the cicatricial bands which often interfere with an operation for the closure of the perforated tissues. Such cicatricial bands were regarded as productive of undue strain on the coapted parts; this would occur before the tissues had united sufficiently to insure success to the operative measure. Cases have been reported in which adhesions of the anterior or of the posterior

lip to some portion of the vaginal wall or fornix have prevented the uterus from being brought down to the lower segment of the vagina when an operative measure was undertaken for the closure of the fistulous tract. Inflammation from laceration or from other injury to the cervix may set up in the vaginal tissue the formation of constricting bands that will have to be overcome before an operation for the closure of the fistulous opening should be undertaken.

J. Marion Sims in his effort to bring prominently before the profession the advantages an operation affords for the relief of vesico-vaginal fistula, maintained that sutures of silver wire were the ones best adapted to secure favorable results. His operation was originally undertaken without the employment of antiseptic precautions. The unique results which he obtained were undoubtedly due in part to the use of metallic sutures; such sutures to a great extent are aseptic. The rapidity of his work and the exercise of rare skill with which it was often accomplished, compensated in large measure for deficiency in other measures of his procedure. Sims was by no means the originator of the operation for vesico-vaginal fistula. M. Jobert de Lamballe, the eminent French surgeon to the emperor, has described in his *Traité de Chirurgie Plastique* the operation which, as early as 1837, he performed for vesico-vaginal fistula. Mr. Gasset in 1834, gave in the *London Lancet* a good account of the operation. Sir James Y. Simpson also seems to have anticipated Sims in this line of work.

Since the employment of antiseptic precautions has been generally adopted silk sutures aseptically prepared have by many operators been largely used. Silk sutures however carefully prepared, are not altogether free from danger. The properties of silk are not easily overcome by the action of the living tissues. The interstices of the structure of silk are liable to be invaded by microorganisms before the margin of the wound has united sufficiently to allow the sutures to be removed. Aseptic animal sutures are much to be preferred. No suture in my own practice has given so great a satisfaction; the employment of aseptic catgut sutures in vesico-vaginal fistula often yields excellent results.

Kangaroo tendon prepared according to Lister's formula are for this kind of work incomparably the best. After splitting up the septum round the margin of the fistula the deeper or vesical portion of the tissue should be brought together by means of a medium sized tendon suture. The suture should be applied after the manner of the cordwainer's stitch. After the layer of sutures has been taken through the vaginal or external tissue of the bladder the first line of sutures will be entirely concealed.

The sutures employed for the vaginal wall should be somewhat smaller than those for the vesical layer, and should be applied by introducing the needle first into one lip of the wound some distance from within by passing outward close to the edges of the coapted parts. After the sutures have been introduced the tissues through which they have been taken should be in such close apposition as to conceal all traces of their appearance. The sutures will thus be protected from the action of the fluids from the vaginal wall. By the insertion of tampons of cotton or of iodoform gauze or wool the vulvo-vaginal introitus will to a great extent be rendered aseptic. Repeated

¹ British Med. Journal, 1887; also Braithwaite, *loc. cit.*

² American Journal, 1888; Braithwaite, *loc. cit.*

³ Transactions of Ninth International Med. Congress, Vol. 2.

catheterization of the bladder at regular intervals will prevent undue strain upon the vesical and vaginal tissues; these measures of proceeding if properly carried out will materially help to establish a speedy and permanent cure.

RECENT PROGRESS IN ELECTRO-GYNECOLOGY.

Read in the Section of Obstetrics and Diseases of Women at the Forty-fourth Annual Meeting of the American Medical Association.

BY G. BETTOS MASSEY, M.D.

PHILADELPHIA.

The year's progress in the art of applying electricity as a remedy in the diseases of women has been of twofold character, embracing increased exactness in an art requiring technical knowledge of a high order on the one hand, and on the other an increased use of the remedy by conservative gynecologists. The allurements of a surgical ambition continue to operate as a bar to the higher electrical skill of some operators it is true, but a still greater number are becoming convinced that the diseases of women have a deeper significance than mere cosmetic accuracy of outline in pelvic organs; and that an agent capable of doing much in the cure of diseased processes, the relief of suffering and restoration of function deserves a more careful study than has been given to it by those who regard gynecology and surgery as synonymous terms.

RESTORATION OF FUNCTION.

It is too often forgotten that the highest art of the physician is shown in the restoration of normal functionation in an organ or set of organs. In the case of the pelvic organs of women, the disparity between the current literature devoted to the removal of more or less diseased members and their cure is very great and indicates, it is to be feared, that the lesser work replaces the greater in actual practice. The prevention of diseased action in organs is of course a still higher work, but while the busy physician may be pardoned for relegating preventive medicine in some measure to the hygienist, he should not be pardoned for neglecting possible cures of diseased organs and turning his attention exclusively to their ablation and amputation. One of the benefits conferred upon gynecology by the introduction of electro-therapeutics into its remedial armament, is the recalling of professional attention to healthier channels of therapeutic endeavor by the infusion of new hope in the efficacy of conservative methods.

In this agency we have a valuable remedy for the congestions and relaxations that interfere with pelvic functions, and lead consequently to more pronounced disease. Its control over abnormal menstruation is often successful where drugs have been found to be ineffective, and it may thus be of service in the removal of those conditions so frequently leading to positive disease of the ovaries or of the nervous system in early maidenhood. A mere external application of the galvanic current of large dose between periods, through scientifically adapted cutaneous electrodes, may be amply sufficient as a curative remedy in both amenorrhea and menorrh-spasm; but when this has been insufficient to cure in a given case, we must use the same method during the actual attack of menstrual pain. This almost invariably ends the immediate attack, though a per-

manently curative effect will require at times that an intra-uterine negative application be made, and my quickest successes have been attained when the application was made during the flow itself.

On the electrical treatment of menorrhagia and uterine hemorrhage I will not dwell, as its efficiency is generally conceded, though too often not used by those who continue to employ harmful drugs or curet-tage.

It is not a little strange that the classical treatises on gynecology, with the exception of that of Barnes, are practically silent on the disturbances of that function which, certainly next to menstruation and conception, is most closely associated with our practical work as gynecologists. In coming and defining the term *dyspareunia*, this writer, too, but touched on a considerable field of maternal impotencies, the bearing of which upon conditions and sufferings daily encountered is far more important than generally conceded. A little research in many cases of ovarian and lumbar pain in married women will point to this as a cause, even though periuterine tenderness or displacements may be present, and particularly if catarrhal conditions of the uterus and tubes are absent. A merely physical and passive performance of a function normally requiring a most delicate co-ordination of nerves, muscles and glands cannot be other than prolific of local congestions and more general nerve aches, and this result is often found in both participants, for a law of nature has been broken which even dogs obey. The causal conditions underlying dyspareunia are not merely hyperæsthetic conditions of the vulva, on which stress was made by Barnes, but also muscular relaxations of the vagina which make it impossible for the act to be reciprocal, leading to bruising and disturbance of the internal parts, and more or less pronounced nerve strain. The connection of electro-therapeutics with this subject is obvious. In the vaginal applications of both currents we have a direct exciter of the flagging energies of the constructor cummi and levator muscles and the circular fibers of the vagina, though care should be exercised that an over-long stimulation does not lead to fatigue. The swelling method of turning the current on and off is best, and the faradic current may be applied, either bipolar or monopolar, the coarse secondary or primary coils being selected in preference. Probably the most effective exciter is the combined primary faradic and galvanic, negative monopolar electrode, the indifferent pole being on the back. This method also relieves the congestion and tenderness in the uterus and ovaries while adding tone to the muscles.

In the treatment of maternal sterility due to catarrhal disease of the uterus the galvanic current may also be relied on as of direct service, in addition to the possible results that may be derived from electricity in the associated condition just described. The method is that employed in the treatment of endometritis, with or without accompanying menorrh-spasm, and its use will be found to be far more effective than the commonly practiced operations of dilatation, and less likely to be followed by diseased tubes and ectopic pregnancies.

THE RELIEF OF OBSCURE PELVIC PAIN.

Excluding the functional disorders that have been mentioned, acute inflammations and neoplasms, it will be found that most women apply for treatment

for chronic pains and distresses of a more or less indefinable character. It becomes the duty of the physician to ascertain the cause of course, but even in case the probable cause can be located by exclusion in the pelvis, he has no more right to inflict injury in ascertaining its exact nature or providing theoretical relief than when other parts of the body are affected. An increased employment of vaginal applications of electricity is advocated in these obscure cases, in preference to so-called exploratory abdominal sections, which so frequently result in the removal of ovaries that are but slightly or not at all diseased. The electrical application may cure the case by stimulating the activity of the absorbents, and thus removing remnants of unsuspected inflammatory processes that had given rise to the distress, or by a direct action on the pelvic nerves, and if it does not thus clear up the obscurity the patient is yet in good shape for other remedies. Non-suppurative inflammations of the appendages, even prolapse of the ovaries, indicate this method, and it is often curative. To the interpolary action of the current itself we may add the action of iodine, driven into the tissues from the positive vaginal electrode by the recently revived method of cataphoresis.

CHRONIC METRITIS.

The researches of electro-gynecology are, however, contributing towards a revival of the older views, which attributed to the uterus the chief place as the seat of chronic inflammatory trouble, as well as an avenue of infection for parts higher up. The light recently reflected on the diseases of the appendages by operative surgeons has rendered incalculable aid in diagnosis, but should not blind us to the possibilities of a continuance of the chief trouble within the uterus, demanding local treatment for its alleviation. The possibility of employing strong galvanic currents of more than fifty milliamperes for this purpose without creating unpleasant irritation, has been enhanced by the use of cotton covered elastic electrodes of platinum within the uterine cavity, the cotton having been saturated with a solution of cocaine if the endometrium is sensitive, or with a watery solution of an antiseptic agent. This simple expedient will permit of the addition of cataphoretic medication of the uterus to the galvanic application with results, so far as the addition is concerned, that are yet under judgment. The value of the current itself in combating endometritis and hyperplastic metritis is well established, and its more general employment will not only remedy a numerous class of cases of recognized uterine inflammations, but also render the operations of curettage and trachelorrhaphy and the wearing of pessaries of rare and infrequent utility.

FIBROID TUMORS.

With their accustomed alertness, American physicians have not only absorbed the French experiences as to the value of electricity in fibroid growths of the uterus, but have pushed the investigation farther, as evidenced by well-attested instances of actual disappearance of the tumors, several of which were reported during the year. The field of this remedy in fibroids is being more accurately delineated, as added experience teaches that it is most useful in the interstitial and intramural varieties, or when the subperitoneal buds are still sessile. But little effect can be expected in the subperitoneal variety, unless

the tumor is particularly well situated for either pelvic or abdominal puncture. Oedematous myomas, or tumors that have undergone cystic degeneration, are distinctly unsuited to electric treatment, and the same may be said of all such growths accompanied by purulent degeneration of the appendages; though simple non-purulent inflammations of the appendages do not constitute a contra-indication. The interstitial tumors, both hemorrhagic and non-hemorrhagic, in which electricity is curative form a large group, and the testimony of many recent workers in the field fully bears out the statement of Keith that it should have the preference over dangerous and uncertain operations for their removal.

Among the several methods of applying the current, preference continues to be given to the intra-uterine applications. The use of vaginal punctures is confined to those cases in which the intra-uterine method is impracticable, as it rarely presents any relative advantage. I have myself reported good results from abdominal puncture in cases of large growths unsuited to other methods. Mere vaginal applications are, however, at times of service, and the possibility of contracting a myoma by external applications even has been amply demonstrated.

Being free from danger in any but reckless hands and certain to be of some service in every suitable case, the electrical treatment of fibroid tumors should be the method of choice as a remedy for these benign growths, whether hemorrhagic or non-hemorrhagic, reserving operative procedures for cases in which electricity is unsuitable. With this careful selection, the best good of the patient is assured and all apparent conflict of opinions avoided.

CONCLUSIONS.

In recapitulation, it may be said that electricity in some one of its methods of application is indicated as a useful remedy in loss of functional tone in the productive organs; in obscure pains in this region; in catarrhal diseases of the pelvic mucous membranes, inclusive of endometritis and its consequence, sterility; in uterine hypertrophies and chronic periuterine inflammations of a non-purulent character; and in interstitial and certain subperitoneal fibroids, whether hemorrhagic or non-hemorrhagic. So much and more has been amply demonstrated and proven, under the fire of a criticism rarely bestowed on any single therapeutic agent. That definite limitations to its use have been proven is also true and almost equally important, yet of this remedy it may be said that, unlike most remedies, the limitations to its usefulness may continue in the present only, for our knowledge of the agent is of so progressive a character that the boundaries of today's information may be left far behind to-morrow.
212 S. Fifteenth street.

MINNESOTA BOARD OF HEALTH.—Dr. Chas. N. Hewitt, Secretary of the State Board of Health, has issued a circular to the different boards of health. He calls attention to the dangers of small pox and cholera which may be distributed by tramps wandering around as harvest hands. He also calls attention to the means of disinfection by use of concentrated alkalies, caustic lime in the form of fresh whitewash and strong soft soap for washing floors, clothing, etc., which is very fatal to microbe growths, and if these are properly used they will add greatly to public safety for this year.

THE PROPRIETY OF OPERATIVE MEASURES IN PELVIC PERITONITIS.

Read before the section of Obstetrics and Diseases of Women, at the Forty-fourth Annual Meeting of the American Medical Association.

BY LEWIS SCHOLLER, M.D.

DES MOINES, IOWA.

Operative interference has become so frequent in pelvic and abdominal troubles that at a casual glance it would seem that nothing had escaped, and that a paper calling attention to any one of the numerous pelvic affections would be superfluous; that all conditions for which operations were advised and practiced were fully understood; that the time for operative interference was definitely settled, and that every community had had an operation or two of this character. A more careful observation, however, will show that neither of these points are settled and without their settlement the status of operative interference is yet a debatable question.

We have arrayed on the one side the conservatives with conservatism carried to timidity. On the other, we have the reckless and amateur operators, of whom the latter are the more dangerous, not alone on account of their inexperience, but in their anxiety to become abdominal surgeons they open abdomens upon the slightest pretext.

Occasionally they may do good, but more frequently harm is the result. Cases of pelvic peritonitis differ in their effects but little from general peritonitis, save in degree and the liability to the formation of abscesses. In this respect they more closely resemble localized abdominal or circumscribed peritonitis. All occur as a result of a cause; none are idiopathic. All are affections, either primarily or secondarily, of the same extensive membrane which lines abdominal and pelvic cavities, and are accompanied by practically the same symptoms and run the same course. When moderate in degree they recover spontaneously, or with little or no treatment, and that of the simplest character, such as rest, diet and simple remedies.

Occasionally, like all other inflammatory disorders, spontaneous cure may result or, technically, resolution may occur; again, the effused lymph may become organized, and after the subsidence of the inflammation important organs may be greatly hindered in the performance of their proper functions on account of the faulty positions which the adhesions cause them to assume. Of the uterus and the ovaries this is especially true: the rectum and bladder also becoming involved. Repeated attacks increase the difficulties already named, and the consequent irritation and pain soon affect the whole nervous system; the patient becomes a wreck frequently in a comparatively short time.

In the class of cases above enumerated there can be little doubt that most intelligent medical men, as well as gynecologists, would advise an operation.

But it is not in this class of cases that difficulties are experienced in determining the course to pursue. The repeated attacks have given abundance of time for observation and reflection, as well as fair opportunity to test every known remedy.

It is in an acute case that the skill of the diagnostician and therapist are put to the crucial test. It is in these cases that the profession are most in need of definite rules of procedure. It is here that the prognosis is most difficult.

The peritoneal investment of a single organ may be involved as a result of a general inflammation of that organ, and this limitation may prevail throughout the course of the disease. Again, the entire pelvic peritoneal investment may be speedily involved. An inflamed uterus, a salpingitis, an ovaritis or a septic condition may prove the initial point of infection. The virulence of the inflammation may be such as to render differential diagnosis difficult or impossible.

If the formation of an abscess or a pus cavity can be made out, the rule to evacuate is imperative, but do we not wait frequently longer than is necessary for the plain indications of purulent deposits? The pointing in the direction of least resistance may not be discoverable until too late. The peritoneal cavity or the alimentary tract may receive the collection while we wait. This has occurred so often that there are none of you but who could recall lamentable instances of its occurrence.

Pyosalpinx, a not infrequent cause of pelvic peritonitis though not so easily discoverable, frequently on account of the small amount of contained pus, is another cause which demands operative measures for the reason that all else is futile. Curetting and packing with gauze the cavity of the uterus is not of itself free from danger, and is certainly not effective. The dislodgment of the pus producing germ cannot be effected in that way, although it may be said to be to a certain extent an operative procedure, yet it is one from which I have failed to secure the desired results.

Inflamed, degenerated and broken down ovaries are beyond restoration; they are not only useless but a source of danger while they remain; they are to a certain extent foreign bodies; no remedies can effect their reorganization or prevent the inflammatory conditions which they excite.

That the patient may survive many attacks of this kind is not to be questioned. The question is, however, as to the advisability of permitting a patient to experience the danger and hazards that are always present in severe cases. The disease in the male analogous to pelvic peritonitis is appendicitis. A patient having experienced one attack is almost certain of a recurrence; some light, others severe in character. As to the danger to life and the inability to determine the gravity of an impending attack, there is no difference of opinion.

Since operations have been more frequently performed, the opportunity for study of the pathology has been greatly enhanced. The terms, typhlitis and perityphlitis, and other unmeaning phrases have been discarded. The diseased organ has been discovered and the remedy applied, which to-day is operative interference, not only during an exacerbation but frequently after an attack has subsided, when apparently all functions have been resumed and to all outward appearances no disease exists.

That skilled surgeons would advise an operation when the presence of disease cannot be demonstrated by objective symptoms, would be one of the unaccountable mysteries of surgery, were it not that pathology and experience have taught us that recurrences are certain and that the interval of quietude offers advantages that both surgeon and patient should not allow to pass.

Early removals of offending organs in pelvic peritonitis are no more dangerous than in appendicitis;

the same immunity is secured, and years of pain, suffering and invalidism are avoided. Without it, localized inflammatory deposits may exist for years, their presence always manifest in some degree at least, susceptible of breaking forth at any time with great violence. If the patients be fortunate enough to escape death they frequently undergo such an amount of suffering that death may almost seem preferable.

I have recently dealt with two cases of this character. For several years repeated inflammations have occurred; neither of them had seen a well day for at least three years; both had been repeatedly confined to the bed,—one for fourteen weeks. At the end of that time she had practically made her usual recovery,—a recovery that was far from complete. Knowing from experience the certainty of recurrence she readily consented to an operation, and while the difficulties of an operation at this time were far greater than they would have been at an earlier date, the recovery was prompt and relief is complete. The second had the same history except none of the attacks had lasted so long. So intense, however, was the last one that life was despaired of at the end of two weeks. Operation was the only alternative; no preparation of the patient could be made for the want of time. The result, however, was all that could be desired. In the earlier years of my practice when operations of this kind were viewed unfavorably by the profession, I have seen many patients lost who would now be saved.

I do not wish to be understood as advocating the propriety of operative interference in all cases. Many cases apparently recover completely and patients continue to enjoy perfect health. Slight pelvic inflammations are not always dangerous, and if they do not become chronic are not seriously inimical to health and comfort.

In these cases the dangers of an operation should not be undergone; other and less hazardous measures will afford equally complete relief.

If you will bear with me for a few moments I will endeavor to formulate a rule or two for time of operations and the class of cases to which they are applicable.

The decision as to the propriety of operative measures and the time when they should be resorted to are frequently beset with greatest difficulties, and the only rule in acute cases that seems to me to apply at all generally is one laid down by some one in intestinal surgery. As soon as it is apparent that other means will be of no avail, the time for operative interference admits of no delay.

In chronic cases, or cases with frequent recurrences, or chronic cases as regards time and acute with regard to symptoms, there are two periods when operation is justifiable. The first, when life is endangered during a recurrence. The second, after the subsidence of an acute exacerbation. This I regard as the preferable period, but unfortunately it cannot be always secured, first for the reason that the acute stage may demand relief; secondly, the patient frequently refuses the tender of relief of this character while the suffering is not intense. Under this head may be included all those cases of encysted collections of pus, gonorrhoeal, or otherwise, tubal collections of whatever character. Diseased and degenerated ovaries, adhesions which give the semblance of tumors by the distortion of the pelvic organs, and

the consequent impairment of their functions, as well as all mental and nervous disorders that are directly traceable to disease of the pelvic organs.

ACCOUCHEMENT FORCÉ IN CERTAIN OBSTETRICAL COMPLICATIONS.

Read before the Section of Obstetrics and Gynecology, at the Forty-fourth Annual Meeting of the American Medical Association.

LEWELLYN ELIOT, A.M., M.D.

—CHURCH TO EASTERN DISPENSARY, PRESIDENT OF THE MEDICAL ASSOCIATION OF THE DISTRICT OF COLUMBIA, ETC., WASHINGTON, D.C.

Accouchement forcé, as we understand it, a labor actively begun and terminated by artificial aid. This assistance may be rendered through mechanical devices, such as Hegar's and other dilators, Barnes' bags, forceps, catheters, sounds, tampons of cotton or wool, sponge tents, or by the hand introduced into the vagina with the fingers acting as dilators. It is our opinion the fingers are the best and safest means of assistance for the reason that the force exerted is active, appreciative and entirely under the control of the operator. The dilation may be rapid or slow, strong enough to produce a laceration of the cervix and body of the uterus, as in the case related by Parrish at the meeting of the American Gynecological Society in 1892, when discussing this subject, where the hand introduced after delivery reached the bifurcation of the aorta but surely this accident must be among the rarest of obstetric novelties. The hand is soft, it appreciates the degrees of dilation effected, it can detect the softening of a rigid os, it can recognize the tearing of a cervix and it can preserve the membranes intact. These advantages can not be claimed by any of the mechanical devices commonly employed; not one of them will afford us any positive information as to the amount of harm that is being done; they only tell us we have dilated sufficiently to require a dilator of a larger size or that we may introduce another and still another alongside of the first; they simply act as any other mechanical device.

The indications which govern us in producing labor or for dilating the os and terminating labor are, placenta prævia, uræmic convulsions, excessive amount of albumen in the urine accompanied by headache, dimness of vision, anasarca, general or limited, and other symptoms leading us to fear convulsions, uterine inertia, rigid os, escape of waters with inefficient pains, spasmodic contraction of the uterus. Any one of these conditions demands our assistance, but how many of us go to a case of obstetrics with forceps and all other mechanical apparatus pertaining to the correct practice of an art; indeed, how many of us are the possessors of such appliances? For one, I plead guilty to the charge of not possessing all of them. When called to a case of rigid os, or where the pains following the premature discharge of the waters are slow, useless, inefficient, why should we send for any artificial dilator when we have with us the safest and best dilator to be found, in the fingers? Are we to allow a placenta prævia case to pass slowly but surely from our hands to a certain death if not relieved, simply because our teachers of obstetrics and our textbooks do not counsel the course I advocate? How many sorrows have been scattered, how many constitutions have been shattered, how many happy homes broken up, how many useful and talented women have gone to their untimely graves through this blind following

the letter and the law of the textbooks, this ideal "follow my leader?" I am making an assault upon no teacher, upon no writer of either textbook or journal article, but it appears singularly singular that so few of our modern obstetric textbook writers mention accouchement forcé in any connection.

Charpentier says it should never be performed unless all other means have failed. Winckel says it is rarely necessary. Lust says it is next to doing nothing and is responsible for many deaths, while Müller says the maternal mortality is 30 per cent. greater than the dilation by tampon or kolpnynter. King, Parvin, Galabin, Reynolds and Davis do not mention the subject. Consider for a moment the statistics of Nordman, who gives a percentage of fetal mortality of 5.8 in cases where version and immediate extraction are performed; 16.6 per cent. following the employment of the tampon and kolpnynter; while version and slow extraction show the death of every child so delivered. In this day of scientific and exact methods in the obstetric art we must consider the claims of the child to life as well as those of the mother. Few men do a craniotomy on the living child, and as few wait until the child is dead before taking active measures so we are forced to adopt the plan of treatment which gives the best results, no matter how ancient the method may be or what may be our convictions.

It will be urged that rapid delivery will be followed by postpartum hemorrhage, shock, uterine inertia or laceration of the cervix, but we have means of checking hemorrhage in cold or hot applications; intra-uterine irrigations with vinegar; friction, ergot, electricity and the tamponade of the uterus; for the uterine inertia nothing will cause the organ to react sooner than the presence of a foreign body, and the uterine tampon of iodoform or other medicated gauze is the most harmless foreign body we possess; for the shock, we possess the same remedies we have for shock of any kind; so far as the laceration of the cervix is concerned, it will be a difficult question to decide, whether the laceration was caused by the artificial dilation or whether it depended wholly upon the passage of the child and was not one of the generally attending accidents of labor. For my part these objections do not deter me from employing this method. In looking over my case records I find this method by the fingers to have been employed in cases in which uremic symptoms were alarming, of rigid os and of placenta previa, and my experience is embraced in part in the following brief histories:

Statistics in cases of placenta previa are always misleading for the reason that many men will include all cases of placental attachment, marginalis as well as centralis; a partial implantation will usually prove an easy matter but the centralis will be attended by the more serious results.

Case 1.—M. W., white, aged 34 years, was delivered of her third child in January 1885. She complained much of headache, dimness of vision, edema of face, body and lower limbs, urine highly albuminous, abdomen very large; had a laceration of the cervix and partial rupture of the perineum at a former labor. Was given several doses of the compound jalap powder, in the hope of relieving her. With free actions from the bowels her condition became more comfortable. Labor pains came on at three o'clock in the evening. At twelve o'clock the os had dilated very little, vertex presenting; was now given hydrate of chloral and bromide of potash. At one o'clock introduced two fingers into the os and separated them to their fullest extent, then three fingers, then four fingers and separated. Pains were

strong; the head was pushing down rapidly and at ten minutes past two the child was born. The placenta was expressed without difficulty. No hemorrhage, uterus contracted well under ergot. Child affected by the chloral, but revived during the night. Mother made a good recovery.

Case 2.—M. M., white, aged 31 years. In fifth confinement uremic symptoms. Pains not sufficient to dilate os. Chloral hydrate and bromide of potash did not hasten labor. Head presenting. Gave chloroform; introduced hand into the vagina and dilated os with the fingers; applied forceps and delivered her of live male child in one hour from the introduction of the fingers. Placenta expressed; no hemorrhage requiring attention; ergot given. Recovery complete.

Case 3.—M. G., white, aged 35 years. In her seventh confinement; cervix and perineum lacerated in a former labor. She was delivered in a very filthy bed and filthy room. Pains came on at twelve o'clock on the evening of the 26th of May. Os rigid, pains strong and frequent, the waters were not discharged. Dilatation to admit two fingers, fingers separated; three fingers introduced, then four fingers, bag of waters formed but kept intact. After such manipulations at intervals, for one hour and a half, the child was delivered naturally at half past three on the evening of the 9th. Child strong and healthy. Placenta came away with little hemorrhage. Recovery complete.

Case 4.—R. M., white, aged 36 years. In her fourth pregnancy. Had irregular hemorrhages for about three months, oozing and passing of clots; when early in her seventh month she had a severe hemorrhage. Vertex presenting. Cervical canal and vagina had been packed with iodoform gauze by her physician. Called at three o'clock in the morning, and notwithstanding the fact that the hemorrhage had been checked, I advised the immediate emptying of the uterus. Chloroform was administered, the gauze removed, the tissues found soft. Dilated with the fingers; applied forceps and delivered; the hemorrhage was quite free, the uterus emptied at once, irrigated and then packed with iodoform gauze and ergot given. The child was alive; the mother recovered in the usual time. Time required for the manipulations forty minutes. Placenta centralis.

Case 5.—F. S., white, aged 31 years. In her first pregnancy. Had hemorrhage during the fifth; in the sixth month she had a very free one. She was tamponed by her physician and the bleeding had ceased when I arrived at the house. Her pulse was thready and feeble; her face showed the loss of blood, respiration sighing and all the symptoms of collapse were present. Her condition was such that I did not think interference at that time justifiable and advised lowering the head of the bed, absolute quiet and a change of the tampons during the evening; should hemorrhage be present to dilate and deliver. All went well until one week after, when she got out of bed to attend to some household duties; the bleeding started afresh to be checked by tampons. It again started in the early morning with intense labor pains and a rapid delivery of the child. The hemorrhage was appalling, cold, ergot by the mouth and hypodermically, friction, all in turn failed to check the bleeding. Arriving about three-quarters of an hour after the delivery I packed ice in the uterus, used friction upon the hand within the uterus through the abdominal wall, irrigated with vinegar and these means failing the uterus was packed with roller bandage, no gauze being at hand. The hemorrhage was immediately stopped, but the loss of blood had been so great that she could not rally from the shock and died three hours after the delivery. The child was still-born. Placenta centralis.

Looking back now to this case, I think I should have delivered this woman at the time of my first visit and not let her run any further risk, but the outlook was so unfavorable I hesitated and the time for action passed. Should such a case again present, my course would be rapid dilatation and immediate delivery.

In irrigating these cases, we may use the solution of bichloride of mercury, carbolic acid or any other medication which individual preference may suggest; for my part I employ a solution of Tyre's antiseptic powder, which consists of borax, alum, carbolic acid, glycerin, and the active principles of thyme, mentha, gaultheria, and eucalyptus scientifically combined.

1106 P street, Washington, D. C.

COCAINE: ITS USES IN GYNECOLOGY.

Read in the Section of Obstetrics and Diseases of Women, at the Forty-fourth Annual Meeting of the American Medical Association.

BY WM. H. HUMISTON, M.D.

FELLOW BRITISH GYNECOLOGICAL SOCIETY; CONSULTING GYNECOLOGIST TO CITY HOSPITAL, CLEVELAND, OHIO.

Having now had five years' experience in the use of cocaine in gynecological operations, I feel better prepared to eulogize its merits now than I could do two years ago, when I first brought this subject to the notice of the profession at the Washington meeting. I stated at this time that the only annoying symptom that frequently arose was the shortness of breath, and the anxiety connected with it—this I have been able to obviate by the use of strychnia or tincture of nux vom.; one-thirtieth grain of the former, or fifteen minims of the latter, administered with one-half ounce of whisky thirty minutes before operation.

I do the following operations with no other anæsthetic than cocaine, viz.: dilating, curetting, trachelorrhaphy, anterior and posterior, colporrhaphy, and perineorrhaphy. Frequently making two of these operations at one sitting. In dilating and curetting primipare, I resort to cocaine in preference to chloroform or ether; and the pain produced is but slight, and the convalescence is uninterrupted and rapid.

The essentials of this method are: 1. Asepsis. 2. Pure cocaine. 3. Quantity, and how used.

1. The parts to be operated upon should be thoroughly cleansed, and all instruments used *sterilized*, and especially the hypodermic syringe and needle.

2. It is essential that a reliable preparation of cocaine be used, and I rely upon Squibb's or Merck's. I prepare them in two strengths—a four and a ten per cent. solution; the former for hypodermic use, and the latter for intra-uterine injection preceding curetting. I prepare but small quantities at a time, only one drachm of each strength made from sterilized water, to which is added one drop of pure carbolic acid to prevent the solution changing or depositing flaky particles.

3. The quantity of cocaine used for each sitting is from three-fourths to two grains; where but one operation is done I use from one-half to one grain. For curetting I steady the uterus with a tenaculum, and with hypodermic syringe inject the posterior lip with two or three minims of the four per cent. solution. I then take a firm hold of the posterior lip with the bullet forceps, which is painless, and then inject as much more as near the internal os as I can. If necessary to dilate, I do so, until the intra-uterine syringe will pass to the fundus of the uterus, when I throw in eight or ten minims of a ten per cent. solution. I hold my syringe in place a minute to allow the cocaine to be retained, and anæsthetize the mucous membrane as much as possible. After waiting two minutes I proceed to thoroughly curette the whole cavity, followed with a free washing by a double catheter. A few patients complain of some pain, but not enough to desire chloroform or ether, and a great many state that it was absolutely painless. In making trachelorrhaphy, single or double, but one surface is injected at a time, and after one minute you can proceed to freshen the portion mapped out without any pain. I have frequently freshened the whole surface of a double laceration without the patient experiencing the slightest pain. The average amount of the four per cent. solution

used in a double operation is twenty minims. I use a very fine hypodermic needle, and do not inject deeply unless I wish to cut out a large V-shaped portion of the cervix.

4. In colporrhaphy I inject a four per cent. solution in a circle surrounding the portion of the mucous membrane to be removed, and this anæsthetizes the whole portion, and denudation can be done with but little bleeding, and no pain—amount used twenty to thirty minims. In perineorrhaphy I generally make the split flap operation. I make but one puncture with the hypodermic needle, and this in the median line at the junction of the skin and mucous membrane at the vulval opening—inject gradually to a depth of one inch, then carefully withdraw the needle until you are near the point of entrance, when you change the direction of the needle and inject the right vulval edge to the height you wish to restore the perineum, and in a like manner the left. The sear will readily show from what point the rupture took place and it is best to restore to the full extent. Within two minutes after thus injecting twenty to thirty minims of a four per cent. solution, you can proceed to operate without pain. Before inserting the sutures it is well to inject a few minims more along the cutaneous border.

I will now briefly refer to a few cases:

Mrs. H., age 34, married at 19 years of age, menses regular, not painful; has had four children, youngest four years old. Had inflammatory rheumatism when eleven years old, and again three years ago; attacks were severe, but does not think had any heart complications until last attack. Patient believes that injuries to cervix and perineum occurred at birth of last child, as she had a prolonged getting up, and has not been well since.

When I was called to this patient I found her in bed, very weak and anemic, pulse 118, temperature 100, with frequent attacks of sinking spells, cold hands and feet, and extremely nervous. On examination found heart enlarged, and murmurs at both apex and base of heart. On vaginal examination found perineum torn to sphincter ani, uterus retroverted, enlarged and tender, cervix lacerated, swollen, eroded. Ovaries enlarged and very sensitive to pressure. This case not only required local treatment, but operative measure. I felt chloroform and ether was out of the question as the heart was so diseased.

After a few weeks of local treatment with general systemic measures, she was so far improved that I was able to move her to my private hospital for operation. One-half hour before curetting I gave her fifteen minims tincture of nux vomica in one half ounce of whisky. I made use of the cocaine as described above, using one grain together of the four and ten per cent. solution; I proceeded to curette, and to my surprise she had no shortness of breath, or anxiety, and no pain. The pulse was less rapid, and of more force under the effect of the nux vomica and whisky.

This patient was in such reduced condition from her long illness and menorrhagia, that her power of endurance or ability to suffer pain was *nil*, and she was morally certain before the operation that she could not endure it without ether or chloroform, yet to my surprise she did better than any case I had before curetted.

At intervals of ten or twelve days I repaired the cervix and perineum, with the same happy effect from the cocaine. The operations were all successful, and she is now able to do light housework and be comfortable.

Believing that the administration of the nux vomica was responsible for the freedom from the anxious breathing that cocaine is so apt to produce, I have given it since to every patient operated upon, and I esteem it highly, and trust it will gain your confidence after repeated trials.

My last reference will be to a case of chronic lung trouble, that had uterine disease and required operative measures, but an eminent specialist of Pittsburgh refused to operate owing to the serious condition of her lungs, precluding the administration of chloroform or ether. She was sent to my hospital, and I did currying and trachelorrhaphy without the slightest pain or difficulty by the use of cocaine after the above method.

Her cough and general condition improved, and she was able to remain in this climate during the entire winter without taking cold or becoming worse. For four years her winters had been spent in Florida or Colorado.

There are no unpleasant after effects from the use of cocaine aside from a slight headache in some cases. No vomiting or shock, and convalescence is rapid.

I could multiply these cases by the score, as I am operating almost daily without having any untoward symptoms, and I desire to thoroughly impress my brother gynecologists with the desirability of cocaine as an anæsthetic in all minor gynecological operations.

A SUCCESSFUL CASE OF CÆSAREAN SECTION.

Read in the Section of Obstetrics and Diseases of Women, at the Forty-fourth Annual Meeting of the American Medical Association.

BY GILES S. MITCHELL, A.M., M.D.

PROFESSOR OF OBSTETRICS IN CINCINNATI COLLEGE OF MEDICINE AND SURGERY.

Until the last decade the Cæsaean section occupied a doubtful place between conservative and sacrificial midwifery. Puzos, the distinguished author and obstetrician, writing in 1875 concerning Cæsaean section makes the following statement: "This operation has cost the lives of all the unhappy, ignorant women who have undergone it in Paris since the beginning of this century." And he adds, "it is still practiced." Even Robert Barnes, whose name is a household word with the medical profession, in the last edition of his work on Obstetric Operations, uses the following language in speaking of it: "It is resorted to with a feeling akin to despair for the fate of the mother, which is scarcely tempered by the hope of rescuing the child. It is looked upon by the great majority of obstetricians as the last desperate resource, as the most forcible example of that kind of surgery which John Hunter regarded as the reproach of surgeons, being a confession that their art was baffled." These quotations are ample apology for the brief recital of a successful case:

Patient, Mrs. H. Irish, aged 24, primipara, rather delicate and of a highly nervous temperament. Saw her for the first time late in the afternoon of April 24, 1893. She informed me that she had reached the end of her gestation, and from the pain she was having thought she was in labor. Date of last menstruation, July 10, 1892. On making digital examination I recognized a hard solid tumor extending from above the sacral promontory, down and filling up the major portion of the sacral concavity. Pelvic diameters of outlet normal. Conjugate of middle strait about 2½ inches, conjugate of brim 1½ inches. All of the uterus was above the pelvic inlet and the os undilated was pushed forward and felt above the pubic symphysis. Recognizing that a formidable

surgical operation would be necessary in order to accomplish delivery, and in view of bad hygienic surroundings, I requested that she go to a hospital. This she absolutely refused to do. The pains being feeble and the os not dilated, I concluded to do nothing until morning, save irrigate the vagina with a bichloride solution 1:4000, and wash out the lower bowel with warm water and glycerine. Early on the morning of the 15th dilatation was sufficiently advanced to readily admit the index finger. Vertex presentation was diagnosed. The position being the right occipito anterior. The pains being now severe and the amniotic sac having ruptured, it was deemed advisable to wait no longer. So after consultation with Dr. Chas. A. L. Reed, the child being alive, it was deemed wisest, best and safest to deliver by means of the Cæsaean section. Promptly at 8:00 a.m., April 15, about fourteen hours from the time I first saw her, I began the operation, assisted by Dr. Chas. A. L. Reed, and in the presence of Dr. Robert B. Mitchell and Dr. Edgar Reed and the nurse, Miss Schwank. Chloroform was anæsthetic employed. Patient's temperature was 101½, pulse 114. The abdominal incision was eight inches in length, two-thirds of it being above the umbilicus. There was very little bleeding from the abdominal parietes. As soon as the uterus was exposed a loop of rubber tubing was slipped over the fundus and brought down to the neck. The uterus was then quickly opened, the incision being about six inches in length, through the fundal and middle zones. Delivery was speedily accomplished by means of the feet. The child, a male weighing 7½ pounds, was asphyxiated, but Dr. Reed soon succeeded in resuscitating it. Only eight minutes elapsed from the beginning of the operation until the child was born. There was considerable bleeding from the uterine sinuses, but it was readily controlled by tightening the elastic ligature around the cervix. The placenta was attached high up posteriorly, and was removed shortly after the child without difficulty. After waiting a short time for the uterus to contract, the wound in it was closed by means of a Lembert-Czerny continuous silk suture through the peritoneum only. The equivalent of thirteen interrupted sutures was passed. The abdominal walls were then carefully united by means of eight interrupted silkworm gut sutures. Neither the uterus nor the abdominal cavity were washed out, nor was there a drainage tube placed in the cervix. The external dressing consisted of iodoform gauze and cotton held in place by strips of rubber adhesive plaster. The stitches were removed on the seventh day, union having taken place by first intention along the entire wound. Not a suspicion of pus was manifest at any point. On the tenth day the patient was, from a surgical standpoint, well. The following is the record kept by the nurse:

April 15, 8:00 p.m. Resting quietly. Vomited once two ounces clear fluid. Lochia normal. Passed 8 ounces urine. Has taken nothing, save small quantities of hot water.

April 16. Patient passed a comfortable night. Lochia normal. Took during the day a tablespoonful of chicken consommé every two hours. Morning temperature 99.6°, pulse 100; evening temperature 100.2°, pulse 120.

April 17. Patient slept several hours; complained of pain in lower part of bowels. Lochia normal. Morning temperature 101°, pulse 100. Took chicken consommé. Passed normal quantity of urine.

April 18. Rested well; slept several hours. Lochia and urine normal. Morning temperature 100.8°, pulse 84; evening temperature 102°, pulse 90. Had small stool.

April 19. Very restless night. Patient delirious greater part of the day. Morning temperature 101°, pulse 88; evening temperature 102.2°, pulse 90. $\frac{1}{2}$ grain doses of calomel were given every half hour during the day until a grain and a half had been taken, when the bowels were freely moved.

April 20. Patient had a restless night. Morning temperature 100.4°, pulse 98; evening temperature 99.8°, pulse 76. Slept an hour at a time twice during the day; rested easily, complained of no pain. Bowels moved twice very freely. Enjoyed her food, consisting of chicken consomme and milk toast.

April 21. Patient slept greater part of the night. Morning temperature 99.8°, pulse 80; evening temperature 100.8°, pulse 88. Slept most of the day.

April 22. Passed a very comfortable night; slept well. Stitches removed. Takes milk, brandy and beef tea freely, and ate a lamb chop. Morning temperature 99°, pulse 82; evening temperature 99.6°, pulse 88.

April 23. Patient rested well, but had a slight chill during the night. Morning temperature 101.6°, pulse 92; evening temperature 100°, pulse 88.

April 24. Patient rested well. Morning temperature 98.6°, pulse 88; evening temperature 99.6°, pulse 82. Appetite excellent; no pain.

April 25. Morning temperature 99.4°, pulse 82; evening temperature 99.6°, pulse 100. Patient slept all night. Lochia scant; urine normal. Bowels moved by injection.

April 26. Patient slept most of the night. Morning temperature 99°, pulse 80; evening temperature 99°, pulse 84. Patient says that she is well.

April 27. Patient passed a comfortable night; appetite good, lochia scant, bowels moved slightly. Morning temperature 99°, pulse 84; evening temperature 99°, pulse 83.

Authors make the statement that two-thirds of the abdominal incision should be below and one-third above the umbilicus. In the case reported this order was reversed. The same authorities advocate two rows of sutures in closing the uterine wound, one set of deep sutures penetrating almost the entire thickness of the womb, and a superficial set. In the case reported I employed a continuous suture, and embraced in it only the peritoneal covering of the uterus. I have long contended that deep sutures in the uterus were not necessary, and often are a source of danger. The peritoneal covering of the uterus at the end of gestation is very greatly hypertrophied, and is so firmly adherent to the muscular tissue in the upper two-thirds of that organ that it is impossible to separate them without tearing one or the other. This intimate relationship, together with the peculiar shape of the womb, and the rhythmical contractions and retractions constantly going on, make it unnecessary to do other than unite the peritoneal covering. While I claim great advantage for my mode of suturing, I am not ready to acknowledge that it was the most important factor in leading the case to a successful termination. I saw the case early, and operated promptly and quickly, the operation being over and the patient in bed in thirty minutes from time operation was begun. No damage had been done to the soft parts in vain attempts to deliver by the forceps. Labor had not only begun, but considerable dilatation was present. In addition, I did a simple Cesarean section. The tubes and ovaries were not molested. All of which contributed toward a fortunate termination of the case. I believe, however, that ligation of the tubes adds very little to the danger, and in future, should I be called upon to make the operation, will render the patient sterile by that procedure. The operation was rendered as nearly aseptic as possible. This was difficult, as the family cooked, ate, slept and lived in one room.

The chief interest and importance of Cesarean section is in the grave responsibility resting upon

the accoucheur, when he is called upon to decide whether he will save the mother and sacrifice the child, or, by increasing the danger to the mother, hope to rescue both. It seems to me that in the light of modern surgery, with its improved methods and with the brilliant results from the operation obtained during the past decade by clever men all over the world, that the conscientious obstetrician has nothing to embarrass him in deciding between embryotomy and Cesarean section.

Dr. Murdock Cameron, of Glasgow, from 1889 to 1891 made ten Cesarean sections, with a mortality of one mother and one child. Such gratifying results ought certainly to convince us that embryotomy on a live child has no right longer to be considered a justifiable obstetric procedure.

Dr. CHAS. P. NOBLE of Philadelphia: No subject of greater importance could be brought before the Section than how to deal with a case of pregnancy with a full term fœtus which can be delivered *per via naturales* without mutilating the child. Recently we had introduced in this country an operation which bids fair to supplant both the Porro operation and Cesarean section. He had never done a Porro, but had done two Cesarean sections, both of which recovered, and had charge of two other cases which recovered. Within the past year he had operated by symphyseotomy with success, and quite recently had assisted another gentleman in delivering a woman by symphyseotomy. He believes we can deliver practically every woman by symphyseotomy with a conjugate diameter of two and three-quarter inches and upwards, without danger to the mother, provided the operation is done in the right way.

Dr. JOSEPH PRICE of Philadelphia, said not a little confusion had arisen in regard to the respective merits of the Porro operation and Cesarean section. The two operations were done for entirely different conditions. He had done six Porro operations, all for tumors. Dr. Robert P. Harris of Philadelphia, writes Dr. Price, "that the conservative Cesarean operation has been performed seventy-five times in the United States, the Porro-Cesarean twenty-nine times, and symphyseotomy eighteen times; with two also in Canada. There have been sixteen Sanger operations and fifteen Porros since March 1, 1891, with one death after the former, and three after the latter. Fatal deaths respectively, two (one at six months); and five, (four still born). Since July 12th, 1891, Philadelphia operators have had ten Porro cases, and New York four."

Dr. MITCHELL, in closing, said in the case reported the deformity was due to a large tumor extending from above the promontory of the sacrum and filling out almost the entire concavity of the sacrum. The conjugate diameter of the middle strait was two and one-half inches, while at the inlet of the pelvis it was not more than an inch and a half; consequently he thought the case was not a suitable one for symphyseotomy.

SELECTIONS.

The Berlin Sewage and its Lesson.—The *Cosmopolitan* for July contains an interesting article by Mr. Poulteney Bigelow on "How to Make a City Cholera Proof." We extract the following:

"In the summer of 1887 I was taken over the great sewage farms about six miles from Berlin. I was accompanied by the bacteriologist, Dr. Koch, who let fall the remark that, in his opinion, Berlin was proof against an epidemic, owing to

the manner in which her sewage was carried away and rendered innocuous.

The great cholera epidemic came and paralyzed the commerce of most of the seaport towns of Europe, devastated Russia pitilessly, and left the great city of Hamburg more impoverished than when the troops of Napoleon evacuated it.

Berlin looked upon the progress of the plague with equanimity, although she is on the highway between Hamburg and Russia and daily exposed to an attack because she lies upon a river connected by means of canal, not only with the waters of Hamburg and Russia, but of an infected port on the Baltic, Stettin. Her hospitals accepted, as a matter of course, the isolated cases of cholera that occurred in her neighborhood, but there was at no time anything approaching to an epidemic within her walls.

The experiment made by Berlin in utilizing her sewage by making it enrich the sandy soil of the neighborhood has proved so successful, is so simple, so inexpensive and so well suited to the needs of New York that a few words of description may not prove uninteresting.

The present system of cleansing Berlin has been tested by nearly twenty years of thorough experience.

Berlin, for scavenging purposes, is divided into districts. A huge cesspool in each, collects all the sewage in that particular district, and this sewage, by means of powerful engines, is uninterruptedly pumped off, far out of the city, on to land specially prepared for this purpose.

I visited the Blankenburg farm of 2,700 acres. The road along which we walked was deep with sand. On either side of us, however, were fields rich with a most luxurious growth, which, but for the irrigation to which they are subjected, would be as fruitless as the road on which we walked.

There were, in the official year 1885, some 10,000 acres under irrigation for a variety of purposes, including experimental agricultural purposes, nurseries and flower raising. The staple crops, however, were summer and winter rape, mustard, hemp, winter and summer wheat, winter and summer rye, oats, Indian corn, barley, buckwheat, peas, beans, clover, grasses, potatoes, beets, cabbage, chicory and turnips. Cereals alone took up nearly 4,000 acres.

In its original condition, that is to say, before the city of Berlin adopted the present method of cleansing itself, this land was worth \$182 per acre. As soon, however, as sewage is applied to it, the value rises to over \$400 per acre.

The dreariest stretches of sandy Long Island are picturesque, if not luxuriant, in comparison with the country about the German capital. Yet on this soil are now being raised crops that would astonish an Iowa State fair.

Learned lights of the German scientific world had gravely told their hearers that for one year, two years, possibly three years, the system might work; but that the time must speedily be when the soil would contain so much sewage matter as to not only make vegetable growth impossible, but to poison the air and water of the whole surrounding country. But the managers of the sewage farms have found that they have no difficulty in adapting their crops to the strength of the soil. In other words, they can exhaust as fast as the city can restore.

Another great source of alarm was lest the drainage from the irrigated fields should poison the waters of the neighborhood. So serious was this feeling among all classes that a law was passed making it punishable, by a fine, for any one to drink from the waterways near any of the sewage farms.

Dr. Koeh, the authority on bacilli and disease germs, told us, on the spot, that before disease germs could propagate themselves in Berlin they were hurried off on to this soil, which is completely destructive to bacilli. The six hours

that intervene between bacilli entering the drains of a Berlin house and reaching the ditches of the sewage fields, are not enough to give the disease a start.

The water offered me had entered the sewers of Berlin only six hours before. The only cleaning it had received was in percolating from the irrigated field into the ditch that surrounded it. So effective, however, is this, that my drink was not only as clear as pure spring water, but the taste was as though it had been distilled—a taste familiar on shipboard. And not only was this water free from odor, but the air on and about the irrigated fields was not tainted to a point that could be called offensive.

The sewage is so largely cleansed by the mere passage through six miles of pipe that, after it has been a short time upon a field, the odor is hardly noticeable. The complaints from neighboring farmers, which at first threatened to wreck the enterprise, have quite ceased.

So great is the demand for "sewage vegetables" that the market people are clamoring to have a special section reserved for this growth alone alleging that in that way they can get higher prices for these particular vegetables.

For the twelve months between March, 1885, and April, 1886, the cost of cultivating 9,194 acres was \$134,778, while the income from the same was about \$271,000, being a profit of over \$136,000, or about \$32.50 for each acre. This profit is calculated without reference to the general and official expenses and interest on capital. Counting, however, all possible charges, the profit still amounts to an average of \$18.50 to the acre.

We all know that more danger to the public health arises from the sewers than from any other cause, and that therefore scavenging as a profession must be a dangerous one. But the system under which Berlin purifies herself is happily freed from the ill effects attending all others.

The several estates making up the total area of the sewage farms were supporting last year 33,749 souls. Out of this number there were 237 cases of illness, the causes of which are interesting to note.

To apply the lesson of Berlin to our requirements it would be necessary:

First, To acquire enough land between Whitestone and Coney Island to enable the city to lay out fields suitable for irrigation, and enough of them to meet the anticipated increase in the population.

Second, The sewage of New York island, instead of being turned into the surrounding waters, would then be collected at a dozen points on the east side of the town, between the Harlem and the Battery.

Third, From these points of reception it would be pumped off, night and day, by means of powerful engines, through suitable pipes, out on to the city farms. None of these farms need be more than ten miles from its particular pumping station. One pipe line, for instance, might lead from the foot of Fulton street out in the Flatbush direction. Another, from the foot of Tenth street, could work the Jamaica neighborhood. Several pipe lines could cross the East river at Blackwell's island and enrich the Flushing neighborhood, which now pays such heavy taxes for manure.

The Administration and Dosage of Pancreatic Extract and Trypsin.—Recent improvements in the manufacture of pancreatic extract and trypsin have placed in the hands of the clinician preparations of digestive ferments of high digestive power and of such uniform and standard quality as to entitle them to a position among reliable therapeutic agents. It is now understood that all pharmaceutical preparations, purporting to contain pancreatic ferments, must be subject to well-known laboratory tests of digestive activity, just as in the parallel case of pepsin, and those which are deficient or altogether wanting in this respect, are rejected. In other words, if a preparation alleged to contain pancreatic ferments, does not possess digestive activity sufficient to convert proteids into peptones, starch into maltose or dextrose, emulsify fat, or curdle milk, or possesses these qualities to an insignificant degree, it is to be judged worthless as a digestive agent. If it be claimed that such pharmaceutical preparations are still valuable on account of their

carminative and stimulant qualities from spice or alcohol which may be present, the rejoinder would be that there can be no objection to the administration of such adjuvants if the case require them, but if a digestive ferment be demanded, and pancreatic extract be desired, then it is incumbent upon the prescriber to see that he gets a physiologically active preparation, and that he does not allow himself to be put off simply by a name.

As now furnished in the form of an impalpable, dry powder, which possesses, and retains permanently a high digestive equivalent, it certainly would seem that the requirements of clinical medicine of pharmacy, in this direction, are fully satisfied and that other preparations are unnecessary. Glycerin is the only solvent which enables us to administer or apply the digestive ferments in a liquid form without loss of activity or liability to precipitation. Since the acid media in which pepsin is alone active renders pancreatic ferments inert, and the neutral or alkaline media required by the latter precipitates the former, it would certainly appear illogical and unphysiological to administer pharmaceutical compounds of these two classes of ferments. In such cases, one or the other is useless and wasted. In order to obtain the best effect from the pancreatic extract, it is given in combination with sodium bicarbonate, usually in the form of compressed tablet, or in a gelatin capsule. The glycerin solution has special advantages for topical applications in diphtheria and for surgical dressings.

The proper time for the administration of pancreatic extract or trypsin, is just before a meal or about two hours afterwards; just before eating because it may pass into the intestine before the acid gastric juice has commenced to be secreted, or later, when gastric digestion is complete and the chyme is passing into the duodenum and intestinal digestion is in progress. In cases of apesia, or achlorhydria, and in conditions of fever where gastric digestion is suspended, the pancreatic preparation may be given with the food. The dose of the active preparation now furnished under the name of pancreatic extract is from two to five grains, usually combined with twice as much or even more of bicarbonate of sodium. Some reliable forms of combination, such as that with ox gall, are also to be obtained from the leading manufacturers of preparations of the digestive ferments. Since alcohol and some metallic salts precipitate the digestive principles from their solutions, it is advisable not to administer such remedies coincidently with the ferments; especially is the old form of wines or elixirs of these ferments objectionable. The physiological fact that digestion differs from fermentation, is illustrated by the action of creosote, which stops fermentation but does not interrupt the process of digestion or the action of the digestive ferments. Creosote, or guaiacol, therefore, is a useful adjuvant to the digestive ferments where there is an excess of flatulence due to acetous fermentation, or in so-called "windy dyspepsia." Although the dosage above mentioned is the quantity ordinarily prescribed, much larger doses may be given if thought desirable, since, unlike many of our other remedies, the digestive ferments have no toxic action and in excess have not been known to cause irritation. There is a theoretical danger from prolonged administration, that the normal secreting glandular function may be superseded and artificial digestion become a permanent necessity. Unfortunately, in many of the cases in which a resort to the use of pancreatic extract is required, the functional activity of the glandular apparatus has already been more or less permanently impaired, and in such cases the systematic administration of the digestive ferments affords the only means of living in comparative comfort, and of relieving them of their thralldom to the demon, dyspepsia. Where there is emaciation due to

impaired assimilation of fats, pancreatic extract should be given in sufficient doses, guarded by sodium bicarbonate, to bring about a disappearance of fat from the stools, and it should be continued until this symptom disappears.

Clinically speaking, the pancreatic ferments, or trypsin (which is a purified pancreatic extract), have been found especially useful in the digestion of milk proteins, trypsin possessing a marked power of digesting casein. This has been utilized in pre-digesting or peptonizing the milk for infants and invalids with delicate stomachs. As this process softens the curd, and approximates cow's milk more closely to mother's milk, this expedient has proved (in connection with sterilization of the food), of inestimable advantage to bottle fed babies and badly nourished neurasthenic patients of larger growth. The process has been very much simplified for domestic use by the manufacturers providing the proper quantity of extract and soda, in hermetically sealed tubes, each containing sufficient ferment to peptonize a given quantity of milk. The only manipulation required is to warm the milk to a blood heat, mix with it the contents of one of the tubes; a few minutes' contact only are required to sufficiently digest the casein, when the further digestion is at once arrested by bringing the milk to the boiling point, which destroys the ferment. In the case of infants, the powder may be added to the bottle just before feeding, or administered separately, dissolved in water, immediately afterward. For making "humanized" milk from cow's milk, a special peptogenic milk powder has been prepared by the manufacturers, which contains sugar of milk and other principles required to make cow's milk a proper substitute for breast milk in the diet of infancy.

Some acceptable articles of nutrition for the sick may be made with the aid of pancreatic extract. The diastatic action may be utilized by adding the extract to various starchy foods, such as gruel; always being careful not to impair the digestive activity by excessive heat (over 130° being the limit). The late Dr. N. A. Randolph, in an article entitled "The Dietetic Factor in the Treatment of Angina Pectoris," after commenting upon a case in which a paroxysm was brought on by slight gastric irritation, with inability to retain even the lightest and simplest foods, reported that he had successfully met the emergency by the use of pancreatic extract. He prepared pancreatized stewed oysters and milk toast, and suggested that this expedient might be extended to other articles of diet with much advantage in similar cases of gastric hyperæsthesia, so as to enlarge the rather scanty bill of fare of such patients.

The very interesting and possibly useful discovery was made by Randolph, while studying the absorption of remedial agents by the skin, that the resistance of the epiderm and the more important obstacle afforded by the sebaceous secretion might be overcome by the application of a solution of pancreatic extract. This is best given in his own words: "A very simple and efficacious method which we have devised for removing these obstacles consists in the addition of a proteolytic ferment to the solution of the drug used. Thus trypsin (prepared by Kuhne's method), is added to a strong solution of (e.g.) morphia. Absorbent cotton is saturated with the mixture, placed upon the skin and covered with waterproof plaster. The natural warmth of the part induces activity of the ferment and the consequent solution of the epiderm, narcosis supervening in from one to two hours. This method, when applied under the supervision of the physician, affords one advantage over ordinary modes of medication, namely: that when the desired therapeutic effect is obtained, the further absorption of the drug may be prevented by at once removing the external application."¹ It does not appear that this ingenious suggestion has as yet been actually employed in clinical therapeutics; but it would seem of great advantage in local neuralgia; and painful tumors, even though it be not necessary to push to its full physiological effect the drug with which it is associated. Thus in the case of morphia or codeine, the anodyne action might be thus obtained at the point where it is most needed, without the narcotic or secondary effects from the usual or hypodermic method of administration.

¹ Notes from the Physiological Laboratory of the University of Pennsylvania. Edited by N. A. Randolph and Samuel G. Dixon. Phila. 1885.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:
PER ANNUM, IN ADVANCE \$5.00
SINGLE COPIES 10 CENTS.

Subscriptions may begin at any time and be sent to
THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 68 WABASH AVE., CHICAGO, ILLINOIS.

All members of the Association should send their Annual Dues to the
Treasurer, RICHARD J. DUNGLISON, M.D., Lock Box 1274, Philadelphia, Pa.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Dunglison, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues and subscription for THE JOURNAL. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

SATURDAY, SEPTEMBER 2, 1893.

THE AMERICAN MEDICAL ASSOCIATION.

An extract from the valedictory of the former editor of this JOURNAL has had a wide circulation in certain not over-friendly publications. The valedictory mentioned contained certain well meant but erroneous statements, which, when published by themselves were calculated to damage the JOURNAL in its business interests and the ASSOCIATION. If the ASSOCIATION critics had reproduced the *whole* article, we would not now need to explain. The article was written before the returns were received from the Milwaukee meeting.

At that meeting there was an increase in membership of 273, and in the last month, the membership by application has brought the increase up to 300.

There has never been a time when the JOURNAL had so large a bona fide mail list, and there has never been a moment when there was not money in the treasury; more than sufficient to meet any possible contingency. There have been added eight pages of reading matter, and the outlook for the publication has never been brighter than at present.

We have maintained silence on this subject up to this time, as we dislike to make public mention of the business affairs of this office, but as longer silence might be misconstrued, both within and without the ASSOCIATION, we have thought proper to state the facts.

The ASSOCIATION door is always open for new members by application, and they are welcomed because we strengthen the ASSOCIATION with every new addition, and so far as the JOURNAL may be able, it will continue to urge every member of the profession to lose no time in increasing the growing membership; but the talk about the decadence of the ASSOCIATION is, in the light of the facts, as silly as it is malicious.

Ten thousand new members would mean a great deal to the medical profession of this country, and

there is no visible reason why all do not march under the ASSOCIATION banner, except the constant tendency to split up into hundreds of small coteries. If there are errors in the form of the organization, such can be corrected at the will of the majority, and the practice of staying outside the fold and growling only pleases those who wish to see the organization belittled. The AMERICAN MEDICAL ASSOCIATION will not decay until the profession itself shall lose its reason and its patriotic instincts.

The logical force of the position held by those who uphold organization, is irresistible, and the tendency of the time, in all countries, is for better organization. A large body is more powerful to effect the accomplishment of the desires of the medical profession than a small one, and at this stage of our political history the only forces that are effective in moving legislatures, are those backed by numbers.

The scientific aspect of the ASSOCIATION has markedly improved since the creation of the Business committees of the Sections, and a glance at the papers published this year show a much higher average rank than heretofore. There were always "star" papers, but there were a number of mediocre papers. At the present time, the ASSOCIATION may take just pride in the high professional value of the papers sent to the JOURNAL from the Sections.

The JOURNAL itself has greatly benefited by the renewed vigor of the ASSOCIATION, and it can be made the equal of any medical journal published whenever the membership of the ASSOCIATION rises to equality in numbers with any other, and that membership will certainly come in time. The numbers are now increasing, but more slowly than befits this active, restless age. A little more vigorous effort to secure members by application will accomplish the desired result.

PERITONITIS IN THE MALE FROM GONORRHOEAL INFECTION.

The profession has already become quite familiar with the disastrous results of gonorrhœa in the female and its varied pathologic possibilities as affecting the pelvic peritoneum, and secondarily the general expanse of the peritoneum. The possibility of a similar infection of the peritoneum in the male has received very little attention, in spite of the fact that JOHN HUNTER many years ago called attention to peritonitis following in the train of epididymitis of gonorrhœal origin.¹ In HUNTER's opinion testicular inflammations of all sorts are generally accompanied by pain in the loins, and a sensation of weakness in the lumbar region and pelvis. The intestinal tract sympathizes ordinarily with most testicular diseases, said sympathy manifesting itself either by colic pains, or abnormal sensation located in the stomach and bowels. Nausea and vomiting are frequent symptoms.

¹ Works of Hunter, edition 1843, volume II, p. 219.

As a consequence of this gastro-intestinal disturbance the digestive function is deranged, and very painful, gaseous distension of the abdomen is likely to occur. There exists, according to HUNTER, a very complex series of sympathetic possibilities. The same is true of any irritation extending throughout the genito-urinary tract. Urethral disturbances are followed or attended by pain and irritation of the spermatic cord, the back, gastro-intestinal tract, and through these parts various disturbances of almost every other part of the body may occur. HUNTER further states his belief that this irritation may be communicated to the peritoneum through the canal of the vas deferens. The latter opinion he attempts to substantiate by a case in which pain and swelling of the right inguinal region immediately above Poupert's ligament occurred, with the phenomena of chills and fever following a gonorrhoea. On palpation, induration and pain were found to exist in this region, the pain extending over the entire abdomen. To HUNTER's mind these symptoms prove that the right vas deferens was affected by an inflammation which involved the abdominal and pelvic peritoneum. We, of modern days, with our knowledge of inflammation about the caput coli, find no difficulty in combating this view of HUNTER's as far as this particular case is concerned.

A very interesting article upon gonorrhoeal peritonitis in the male by ZEISL appears in the *Annales des Maladies des Organes Genito-Urinaires*, July 1893. It contains a complete bibliography of this subject up to date. Among the authors quoted in the article are SWEDIAUR, KERN, RICORD, FOURNIER, GODARD, VIDAL DE CASSIS, PETER, GUYON, BERKLEY HILL, TARNOWSKY, WENDELIN, GOSSELIN, ROUGON and HOROWITZ. Many of the cases quoted by ZEISL are decidedly defective, particularly in the direction of the possibility of confusion with "right iliac disease" i. e., appendicitis and its consequences. A case in point is one of Rorcoz's, which is as follows:*

An officer of artillery, at the age of 35 years, was taken in a dying condition to the Hôpital Fort de France (Martinique). The skin was cold and moist, face drawn and anxious, pulse small, frequent and almost threadlike. There was violent headache; the tongue very red, covered with sordes; extreme thirst was complained of. Patient was vomiting material colored with bile; abdomen was tender and very painful, principally in the right iliac fossa. Constipation had existed for several days. Urine had been scanty and high colored. Along the spermatic cord could be seen the relics of leech bites. Epididymitis of the right side, accompanied by acute hydrocele existed, with a history of gonorrhoea of twenty days duration, the secretion of which had suddenly ceased after the 14th of March, its cessation being followed

by testicular inflammation. The severe pain in the abdomen and other grave symptoms had already lasted for three days. Patient died the same day he was taken to the hospital.

Necropsy showed an abdomen distended with gas, scrotum bluish, with ecchymoses in the sub-peritoneal cellular tissue of the right side. The peritoneum, principally in the right iliac fossa, was covered with inflammatory exudate. About 300 grams of sero-purulent liquid were found in the right iliac fossa and the lower pelvis. The vessels of the serous envelope of the stomach, small and large intestine and principally the ascending colon, were highly injected. The liver was greatly distended with blood. The right epididymis was large, red and ecchymosed, and on section was found to contain four small purulent foci. The right spermatic cord was thickened, and was found to contain in its coverings a quantity of exudate. The prostate, seminal vesicles and ureter were not examined.

It is difficult to understand why the author should present this case in substantiation of the occurrence of gonorrhoeal peritonitis; a case was published by Rorcoz in 1876, the probability of the peritonitis following appendicitis and occurring as an accidental complication of epididymitis at once suggests itself. To the average American author, therefore, such a case would be absolutely worthless. NEUMANN, JULIEN, FINGER, MILTON and others mention peritonitis as a result of possible gonorrhoeal infection. MILTON, however, with his large experience, has never seen a case of the kind, neither apparently have JULIEN and NEUMANN.

HOROWITZ publishes two cases of peritonitis following epididymitis of the left side accompanied by prostatitis, inflammation of the seminal vesicles and considerable tumefaction of the left spermatic cord. Both of these cases recovered.[†]

ZEISL describes three cases of his own which he considers to have been peritonitis from gonorrhoeal infection.[‡] His first case may be taken as a type, and it is worthy of quotation.

F. X., 34 years of age, was attacked by urethritis about the 14th of November, 1879. He consulted ZEISL for the first time December 1, 1879. At that time there existed a temperature of 38.9 C.; pulse 106; tongue was dry; patient complained of vomiting from time to time matter of a bilious nature. The abdomen was slightly tympanitic and swollen, and especially sensitive to pressure in the right ileo-cæcal region. According to the story of the patient the symptoms developed on the night of November 30, 1879, after having already felt an acute pain in this location, and he had noted for a long time a swelling. There had been no constipation for several days, and no discharge of gas. The ensemble of symp-

* *Ann. Mal. gen.-ur.*, Vol. XI, p. 604.

† *Weiner Med. Woch.*, 1892.

‡ *Ann. des mal. gen.-ur.*, July, 1893.

toms pointed toward strangulated inguinal hernia. A careful examination of the patient found the serotum empty in the right side, with a painful tumor in the right inguinal canal. This was determined to be the testis. There was evidently in this case an inflammation of the right epididymis in a unilateral cryptorchid. Under frictions of mercurial ointment and the application of compresses of cold water, associated with hypodermic injections of morphine for the pain, the symptoms disappeared very speedily. On the 4th of December constipation ceased spontaneously, and after complete disappearance of the epididymitis, treatment of the urethritis was commenced.

Inasmuch as it has been shown that there is an intimate relation between the lymphatic supply of the genito-urinary tract and peritoneum, we are willing to accept the possibility of gonorrhoeal peritonitis in the male. We do not believe, however, that most of the cases cited by ZEISSL afford substantial evidence in favor of this pathological possibility. The local and constitutional disturbance incidental to strangulation of the inflamed spermatic cord or retained testis by the rigid and unyielding structures about it, are what we naturally expect to find in strangulation of a sensitive tissue, in whatever location it may be found. We have noted a similar group of symptoms to those outlined in ZEISSL's case in a number of instances of epididymitis in which there was a predominance of inflammation of the spermatic cord. Strangulation of tissues so intimately associated with the sympathetic ganglia, as are the spermatic cord and testes, particularly in the presence of acute inflammation and swelling, might be expected to be followed by more or less reflex irritation of the abdominal organs, general prostration, fever and disturbed heart action. Simple cases of epididymitis are very frequently attended by alarming manifestations of this character. Reflex inhibition of the intestinal muscle with resulting tympany are naturally to be expected in some of these cases. In some instances the onset of the difficulty is attended by profound manifestations of shock. Such cases as that of ZEISSL, followed by recovery, are seemingly very weak evidence in support of the possibility of gonorrhoeal peritonitis in the male. Fatal cases showing general peritonitis are equally valueless, unless it can be proven beyond peradventure of a doubt that there is no other cause for the peritonitis. Gonorrhoea and its sequelae are so frequent that it would be unfortunate, indeed, if the general practitioner were led to believe that gonorrhoeal peritonitis deserved great consideration in the matter of differential diagnosis. The possibility of its occurrence should be accepted, but should not weigh very heavily in the balance in cases in which symptoms exist that are strongly in-

dicative of appendicitis or general peritonitis from unknown but probably surgical remediable causes. It is hardly probable that such simple measures as were successful in the case quoted by ZEISSL could have very much effect after an acute peritonitis once begins. It should also be remembered that the peritoneum is not particularly susceptible to infection by the gonococcus per se; when it does occur in the course of gonorrhoea, even in the female, it should be attributed to a mixed infection, and not to the gonococcus.

CHOLERA.

In Russia, returns for the last week show a decided increase and its spread to localities heretofore uninfected. There was reported 4,329 new cases, and 1,692 deaths in twenty-two provinces. Turkey has quarantined vessels coming from nearly all the ports on the Black sea. The senate of Hamburg has prohibited the admission of clothes or dirty linen from Russia. Since August 15, there were eleven cases reported with eight deaths, in Germany. It is hinted that the river Spree may be infected. Suspicious cases were reported at Neuss, Halle, Duisburg, Sigmaringen, and a case of cholera was discovered in the Rhine boat *Flora*, at Rudesheim, opposite Bingen. There are now reported seventy districts of Hungary and seventy-two districts of Galicia infected with cholera, a decided increase over last week. The first case is also reported in Vienna. There seems to be a decrease at Naples, with a decided increase at Palermo, and denial that there is cholera in Rome. Roumania reports an increase. The disease seems to be increasing at Smyrna.

We have not yet learned the result of the distribution of the returning pilgrims that were quarantined at El Torr, save that eighteen deaths occurred on a French steamer that transported some of them to their homes. It is announced that the steamer *Carlos* arrived at Rio Janeiro on the 28th inst. from Grand Island, Canales, and that 103 persons on board died from cholera on the way over. The ship was refused permission to land or even put its crew and passengers in quarantine, and was escorted out of the harbor by the warship *Republica*, and ordered not to land at any Brazilian port. No official report has been received from France, but cases of cholera occurred at Montpellier, and a suspicious disease is reported at Nantes, which is undoubtedly cholera. One death from cholera is reported at Hull, England, a girl thirteen years of age.

In Holland and Belgium there is a slight increase, not alone in the cities heretofore reported, but also in the number of places infected. The lower part of the river Linga has been declared infected. We shall watch with much interest the efforts made by the health authorities of Germany, Belgium and Holland

to suppress and to prevent the spread of cholera. There are undoubtedly at this time more infected cholera points in Europe, than at any one time during the history of the various pandemics that have afflicted that country. These have generally lasted three years, but owing to the care taken, and the changes that have taken place in communication, it may be brought to an end this year. There is undoubtedly more cholera in Europe now, than is reported. So long as the present conditions obtain, the United States is not safe from invasion, and it is a question whether the time has not come when immigration should be suspended from all infected countries.

ARMY MEDICAL EXAMINING BOARD.

In our issue of July 29 we called attention to a circular of information for young medical men desirous of entering the medical department of the Army, and stated that a Board of Examiners would probably be convened in Washington, D. C. The Board has been directed to meet on September 11. Formerly these examining boards were convened in New York city; but as the professors of the new Army Medical School form a suitable personnel for them, it is likely that Washington will hereafter be their place of meeting. The officers detailed for duty on the Board now called into existence are: Colonel CHARLES ALDEN, president of the faculty; Lieut.-Colonel W. H. FORWOOD, professor of military surgery; Major CHARLES SMART, associate professor of military hygiene and director of the chemical laboratory; Captain W. REED, professor of clinical and sanitary microscopy, and Captain J. C. MERRILL, in charge of the property division of the Surgeon General's office. Although the Board meets in September it is not likely that its sessions for examination will be held until Monday, October 2. Some preliminary arrangements will have to be made, including the settlement of the details of a method of relieving candidates who would fail on account of physical or other easily discovered disqualifications from the loss of time, money and nervous energy involved in a needless journey to Washington. The post surgeon of the military station nearest to the home of the aspirant for position, will probably be called upon to examine into certain preliminary but essential points, and to submit his report thereon for the consideration of the Board. There are at present six vacancies, but the examiners will probably provide passed candidates for the prospective vacancies of the next twelve months.

LIABILITY FOR THE SUPPORT AND CARE OF THE INSANE.

States are wont to make some provisions for the care of their insane. They commonly levy special taxes for this purpose. Nebraska did this, but also

went farther and attempted to authorize a recovery, from the persons legally bound for the support of an insane person, of the sum paid by the county for the care and treatment of such insane person at the insane hospital of the State, when such care and treatment were furnished upon the finding of the proper commissioners of the county. This last enactment the Supreme Court of that State has declared unconstitutional and void, in a decision rendered in the case of *BALDWIN v. Douglas county*, on June 29, 1893, and just reported (55 *Northwestern Reporter*, 875). The court said that it had previously held that the relation of brother or sister to the afflicted did not justify this special exaction; and it had again adjudged the same freedom from liability as to the children of the insane. In this case, however, it was a husband that was sought to be charged, and it was insisted that he should be, because the husband is legally bound for the maintenance and care of his wife. But the court said that it knew of no principle of equity or justice that would imply a contract by the husband to answer for the treatment of his wife, furnished by the State in the interest of the general public; that the public thus benefited should defray all of the expenses incurred for its protection. Moreover, the husband had already paid his proportion for the maintenance of the insane hospital. This was by a direct tax upon his property. If he were required to pay for the treatment of his wife, such payment would be just as much a compulsory contribution to the maintenance of the insane hospital as was the other. It would be, in fact, another form of taxation for the same purpose. The right to levy taxes can only be justified as being necessary for the performance of its functions by the State. No tax can be legally levied for any purposes foreign to those functions, and even that far taxation is tolerated only from the necessities of the case. The collection of unnecessary revenues by the State is not taxation. It is robbery. The husband, here, having already paid his full proportion towards the maintenance of the insane hospital; more than that the authorities could not constitutionally exact.

HOSPITAL PHYSICIANS' ORGANIZATION.

The attending surgeons and physicians of Philadelphia have organized an association with the express object of extending courtesies to visiting physicians. The secretary of the association, Dr. H. H. WHARTON, keeps a roster of clinical lectures and demonstrations, and also a list of operations in prospect. In this way every visitor may learn, without delay, of operations in which he may be especially interested and the appointments of men whom he particularly desires to meet. On the other hand, the members of the association are promptly informed

of the presence of distinguished visitors in the city, so that proper attention may be given to them. Similar organizations should be in operation in all our medical centers.

TREATMENT OF CHOLERA AT THE NEW YORK QUARANTINE IN 1893

DR. BYRON, who was prominent in 1892 in the quarantine service of New York harbor, was in charge of the cases recently brought over by the *S. S. Karamania*. He has tried several plans of treatment, but his chief reliance is in the use of the irrigation method that seemed to work so well last year. The general facts with regard to the experiences in 1892 may be read in a leading article in the issue of this JOURNAL for May 20.

MEETING OF THE BOARD OF TRUSTEES.

The Board of Trustees of the AMERICAN MEDICAL ASSOCIATION will hold a session at the Arlington Hotel, Washington, D. C., on Monday, September 4, at 4 P. M. JOHN H. RAUCH, Secretary.

SPECIAL TRAIN OF THE JOURNAL.

The special train of the JOURNAL OF THE ASSOCIATION for the Pan-American Medical Congress will leave Chicago at 8 A. M. Sept. 3, from the new Illinois Central depot, 12th street and Park Row. Buy your tickets over the "Big 4" at the excursion rate. The railroad company promises that the accommodations of this train will be the best they can furnish.

NOTICE.—Gentlemen having business with the JOURNAL during the meeting of the Congress, will find the editor at the Arlington Hotel.

The President's Address will appear in full in the next issue of the JOURNAL.

DOMESTIC CORRESPONDENCE.

The Epidemic of Suicide.

To the Editor:—Epidemics of suicide are reported from London, Paris, Chicago and other large cities. On one day within the past week eight cases of attempted suicide with six fatal results occurred in Chicago.

Can we account for these melancholy facts, and furnish any promising remedy? It won't do to say that all these people are crazy. Some of them are far above the average in intelligence and thrift, have made deliberate preparations, and have acted and written with that calm contemplation and philosophical reasoning that discredit the theory of insanity.

Was Socrates insane? He courted death with utter indifference. Was Demosthenes insane when he preferred death to defeat? The past few days have furnished numerous instances in which insanity will not satisfactorily account for suicide.

The stringency in the money market will account for a certain proportion of suicidal deaths in the present epidemic, but not for such epidemics when times are not hard.

Then eliminating such cases as are attributable to trouble and insanity, how shall we account for epidemics of suicide, and what is the remedy?

When do these epidemics usually occur? In hot weather—July and August. But the heat of summer is not of itself necessarily depressing to a healthy nervous system. Otherwise why do not the people of the torrid zone exterminate themselves? But heat is favorable to the operation of a certain poison in the blood that produces, when in excess, contraction of the smaller arteries and capillary vessels all over the body, producing the cold surface and extremities, increased tension of pulse, slowing of the heart, headache, depression and irritability of temper. This same poison produces the pains of rheumatism, gout, angina pectoris, sick headache, paroxysms of nervous coryza, hay fever, and a long train of other symptoms.

The poison that has such a host of distressing symptoms charged against its action on the brain, the spinal cord or the solar plexus of nerves is uric acid.

The successful treatment for combating the effects of this poison is threefold: 1, palliative by immediate relief; 2, curative by elimination; 3, preventive by proper diet and active exercise.

1. When a person is suffering from mental depression, irritability of temper, headache, etc., due to the presence of uric acid in the blood, the first thing to do is to precipitate this acid by administering a dose or two of a mineral acid. This converts the blood into a poor solvent of uric acid. When the blood is the most alkaline, as it is in the early morning hours, it dissolves the uric acid that has been stored up in the more alkaline tissues and allows of its free circulation in the blood. It then produces its deleterious effects on the blood vessels and nervous centers. A few full doses of the mineral acids will free the blood of uric acid, relieve depression and irritability and produce a sense of satisfaction and well-being that is incompatible with the idea of self destruction.

2. After the immediate poisonous effects of uric acid have been overcome, remedies must be given to eliminate it from the system. This is best accomplished by salicylate of sodium in moderate doses, continued for a considerable time according to the individual indications. Five or ten grains taken every night for a few weeks or months may carry out of the system the uric acid that has been stored up for months or years as a result of improper diet and indigestion or faulty action of the kidneys.

3. Diet and systematic exercise will do the rest—prevent a return of the trouble. The proper diet for the uric acid diathesis consists of farinaceous foods, fruits, milk and fats. Meats, sweets, wine and beer produce lithemia and must be avoided. Fish and eggs may be allowed occasionally. Exercise sufficiently active to produce free perspiration should be taken systematically.

I believe that many cases of suffering and despondency with suicidal tendencies that come under our observation can be successfully treated on this plan.

S. S. BISHOP.

The Illinois State Board of Health.

The Illinois State Board of Health has issued the following circular:

SPRINGFIELD, AUG. 23, 1893.

Dear Doctor:—The Illinois State Board of Health is revising its Report on Medical Colleges and Medical Education, and is desirous of including in this edition all available information concerning every medical college in the United States, without regard to its standing, repute or school of practice.

Will you kindly furnish the Secretary, at your early con-

venience, a list of the medical colleges in your State, together with the names and addresses of officers, members of faculties, or others who may be written to for detailed information. Very truly yours, J. W. SCOTT, M.D.,
Secretary.

Cheese Poisoning Cases at Mansfield. Final Report.

MANSFIELD, OHIO, Aug. 14, 1893.

To the Editor—Dear Sir:—In compliance with my promise made some time ago to furnish you a report of the analysis of the cheese supposed to produce the numerous cases of so-called "cheese poisoning," in our city some weeks ago, I herewith submit you the same, together with the letter accompanying it from the Dairy and Food Commissioner, which is as follows:

Office of OHIO DAIRY AND FOOD COMMISSION, STATE HOUSE
DR. B. F. McNEAL, Commissioner, Columbus, O.
Geo. A. Root, Cincinnati, Assistants.
W. H. STEWART, Solon.

COLUMBUS, O., Aug. 12, 1893.

R. HARVEY REED, M.D., Mansfield, O.—My Dear Doctor:—Enclosed find report of analysis made by Prof. Kauffman of the cheese you sent to Dr. Probst. The other two chemists have not reported the results of their analysis yet, though one of them has intimated that tyrotoxin was present.

Will let you know the results of their work when I get their report. Yours truly, F. B. McNEAL.

OHIO DAIRY AND FOOD COMMISSION—DAILY REPORT OF
CHEMIST.

Serial No. 22. Received from Dr. F. B. McNeal. Date July 23d, 1893, marked ———.

N. — Date July 18, 1893.

Name of dealer, Mr. Herring. Sample of cheese.

Place of business, Mansfield, Ohio.

Name of producer, Mr. Maybee.—cheese said to contain poison.

Place of business, near Mansfield, Ohio.

Sample of cheese brought by Dr. McNeal.

Taken by Dr. R. Harvey Reed, health officer.

ANALYSIS.

Water, 30.116 per cent. Fat, 34.986 per cent. Casein and milk sugar 30.614 per cent. Ash, 4.284 per cent. Fat to total solids 50 per cent. pure butter fat.

No metallic poison found; etherial washings from aqueous extract gave positive reactions for tyrotoxin. Five minims of a solution of the etherial washings placed upon the tongue of a kitten immediately caused frothing at the mouth and in a few moments dryness of the throat, rapid breathing and retching; after about an hour violent purging. *Cheese contains tyrotoxin.* GEO. B. KAUFFMAN,
Chemist.

[Copy.] The fact that the investigation of Mr. Maybee's factory by the Food Commissioner, accompanied by an expert cheese manufacturer, has shown that tainted or spoiled milk had been used in the manufacture of the cheese, and in addition to this that two sick cows were found among the neighbors who furnished milk for the factory goes to show one of two things; either that tyrotoxin was the result of fermentation or the result of using milk from sick cows. While the milk of the latter may not have been good, yet at the same time we do not believe that that was the cause of the tyrotoxin, which we are inclined to think was the result of either spoiled milk in the first instance, or over fermentation in the preparation of the curd in the second instance. It is the custom of the cheese makers to allow it to stand until a certain degree of "acid," as they term it, is allowed to arise and when present makes cheese very light and spongy but which, in fact, is only the result of fermentation producing gases which penetrate the cheese during the process of pressing. This makes it light and porous, and at the same time is undoubtedly, when carried too far, the cause of fermentation followed by tyrotoxin, or possibly, in certain cases, other poisonous compounds of

a similar character, which we have already referred to in our former article, which Dr. Vaughn says he has found and isolated, the result of which those who have been studying this matter well know have been published by him. At the same time it is not always reliable to depend upon the chemist's analysis alone in these cases, unless you should find tyrotoxin or some of the other poisonous proteids and clearly demonstrate their existence by giving them to a kitten or some animal which is easily affected with such poisonous substances. When this can not be done satisfactorily a bacteriological examination should be had, and the nature and character of the germs determined in this way. It is well to make a bacteriological examination even where tyrotoxin is present, for as Dr. Vaughn well says "the exact nature of the poison present will depend upon the kind of germs producing it."

I am very glad that Prof. Kauffman has been able to obtain tyrotoxin in this case, as I have every reason to believe that it *does exist* in a large number of these cases of cheese poisoning, although in some instances the toxic effect may be due to other poisonous proteids.

The lesson we have learned from these cases seems to be clearly demonstrated, not only by the report of the expert who examined the factory, but by the chemical analysis that has followed,—that *over fermentation or decomposition of milk has been the prime cause of the whole trouble.* The sooner our State Boards of Health or, if necessary, the law makers of our various commonwealths, pass rules or enact laws which will prohibit cheese makers from allowing cheese to become over-fermented or to use spoiled milk for its manufacture the sooner we will find these cases of "cheese poisoning" diminishing. There is no more reason why a manufacturer of cheese should be allowed to let his cheese become fermented to such an extent as to produce poisonous compounds in order to make it light and salable, than there is for a baker to be allowed to mediate his bread or allow it to "raise" until it is sour in order to make it white, light and spongy.

Very respectfully submitted,

R. HARVEY REED.

Agnew's or Quimby's Operation?

DENVER COL., August 25, 1893.

To the Editor:—In the last issue of the JOURNAL I notice that in reporting the discussion upon Dr. Manley's paper on "Tarsal Amputations," Dr. Quimby is quoted as describing a modification of Pirogoff's amputation, and that other participants in the discussion are then quoted as calling this modified Pirogoff's procedure, "Quimby's operation." While it may be that the operation was original with Dr. Quimby, it was not necessarily originated by him, as it is described with brevity and clearness by Agnew in the second volume of his "Surgery," page 361, in the following words:

"Instead of sawing off the malleoli and the articular surface of the tibia, I allowed them to remain, and placed the calcaneum in the mortise between the two; the union was complete and was followed by a remarkably useful stump. In other instances I have done this and with satisfactory results."

Then follows a brief discussion of the new operation, and there is an illustration of a preparation obtained from a patient upon whom the operation had been done.

Respectfully,

WM. P. MESS.

A Treatment of Temulentia.

"*Dum loquimur tempus fugit.*" may be somewhat freely translated,—while we are discussing their methods the empirics (quacks?) are quietly raking in the duets. The fees exacted by the different cures range from \$105 up.

Any regular physician desirous of learning the writer's method for successfully combating alcohol addiction may address, (stamp enclosed.) C. M. FENN, A.M., M.D., San Diego, Cal.

BOOK NOTICES.

International Clinics: A Quarterly of Clinical Lectures on Medicine, Neurology, Pediatrics, Surgery, Genito-urinary Surgery, Gynecology, Ophthalmology, Laryngology, Otolaryngology and Dermatology, by Professors and Lecturers in the Leading Medical Colleges of the United States, Great Britain and Canada. Edited by JOHN M. KEATING, M.D., LL.D., Colorado Springs, Col.; JUDSON DALAND, M.D., Philadelphia; J. MITCHELL BRUCE, M.D., F.R.C.P., London, Eng. and DAVID W. FINLAY, M.D., F.R.C.P., Aberdeen, Scotland, Vol. I. Third Series, 1893. Pp. 360. Philadelphia: J. B. Lippincott Company.

There are fifty contributors to this volume, twelve of whom are British subjects and two French. They present a wide range of topics—seventy-five in number. The department of medicine occupies 121 pages, neurology forty-eight, pediatrics twenty, surgery sixty-four, genito-urinary surgery sixteen, gynecology and obstetrics forty-three, ophthalmology eleven, otology and laryngology twenty, and dermatology twelve.

In order not to trespass too much on the space in our plethoric JOURNAL, only a few notes can be culled on growing subjects that are exciting considerable discussion in medical circles.

A fair idea of the usefulness of the book as a representative of the progress in medicine, can be gained by referring to the lecture of Dr. W. H. Porter on Bright's disease. His work represents the best class of articles in this volume and he occupies ten pages with important teachings, the iconoclastic nature of which will shock the physiologists. His text is fresh and full of suggestions for rational methods of treatment and diet. On page 76 he says: "Bright's disease is not, as it used to be considered, equivalent to signing one's death warrant but, on the contrary, we can cure a large proportion of renal diseases. We must not look upon these diseases as local specific conditions belonging to the kidney alone, for all the lesions occurring in the kidney are secondary to physiological disturbances which have gone before, and our treatment should be directed not so much to the kidney as to these prior conditions."

While most books on physiology teach that glucose, albumin and proteid matters are diffused through the blood vessels, Porter claims that the albumin found in the urine is a by-product of incomplete oxidation thrown out by the epithelial cells, and that it is not filtered through the capillary blood vessels. He asserts that glucose has never been found as such in the blood, notwithstanding that it is commonly so stated in the works on physiology; but he maintains that it is produced by the renal cells, is not formed from the starches and sugar, but is a by-product resulting from incomplete oxidation. The glucose supposed to have been found in the blood by physiologists was the result of faulty tests.

The milk diet is used, together with ox bile in two or three grain doses of the purified inspissated bile three or four times a day, for its antipyretic action. He believes it is even more effective than the salicylates, which he uses to combat fermentation and heat production, and to favor heat radiation. He condemns the modern antipyretics as active poisons and powerful depressants to the cerebro-spinal centers. "One authority has been frank enough to state that he has killed patients with them."

About fifty or sixty cases of typhoid fever altogether have

been treated with ox bile without a single fatal result. Dr. Zeh has treated some of the worst typhoid cases, having very high temperature and with very severe hemorrhages from the bowels, with nothing else but inspissated bile and a little nitro-muriatic acid, with a well regulated diet and alcoholics when required, and not a single case has died.

Dr. W. O. Moore refers to a number of cases of exophthalmic goitre that were reported by Dr. A. M. Hamilton as having been absolutely cured by an aqueous solution of hydriotic acid in increasing doses. He classifies the disease as a purely nervous one, and does not believe there is yet any specific treatment. He presented a rare case in which the eyeball was literally dislocated through the commissure of the lids.

Dr. E. M. Crandall treats of rheumatism in children and maintains that salicylate of sodium does not fulfill all the requirements. While it relieves the subjective symptoms more promptly than any other remedy, it does not materially lessen the danger of endocardial inflammation. It does not increase the liability to cardiac involvement, although it is a cardiac depressant in large doses. He insists that although the alkaline treatment is slower, the cure is more permanent, and the danger of endocarditis less. He combines the two plans of treatment.

This book is like the previous editions and is a worthy addition to the progressive physician's library.

The Surgical Anatomy and Surgery of the Ear. By ALBERT H. TUTTLE, M.D., S.B., of Cambridge, Mass. With Twenty-eight Original Illustrations, reproduced from the writer's Drawings from Nature. Detroit: Geo. S. Davis. Paper. 1892.

Dr. Tuttle has furnished a little handbook of inestimable value to the aural specialist. It contains a brief account of what is most necessary for them to know in order to recognize the various affections of the ear and brain that require surgical operations, explanations of the various methods, together with directions for their performance.

The importance of this subject is mentioned on page 77 in the following words: "If we leave out the cases of tubercular meningitis and disease directly following and a result of trauma, comparatively few instances of suppurative inflammation of the brain or its meninges will be found associated with middle ear disease."

For the sake of brevity the author has sometimes sacrificed perspicuity. Some confusion results from the habit of using the terms drum and drum head synonymously. He advises the instillation of chloroform for killing insects in the ear, to be followed by syringing with warm water to wash the insects out. We have seen severe inflammation result from this use of chloroform by druggists. It is unnecessary, as the syringing alone does the work. If the ear is simply filled with warm water the live insect is drowned and floats to the surface.

In using the letters of reference to the illustrations it is often impossible to know to which figures they refer. The same remark might be made relative to the descriptions accompanying the excellent plates showing the various sections of the bone.

On page 45, in treating of operations for the removal of the drum head, the author misquotes Bishop, no doubt inadvertently. He says: "In 1885 Bishop reported fourteen cases of deafness operated upon by the removal of a piece of the membrana tympani without injuring the ossicles; although the patients all expressed themselves as hearing better, the writer could see no difference." Bishop said: "The operation improves hearing, and sometimes relieves distressing noises and other subjective symptoms when nothing else would."

However, the faults of this book are of minor importance. It gives the best résumé of the various aural surgical operations extant, and in such a concise yet comprehensive manner as to be of the highest value for ready reference. And it merits a more suitable cover than paper.

ASSOCIATION NEWS.

The American Medical Association in California.—Almost entirely through the efforts of our friend J. H. Parkinson, editor of the *Occidental Medical Times*, the National Medical Association voted to hold its next meeting in San Francisco. The society had about decided to go to Baltimore, when Dr. Parkinson in an energetic appeal carried the meeting in favor of San Francisco. Of course we are highly pleased with the result; the Association has come as near Los Angeles as we could reasonably expect this time.

The advantages of this choice are numerous. In the first place, hundreds of the leading physicians will visit California and many of them will come to the southern part of the State; their object will be to see the country, but incidentally they will learn that this is the best summer resort in America. It will be a good thing to be sized up by the doctors—we shall give them a hearty welcome; they in turn will treat us well and send us a new "one lung" brigade. Every one knows how the California Building at the World's Fair is crowded with eager, yet half doubting inquirers; now here is a chance to verify the claims made at the exhibition; let each community send a reliable doctor to spy out the land before the hosts of immigrants invade us. Another attraction for the Pacific Coast physician will be the Midwinter Fair which will probably continue until July.

In another and more favorable way this meeting will benefit the profession of California; new interest and added enthusiasm will be gained in professional work; increased knowledge and added proficiency of all participants will be great inducements for a large attendance of the physicians of our State. It might be added here that to be a member of the National, one must belong to the State Society, and to belong to the State, one must be a member of the County Association and to hold a membership in the County Society it is necessary to keep the dues paid up, which amounts in this county to two dollars a year. The moral is obvious.—*Southern California Practitioner*, August, 1893.

SOCIETY NEWS.

Pan-American Medical Congress—HOTEL RATES AND CAPACITIES:

Hotel Normandie—Two in room \$4.00. One in room \$5.00 per day. American plan. Accommodations for 100.

The Arlington—\$4.00 and \$5.00 per day. Accommodations for 500.

Cochran Hotel—\$4.00 and \$5.00 per day. Accommodations for 50 to 75.

Wormley Hotel—\$4.00 per day. Accommodations for 100. Randall Hotel—\$2.50 and \$3.00 per day. Accommodations for 75 to 100.

Willards and Riggs—\$3.50 to \$4.50 per day. Accommodations for 100 to 500.

Arno—\$1.50 to \$2.50 for room, European, and \$3.00 to \$4.00 per day, American.

Shoreham—\$2.00 to \$3.00 for room, European. \$1.00 to \$5.00 American. Accommodations for 200.

National Hotel—\$2.50 to \$4.00 per day.

Elbirt House—\$3.00, \$3.50 and \$4.00. No extra charge for alcove parlors.

The Dominion Medical Association meets in London, Ontario September 20 and 21.

NECROLOGY.

Dr. Norris M. Carter of Brooklyn, died at his home on the 11th of August, from an affection of the heart, that had been of some months' duration. He was 52 years old, a native of the northern part of Ireland. He came to New York in early youth and received his medical education at the Albany Medical College, graduating in the class of 1859. During the war, he served as contract-surgeon. He made his home in Brooklyn about fifteen years ago, and rapidly acquired fame and position in one of the best sections of that city. He was a manly man, with genial aspect and commanding bearing. His judgment was sound, though not rapid, and his convictions firm and even frankly expressed. His physique and mental endowments, both, seemed to conspire to give to Dr. Carter the promise of a long and satisfactory career in his profession, but fate had appointed for him to fall while yet in the prime of his powers.

Death of an Eminent Medical Missionary.—The *London Christian* contains the following tribute to an American missionary to China, the Rev. Edward P. Thwing, M.D., formerly of Brooklyn, New York. He was probably the pioneer worker in the far east, who had set for himself the task of showing how the insane should be treated. "Dr. and Rev. Edward Payson Thwing died at Canton, China, on May 9. He was born at Ware, Mass., on August 25, 1830, and graduated from Harvard University in 1855, and from Andover Theological Seminary in 1858. He preached in Portland, Me., Quincy, Mass., and in the Church of the Covenant, Brooklyn. A few years ago he took a medical degree at the Long Island College Hospital. For several years he preached during the summers in London, and lectured frequently in New York, Brooklyn, and other places. He was a frequent contributor to the magazines. He visited China two years ago, and became impressed with the need of hospitals and asylums there, and went to that country again last year. At the time of his death he was in charge of the building of an asylum. One of his sons is a medical missionary in Alaska, another is a medical missionary in China, and a third lives in Brooklyn. There are three daughters in the family."

Dr. Courtney J. Clark died at Jacksonville, Ala., August 18. Dr. Clark was born in Laurens district, South Carolina, October 27, 1816, his parents being native residents of that State. He received his early education in Georgia and commenced the study of medicine when only 18 years old. He graduated from the College of Medicine, of Louisville, Ky., in 1843, and in 1844 from Jefferson Medical School at Philadelphia.

In 1847 he settled in Jacksonville, Ala. When the Mexican war broke out Dr. Clark was appointed by President Polk, surgeon in the United States army and served with Butler's Palmetto South Carolina regiment, being with that gallant command in all its battles up to the capture of the City of Mexico.

During the late war Dr. Clark was surgeon in the Confederate army. Starting out as a regimental surgeon, he was soon transferred to the charge of the Alabama hospital in Richmond, afterward to the hospital in Montgomery and then to Columbus, Ga., at which point he was stationed when he gave his parole to General Wilson at the end of the war.

Dr. Clark was a resident of Selma and practiced his profession there since 1865 and no citizen has ever been held in higher or more affectionate esteem. He was an ardent advocate of the educational interests of the city, holding the responsible position of president of the city school board of

Selma for a number of years, always zealous in the performance of his duties, and it is no exaggeration to say that no citizen of Selma has contributed more to the upbuilding of the public school system than this loved and honored physician. He was for several years president of the Selma Medical Society, a prominent member of the State association, a forcible writer in several of the leading medical magazines and he stood in the front rank of his profession as one of the leading practitioners and surgeons in the South.

In 1853 Dr. Clark was married at Jacksonville, Ala., to Miss Nancy W., daughter of Thomas J. Davis. Five children survive this union: Percy Clark, of Washington, D. C.; Mrs. J. C. Ware of Montgomery; Mrs. A. J. Harris, Mrs. T. H. Lewin and Misses Julia and Jessie Clark, of this city.

Dr. WILLIAM S. HURD, a well known physician of Paterson, N. J., died Aug. 18, after a long illness. His system never fully recovered from blood poisoning, the result of an accidental cut received while performing an autopsy some years ago. He was born at Fishkill Landing, N. Y., in 1847, went to Paterson with his parents when a boy, and at the age of 17 enlisted in the 55th regiment, serving during the last year of the war, and becoming a corporal. He was graduated from the College of Physicians and Surgeons in New York in 1877, at the head of his class. In 1878 he was elected assistant city physician of Paterson, and served five terms by yearly re-election. He also served a three year term as coroner of Passaic county. In politics he was a republican. During the smallpox epidemic of 1882 he did devoted service for the city, breaking down his health and losing most of his private practice, which it took several years to reestablish. He was a skillful caricaturist, contributing occasional sketches to illustrated periodicals, and was an amateur actor of Shakespearian tastes. He was a member of the Knights of Pythias and of the Passaic County District Medical Society. Dr. Hurd was a member of the United States Medical Examining Board for the 6th Congressional District of New Jersey. A wife and daughter survive him.

Dr. JAMES O'RORKE died at his home in West Forty-sixth street, on Sunday, July 30, 1893. The deceased was a graduate of the Jefferson Medical College of Philadelphia, of the class of 1847, a consulting physician to St. Vincent's hospital, a practitioner held in high esteem by his professional brethren and by the community.

Dr. GEORGE W. BENSON of Baltimore, Md., died August 22. Dr. Benson served two terms as health commissioner. During Dr. Benson's term two smallpox epidemics prevailed—in 1872 and again in 1892. Much credit was given the health officer for the excellent judgment displayed and the speedy stamping out of the dreaded scourge.

He was born April 8, 1831, in Princess Anne, Somerset county, Md. When 17 years of age he accepted a position in a drug store in this city. Three years later he was graduated at the Maryland University. He began the practice of medicine, having for many years an office on Hanover street, near Hill. In 1856 he was coroner of the Southern district, serving two terms. He was regarded in the southern section of Baltimore as one of the most eminent physicians of his time. Dr. Benson married Miss Susie E. Dexter, of Chelsea, Mass., in 1852, who died, leaving one son, Morton, in 1874. Fifteen years ago he married Mrs. Susan Waite, who survives him.

Dr. Benson has for the past year been a sufferer from Bright's disease of the kidneys and heart failure. Being a man of iron nerve, he bore up under the affliction and continued his large practice until about one month ago, when he was compelled to remain indoors. A few days later he

was unable to leave his room, and remained in bed until his death occurred.

Dr. GEORGE F. THORNTON died Aug. 15, 1893, at San Francisco. Death resulted from paralysis. Dr. Thornton was a native of Green county, Alabama. He received his education at the Alabama State University and the New Orleans Medical College. During the late war he served as surgeon in the Confederate army, and in 1869 came to California. Dr. Thornton was in 1871 one of the leading spirits in the Newark Land and Transportation Company, and was for a number of years manager of large land interests in Kern county. He leaves a widow, three sons and a daughter.

Dr. C. C. RADMORE, aged 65, died at Lincoln, Neb., Aug. 19. Dr. Radmore was a native of Pennsylvania and was a soldier in the Mexican war as well as the late civil war. He practiced in Winona, Ill. During the war he was connected with the 4th and 107th Illinois regiments and was successively brigade and corps surgeon. He came to Lincoln in 1868, where he has since resided.

Dr. ISAAC PARKER of Morgan county, died at Chester Hill, O., aged 78 years. He resided at Chester Hill for 50 years, was the pioneer physician of that county, and was well and favorably known all over the county. His death was the result of age.

Dr. A. S. LUSE, a California pioneer and an old resident of Los Gatos, died at his home in that city, Aug. 14, 1893. The deceased was 74 years of age, born in Mount Pleasant, Westmoreland county, Pa.

Dr. HARRISON S. GARDNER of Cedar Springs, died in Grand Rapids, Mich., August 22d. He was 53 years old and a well known citizen of Cedar Springs, and past master of Cedar Springs Masonic lodge.

Dr. CHAS. L. SEEMAN of New Orleans, died August 15th. He was a graduate of Tulane University, and coroner of New Orleans for the past year.

Dr. J. W. REDDEN died at Topeka, Kan., Aug. 5. Dr. Redden was a native of Delaware, educated at Dickinson College and a graduate of Jefferson Medical College. He was formerly Secretary of the Kansas State Board of Health.

Dr. J. W. BRANHAM, Asst. Surgeon U. S. Marine Hospital Service, died of yellow fever, at Brunswick, Ga., August 20, 1893. Dr. Branham had only recently been appointed.

Dr. S. J. F. MILLER of Augusta, Me., formerly superintendent of the Dayton (Ohio) Insane Asylum and surgeon of the Soldiers' Home at Milwaukee, died Aug. 7.

Dr. H. KNAPP of Lathrop, California, died August 14, 1893. He was 80 years of age.

Dr. LEE M. BENTLEY died near Coffeyville, Ark., August 19th, 1893.

Dr. HORACE B. Sisson, a resident of Ottumwa, Iowa, since 1854, died at his home Wednesday at the age of 72 years.

Dr. GEORGE H. WALLING of Louisville, father of Dr. Willoughby Walling, died at Louisville, Aug. 21.

Dr. J. B. NEWMAN of Great Falls, Montana, August 13, 1893.

Dr. HARRY SEDGWICK of Martin's Ferry, Ohio, August 19.

Dr. THOS. E. COOPER of Allentown, Pa., August 18.

Dr. KUNZ of Monticello, Iowa, August 19.

MISCELLANY.

Dr. Samuel C. Schmucker.—Dr. Samuel C. Schmucker, recently elected professor of chemistry in the Colorado Agricultural College at Fort Collins, comes from the University of Pennsylvania. He received his A. B. from Muhlenburg college in 1883, and his S. B. in 1884. During 1884-85 he was professor in Carthage College, Illinois, and subsequently was professor of chemistry in the boys' high school, Reading, Pennsylvania. Later he held the chair of natural sciences in the Indiana, Pennsylvania, normal school. Dr. Schmucker has pursued post-graduate studies in the University of Pennsylvania for three years, his major subject being chemistry. The subject of his thesis, which is now in press, is "The Electrolytic Separation of the Metals of the Second Group."

Prizes for Life Saving Needed.—An inquest, recently held near London in reference to the death of a lad found drowned in a canal, revealed the fact that the boy was allowed to drown alongside a canal boat, although there were a number of boatmen looking on. There is a reward offered for the recovery of a body, but none for saving life. The reward amounts to five shillings and was sufficient to deter those men from putting forth a hand to save the dying lad. It was testified that it had been observed several times before that canalmen have stood idly by while persons were struggling for life in the water. The coroner explained that there had formerly been a prize offered for the rescue of drowning persons, and that men would push one another into the canal and afterward claim the rescue money. This was more than the vestrymen would stand. The consequence has been that not a few innocent lives have been lost through accidental drowning that might readily have been saved.

Army Hospital Corps—A New Company of Instruction.—It is understood that the Surgeon General of the Army will organize a company of instruction at Washington Barracks, D. C. The two companies at present in existence are stationed at Fort Riley, Oklahoma Territory and Fort D. A. Russell, Wyoming. These stations were originally selected on account of their central position, so as to lessen the expense of transporting trained men from the companies to their posts. The surgeon general, however, regards the location of one of these companies as a mistake. Many men are recruited from the cities of the east who, under present conditions, have to be sent to Fort Russell for their training and afterwards back to the east for duty at some seaboard station. This may be avoided by having one of the companies of instruction in the east, and General Sternberg is understood to prefer Washington Barracks as the company will there be available for service in connection with the Army Medical School. Young medical officers on duty at the latter will have opportunity of becoming acquainted with the methods of drawing food and clothing for the men, keeping their accounts and other matters of company administration. Instead of transferring the company from Fort D. A. Russell to Washington a new company will be organized at the latter place, and the organization of the old company will be permitted to lapse when its members have been drafted off to their permanent posts. The company at Fort Riley will be retained as being in a suitable location for the supply of western posts with trained men. The organization of these companies is said to have had gratifying results, the qualifications of the men who have had the benefit of the special course of training and study being considered much superior to those of men trained at the post hospitals.

Higher Medical Education.—The establishment of the Johns Hopkins Medical School, and the College of Physicians and Surgeons of Richmond marks a new era in medical education south of Mason and Dixon's line. For a number of years the Johns Hopkins has been laying the foundation for the school, and from present indications it will be thoroughly equipped. Four annual courses of lectures will be required, and a high preliminary entrance examination. The College of Physicians and Surgeons will comply with the requirements of the American Medical College Association. Several of the older schools will also commence the requirement of a fourth year course, and the indications are that the day is not far distant when the facilities for acquiring a medical education in this country will be equal if not superior to those of the older institutions in Europe.

Small Caliber Projectiles.—During the past year Dr. LaGarde of the army, has conducted a series of experiments to determine the character of the wounds caused by small caliber projectiles on the human body. The experiments were performed at Frankford Arsenal, Pa., with rifles and bullets prepared by the Ordnance Department specially for the occasion. The calibers used for comparison were .45" and .30". The range of explosive effects was greater with the latter, extending as far as 350 yards, and at such ranges shock was severe, apertures of entrance small, inverted and often blackened, and those of exit larger and everted, the soft parts extensively ruptured and the bones shattered. Beyond this range there was much less disorganization in the track of the smaller than of the larger bullets; but at from 1,500 to 2,000 yards, when the velocity became lessened, the effects again took on the character of those at the shorter ranges. Dr. LaGarde's experiments embraced also a determination of the heat imparted to projectiles by firing and impact; the influence of firing on germs present on the bullet, and the comparative penetration and destructive effects of various hard metal cased projectiles. The last mentioned series of experiments formed the subject of a paper read by him at the meeting of the Association of Military Surgeons of the National Guard of the United States reported in our issue of August 19th. It is expected that a full report of the experiments conducted at the Frankford Arsenal will be published in the forthcoming report of the surgeon general of the army.

Scurvy at a County Lunatic Asylum.—Commissioner Reeve of the New York State Board of Charities, is reported in the daily press as charging grave mismanagement at the St. Johnland asylum, which is the country branch of the Kings county asylum. He alleges that scurvy has appeared more than once among the insane paupers, as the result of an inadequate supply of fresh vegetables. Of the 900 acres belonging to the St. Johnland plant, not less than 200 are eminently suitable for the cultivation of antiscorbutic vegetables; there is an abundance of available labor among the inmates, whose health would be the better if they were intelligently employed in the fields; there is a farmer superintendent, who is without implements. Yet for days together the only vegetable food of an antiscorbutic character has been dried apples. "This is but one of a multitude," says the official, "of acts of a similar tendency that have come under our observation." And he added: "And when the epitaph of St. Johnland is written, let the words 'Flagrant and criminal waste of public money' be inserted at all hazards." The question will most certainly arise in some inquiring minds whether or not the State Commissioners of Charities have done their full duty after coming to the knowledge that scurvy has been superadded to insanity, in the cases of these unfortunate St. Johnland inmates and have not made an official declaration of that knowledge.

Typhus Fever at a Summer Resort.—At the Manhattan Beach Hotel, Coney Island, there has been discovered a case of typhus fever, in the person of one of the hotel employes. The patient was a yard man whose duties brought him in contact with the food supplies of the house, at the time of

their reception from the freight cars. This was the only case known in the vicinity of New York for several weeks, and the health authorities had been felicitating themselves over the complete stamping out of the recent plague. It is not certainly shown that the patient contracted the disease in New York city; in fact, the officials having charge of its investigation incline to the theory the man was exposed to contagion at some place in Pennsylvania. But the name of the place is unknown or unreported. The patient was removed to Bellevue Hospital, and thence to the North Brother Island fever hospital. The case was at first considered one of alcoholism. The roommates and fellow yardmen were ordered to be isolated. The outcome of this unusual occurrence will be interesting.

Minnesota State University.—The board of regents of the State University held a session August 18, at the capitol, and reached a final decision regarding the new library and assembly hall. The revised plans prepared by Architects Bullington & Eldridge of Minneapolis, were submitted and were accepted with some minor changes. The building is not to cost more than \$155,000, including architects' fees and salaries. The selection of the stone for the building and a superintendent have been left to committees.

Dr. H. M. Reynolds has been appointed veterinarian of the schools at a salary of \$500 a year.

The following resolutions, which were adopted, were presented by Mr. Northrup:

Resolved, That the four colleges of the medical department be made independent, their interests being managed by their own faculty, subject to the board of regents; that the office of dean of the department of medicine be abolished, and Perry W. Millard be appointed dean of the college of medicine and surgery; that the executive committee of the medical department be abolished; that the professors of chemistry, anatomy, physiology, histology and embryology in the college of medicine and surgery be made also professors in the department of medicine, and as such instruct all students in the four colleges; that an additional room be furnished in the medical building for the homeopathic college when needed, and that the medical building be so used as to meet the wants of all the colleges impartially; that the matter of rooms and the necessity for four rooms for deans, the proper salary to be paid to Dean Millard, and the desirability of having a registrar to attend to the records of the four colleges respectively, students and their standing, to receive all bills, see that they are approved by the proper dean and duly presented to the executive committee, and attend to any other matters of common interest to the college outside of the work of instruction, be referred to the committee on the medical department to consider and report at their earliest convenience.

The following was handed in by the homeopathic faculty, but no action was taken by the regents:

First—That the department of homeopathic medicine and surgery shall have a full faculty appointed in all branches excepting those of chemistry and histology.

Second—That if this be impracticable, the primary branches—anatomy, physiology, chemistry, pathology, etc., shall constitute a department of the college separate and distinct from the various colleges in the department of medicine.

Third—That the college of homeopathic medicine and surgery shall be independent and its dean responsible directly to the president and board of regents.

Fourth—That the homeopathic department be given more room in the present building.

Indiana Northern Hospital.—A warrant was drawn Aug. 17 by the State Auditor of Indiana in favor of the Northern Hospital for the Insane for \$2,981.23, on account of the extension of the building and other improvements. The principal part of the extension includes the new dining room. The same hospital also received \$6,991.75 for current expenses. The Southern hospital was allowed \$5,596.21.

Agency Physician.—Dr. W. Wyman has been appointed physician to the Indian Agency at Leech Lake, Kansas.

Railroad Hospital.—Logansport.—A hospital is to be erected at Clifton Forge by the Chesapeake & Ohio, where all disabled employes of that road will be sent. The company has appropriated \$25,000 for its erection.

The State of Rhode Island and Providence Plantations is building a hospital for the old soldiers at Bristol, in connection with the Soldiers' Home, to cost \$15,000.

The Journal will be found on sale at W. T. Keener's, 961 Washington Street, Chicago, and at W. H. Lowdermilk & Co's, F Street, Washington, D. C.

College Appointment.—Dr. C. D. Aaron has been elected professor of anatomy by the faculty of the Detroit College of Medicine.

New Hospital.—A new hospital is to be built at Grand Rapids, Mich., under the auspices of the Sisters of Mercy.

Cholera.—A case of cholera was reported at Jersey City Hospital, August 30.

THE PUBLIC SERVICES.

Notice.

An Army Medical Board will be in session at Washington, City, D. C., during October, 1893, for the examination of candidates for appointment to the Medical Corps of the United States Army to fill existing vacancies.

Persons desiring to present themselves for examination by the Board will make application to the Secretary of War, before September 15, 1893, for the necessary invitation, stating the date and place of birth, the place and State of permanent residence, the fact of American citizenship, the name of the medical college from whence they were graduated, and a record of service in hospital, if any, from the authorities thereof. The application should be accompanied by certificates based on personal knowledge, from at least two physicians of repute, as to professional standing, character, and moral habits. The candidate must be between 22 and 28 years of age, and a graduate from a Regular Medical College, as evidence of which, his diploma must be submitted to the Board.

Further information regarding the examinations may be obtained by addressing the Surgeon General U. S. Army, Washington, D. C.

GEO. M. STERNBERG, Surgeon General U. S. Army.

Museum of Hygiene, Medical Department, U. S. Navy.

This institution, which has its home at 1507 New York avenue, Washington, D. C., was founded and officially recognized by Congress in 1883. Since then it has grown under the fostering care of Surgeon General John M. Browne, Medical Director Philip S. Wales, and Surgeons White, Kidder, Owens, Ames and others. Its catalogue, recently issued to indicate the extent and direction of its growth, is an octavo pamphlet of 124 pages, which contains a list of about two thousand specimens illustrating conditions of local hygiene pertaining to soil, air, the construction of dwellings and their aggregation into towns and cities, and of course the construction of ships with their heating, lighting, ventilation, air space and other accommodations or lack of accommodations does not fail to take a prominent place in the collection. Food supplies, clothing, safety appliances in traveling by land or water, protection against fire, etc., disinfection and the care of wounded men also find satisfactory provision for their illustration. The catalogue gives carefully prepared descriptions of so many of the specimens that a perusal of its pages would to many minds be almost equivalent to a personal inspection of the institution. If the existence of the Museum were more generally known there is no doubt that it would become the depository of many specimens at present isolated in the cabinets of medical men and therefore almost valueless for educational purposes. We commend the Museum of Hygiene and give increased publicity to the desire of its director, Medical Director Wales, to extend the sphere of its usefulness.

Retirement of Dr. Bloodgood, U. S. N.

Medical Director Delavan Bloodgood, whose retirement took place August 26, by reason of his having attained the age of 62 years, will reside in Brooklyn permanently hereafter. His long and faithful service has been conspicuous, and this officer is known among his colleagues in the American Medical Association as one of the most genial and accomplished officers among the brilliant corps from time to time delegated to attend the annual meetings. Doctor Bloodgood, although retired from the Navy, has not been retired from the Association, where his many friends will welcome him, they trust, for very many years to come.

Marine Hospital Service.

The following circular has been issued by the acting secretary of the treasury:

United States Quarantine Rules to be Observed in Places Infected with Yellow Fever.

TREASURY DEPARTMENT, OFFICE OF THE SECRETARY.

WASHINGTON, D. C., August 12, 1893.

To medical officers of the Marine Hospital Service, quarantine officers in the United States, and other concerned.

Pursuant to the act of February 15, 1893, entitled "An act granting additional quarantine powers and imposing additional duties upon the Marine Hospital Service," the following regulations have been made thereunder and hereby promulgated according to the terms of the act:

1. All persons affected with yellow fever, or who are believed to have been exposed to the infection, will be so isolated under observation and free from infection and all their effects properly disinfected. Communication with infected persons will not be allowed except for the necessary conveyance of supplies, etc., which must be under the supervision of a fully qualified medical sanitary inspector.

2. The localities contiguous to those infected and infected localities, so far as it may be safely done, should be kept as rapidly and as completely as possible, persons from non infected localities, and who have not been exposed, leaving without detention; those who have been exposed, or who come from infected localities, being required to undergo a period of detention, from date of last exposure, in camps of isolation. The clothing or anything capable of conveying infection shall not be allowed to leave the infected locality without disinfection.

3. Camps of isolation shall be inspected twice daily or oftener, and the inspectors should be conversant with the proper health authorities, such daily inspection shall be provided for each isolation camp.

4. When practicable, camps of detention should be provided for those who require it.

5. Buildings in which cases of yellow fever have occurred, and localities believed to be infected, must be disinfected as thoroughly as possible.

6. As soon as the disease shall have been declared epidemic, the railway trains carrying persons who may be allowed to depart from the railway place infected with yellow fever shall be under medical supervision. A medical sanitary inspector should accompany each train when practicable, and enforce prompt isolation of any person who may be attacked with the disease, and report the same immediately to the proper health authorities. Where no facilities for the proper health authorities, if necessary, the railroad companies should be required to attach an extra car for hospital purposes to each train carrying persons from an infected place, which may be side tracked at some safe and convenient locality on the road.

CHARLES S. HAYLEN, Acting Secretary.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from August 19, 1893, to August 25, 1893.

By direction of the Secretary of War, a board of medical officers, to consist of Col. CHARLES H. ALDEN, Asst. Surgeon General; Lieut. Col. W. H. FORKUM, deputy Surgeon General; Major CHARLES S. WART, Surgeon; Capt. WALTER REED, Asst. Surgeon, and Capt. JAMES C. MERRILL, Asst. Surgeon, is constituted to meet at the Army Medical Museum Building in this city, on the 15th day of September, 1893, for the examination and recommendation for promotion to the Medical Corps of the Army. Par. 1, S. O. 134, A. G. O., Hdqrs. of the Army, Washington, August 24, 1893.

By direction of the Secretary of War, the following named medical officers are detailed to represent the Medical Department of the Army at the Pan American Medical Congress to be held in Washington, D. C., September 25, 1893: Col. R. J. D. LEWIS, Asst. Surgeon General; Lieut. Col. DALLAS RAGLE, deputy Surgeon General; Major JAMES H. H. WARD, Surgeon; and Major CHARLES S. WART, Surgeon. A board of officers to consist of Col. CHARLES H. ALDEN, Asst. Surgeon General; Lieut. Col. W. H. FORKUM, deputy Surgeon General; Major JOSEPH K. CONSON, Surgeon; is by direction of the Secretary of War, appointed to meet at the Army Medical Museum Building, Washington, D. C., Monday, September 1, 1893, for the examination of such officers as may be detailed before it, to determine their fitness for promotion.

Col. CHARLES H. ALDEN, Asst. Surgeon General, on being relieved from duty as medical director Dept. of Dakota, will proceed to this city and assist to the Surgeon General U. S. A. for duty in his office, and as president of the Army Medical school, Washington, D. C.

Capt. J. L. POE, Asst. Surgeon U. S. A., is hereby granted leave of absence for one month, with permission to apply for an extension of ten days.

Lieut. Col. W. H. FORKUM, deputy Surgeon General, is relieved from duty at the Medical Museum Building, New York, and assigned to duty as medical director Dept. of Dakota, to be relieved by Major CHARLES S. WART, Surgeon, deputy Surgeon General U. S. A., Lieut. Col. C. B. BARNES, deputy Surgeon General, on being relieved from duty as medical director Dept. of the Columbia, will report his duties as medical director Dept. of Dakota, to Lieut. Col. R. J. D. LEWIS, Asst. Surgeon General.

Capt. PAUL SHILLICK, Asst. Surgeon (on the field), is granted leave of absence for one month, to take effect about September 1, 1893, with permission to apply for an extension of fifteen days. The commanding officer F. S. A. in the field near Prattland, N. M., is authorized to employ a citizen physician in cases of necessity during absence of Capt. PAUL SHILLICK, Asst. Surgeon.

Capt. W. M. F. CALVERT, Asst. Surgeon, is granted leave of absence for one month, to take effect about the 15th of Asst. Surgeon GILMAN S. PROCTOR.

Major DEWEES M. BROWN, Surgeon, is relieved from duty at Ft. Meade, S. D., and assigned to duty at Ft. Wayne, Mich.

Capt. M. A. WARD, Asst. Surgeon U. S. A., is granted leave of absence for one month, to commence about September 1, 1893.

Capt. R. J. CONSON, Asst. Surgeon U. S. A., is granted leave of absence for one month.

By direction of the Secretary of War, the following named officers will report in person to Col. C. H. ALDEN, Asst. Surgeon General, president of the examining board appointed to meet at the Army Medical Museum Building, September 1, 1893, for examination for promotion: Col. R. J. D. LEWIS, Asst. Surgeon; Lieut. Col. J. L. POE, Asst. Surgeon; Capt. JAMES C. MERRILL, Asst. Surgeon; Capt. WALTER REED, Asst. Surgeon; Capt. JAMES C. MERRILL, Asst. Surgeon.

Navy Changes. Official list of changes in the Medical Corps of the U. S. Navy, for the week ending August 26, 1893.

M. D. Director D. BROADBENT, placed on retired list August 25, 1893, and succeeded by W. W. WATSON, from "Monterey," and to the "Philadelphia."

Medical Director A. A. HOEHLING, president of board to examine applicants for Naval Academy.

P. A. Surgeon G. T. SMITH, from "Baltimore," and to "Wabash," P. A. Surgeon R. M. KENNEY, from "Wabash," and to the "Baltimore," Asst. Surgeon L. H. STONE, from hospital, New York, and to the "Minnesota."

Asst. Surgeon J. E. PAGE, from the "Minnesota," and sick leave for three months.

Marine Hospital Changes. Official list of changes of stations and duties of medical officers of the U. S. Marine Hospital Service, for the eight weeks ended August 5, 1893.

Surgeon C. S. D. FESSENDEN, to proceed to Mobile, Ala., for duty, June 16, 1893. To proceed to New Orleans, La., as inspector, August 1, 1893.

Surgeon F. A. DE MEYER, granted leave of absence for seven days, June 21, 1893.

Surgeon JOHN VANSANT, to proceed to Wilmington, N. C., for duty, June 16, 1893.

Surgeon H. W. ALSTON, to inspect Delaware Breakwater Quarantine Station, July 22, 1893.

Surgeon J. M. GASSAWAY, to proceed to Detroit, Mich., and Chicago, Ill., as inspector, July 12, 1893.

Surgeon F. A. DE MEYER, detailed for duty in office of the U. S. Consul, London, Eng., July 2, 1893.

Surgeon H. R. CARTER, to proceed to Brunswick, Ga., for temporary duty, June 28, 1893.

P. A. Surgeon T. T. PECKHAM, granted leave of absence for six days, June 22, 1893.

P. A. Surgeon S. D. BROOKS, granted leave of absence for three days, June 22, 1893.

P. A. Surgeon W. C. CARRINGTON, detailed for duty in office of U. S. Consul, Bremen, Germany, June 15, 1893.

P. A. Surgeon J. J. KINROSS, to resign station, Washington, D. C., July 10, 1893. To inspect Camp Low, N. J., July 29, 1893.

P. A. Surgeon W. T. GOODWIN, granted leave of absence for three days, June 12, 1893. To proceed to Louisville, Ky., for duty, July 12, 1893.

P. A. Surgeon G. T. VAUGHAN, to proceed to Chicago, Ill., for temporary duty, July 16, 1893.

P. A. Surgeon H. C. O'BRIEN, to proceed to Delaware Breakwater Quarantine, July 20, 1893.

P. A. Surgeon J. C. PERRY, to proceed to Portland, Me., for temporary duty, July 8, 1893.

Asst. Surgeon W. C. STEPHENSON, detailed for duty in office of U. S. Consul, Glasgow, Scotland, July 7, 1893.

Asst. Surgeon C. H. GARDNER, granted leave of absence for fourteen days, July 19, 1893.

Asst. Surgeon E. G. GORRAVEY, to proceed to Vineyard Haven, Mass., for temporary duty, July 8, 1893.

Asst. Surgeon J. H. OAKLEY, to proceed to Wilmington, N. C., for temporary duty, June 24, 1893.

Asst. Surgeon NATHAN NORMAN, granted leave of absence for three days, July 24, 1893.

Asst. Surgeon J. W. BRANHAM, to proceed to Brunswick, Ga., for temporary duty, July 25, 1893.

Asst. Surgeon E. K. SPENCER, granted leave of absence for fifteen days, July 25, 1893.

Asst. Surgeon EMIL PROCHAZKA, relieved from duty at Ellis Island, N. Y., and ordered to report to medical officer in command, New York City, July 29, 1893.

LETTERS RECEIVED.

(A) Adams, S. S., Washington, D. C.; Atchison, W. A., Nashville, Tenn.; Ashmun, G. C., Cleveland, Ohio; Alden, C. H., St. Paul, Minn.; Adams, Frances A., Syracuse, N. Y.; B. Bastin, J. V., Belle Union, Ind.; Bleyer, J. Mont., New York; Bishop, S. S., Chicago; Barry, D. J., Schenectady, N. Y.; Bates & Morse, Adv. Agency, New York, N. Y.; Baldwin, A. H., Washington, D. C.; Breakey, J. R., Alma Center, Wis.; Bessy, J. M., Toledo, Ohio; Brown, L. F., Baltimore, Md.; C. Cone, Andrew, New York, N. Y.; Christopher, W. S., Chicago; Conkling, G., Glen Falls, N. Y.; Cincinnati Hospital, Cincinnati, Ohio; D. Dwyer, M. J., Albany, N. Y.; Duncan, J. H., St. Louis, Mo.; E. Evans, W. A., Chicago; Eastman, Chas. A., Winthrop, Mass.; (F) Ferguson, F., New York, N. Y.; Fernandez, A. M., Philadelphia, Pa.; Forsyth, A. H., Lakeview, Mich.; Fordyce, Miss A., Union Springs, N. Y.; G. Grow, E. P., St. Louis, Mo.; Gillin, C. H., Doon, Iowa; Ground, Wm. E., West Superior, Wis.; Greene, C. S., San Francisco, Cal.; Gurley, Washington, D. C.; (H) Hamell, R. F., Denver, Colo.; Hosmer, A. J., Ashland, Wis.; (J) Jones, T. R., Milwaukee, Wis.; (K) Regan, Paul, French, Tribner & Co., London, Eng.; Kinnaman, A. S., Cleveland, Ohio; Kirkpatrick, A. E., Philadelphia, Pa.; Kelley, W. H., Covington, Ky.; L. Laidley, L. H., St. Louis, Mo.; Lyndon, G. Frank, Chicago; M. Marks, A. A., New York, N. Y.; McKelway, Geo. J., Philadelphia; Murfree, J. E., Murfreesboro, Tenn.; McClary, C. E., Syracuse, N. Y.; Mercer, Alfred, Syracuse, N. Y.; N. Nash, H. W., Norfolk, Va.; New York Post Graduate Medical School, New York, N. Y.; Newman, R. A., Detroit, Mich.; O. Ochsen, A. J., Chicago; O'Gorman, Jas., Baltimore, Md.; P. Parsons, F. S., Northampton, Mass.; P. Pascal, F., Chihuahua, Mexico; (R) Robinson, Fred, Byron, Chicago; Raehford, R. K., Newport, Ky.; Reed, C. L., Cincinnati, Ohio; Rutledge, L. R., Blairsville, Pa.; Ruggles, Gale & Co., Columbus, Ohio; S. Scott, J. W., Springfield, Ill.; Smith, A. Noel, Dover, N. H.; Sundberg, J. C., Baghdad, Turkey; Stewart College, South Bend, Ind.; (T) Talbot, E. S., Chicago; (Y) Young, Staley E., Edgewater, Va.; (W) Whitford, Wm., Chicago; Weaver, J. L., Leavenworth, Kan.; Wyman, Walter, Washington, D. C.

The Journal of the American Medical Association

VOL. XXI.

CHICAGO, SEPTEMBER 9, 1893.

No. 41.

ADDRESSES.

FIRST PAN-AMERICAN MEDICAL CONGRESS.

AN ADDRESS DELIVERED BY THE PRESIDENT OF THE CONGRESS.

WILLIAM PEPPER, M.D., LL.D.

PROVOST AND PROFESSOR OF THE THEORY AND PRACTICE OF MEDICINE
IN THE UNIVERSITY OF PENNSYLVANIA.

In the City of Washington, D. C., September 6, 1893.

Gentlemen of the First Pan-American Medical Congress:—This occasion is an unique one, and the thoughts which force themselves on the minds of all of us are, I am convinced, so similar that the briefest greeting might well seem the most fitting address. But when I reflect that I stand here to represent the original committee appointed in pursuance of the resolution which was adopted unanimously on May 5, 1891, at the meeting of the American Medical Association, and that this resolution extended a cordial invitation to the medical profession of the Western Hemisphere to assemble here in a Congress, I realize the unusual dignity of the duty I must discharge. If anything could add to the dignity of this assemblage, which for the first time asserts formally the organic union of the physicians of all America, it is the fact that the Congress of the United States, impressed with the importance of our proposed meeting, passed a joint resolution (July 18, 1892), requesting the President to extend those invitations in response to which we welcome the presence here of official delegates from all the governments of the Western Hemisphere. In like manner are the several States of our own Union, the principal municipalities, and many of the leading educational institutions, both of North and South America, represented officially. You will not, then, think it strange that, called upon to address such an assemblage in this Columbian year, it should seem less fitting to dwell upon any technical topic than to turn our thoughts to the state of this continent and of its aboriginal inhabitants at the time of its discovery by Columbus, and to the obstacles which opposed him and the great men who completed his work. For these have had a bearing on the racial developments which have since occurred here, and should be held in mind in any estimate of the progress we have made during the subsequent four centuries. The state of medical science in Europe at the time of the discovery, and the spirit which has controlled its subsequent course, are fitly to be studied in connection with what we have accomplished during the same period and with the opportunities which present themselves to us at this time.

GENERAL RECOGNITION OF THE IMPORTANCE OF THE MEETING.

The recognition of the appropriateness and importance of this great meeting has been immediate and

universal. International although it is, the basis of its organization and the special features which mark it, remove all possible suspicion of an imitation of, or of interference with, the great International Congress whose successive meetings form a crescendo scale of scientific and administrative triumphs which the medical profession of the world regard with justifiable pride.

Our executive committee, and our efficient general secretary to whose unselfish energy and masterly powers of organization we owe a great debt of gratitude, studiously avoided the possibility of any such interference, by delaying the selection of a date for our meeting until that of the Congress at Rome was announced, and by then adopting a date which not only permitted but encouraged the presence later at Rome of those who should gather here. I can only add my deep regrets that the unhappy re-appearance of cholera in Southern Europe—striking example as it is of the urgent importance of the very work which calls us together—has necessitated a postponement until next spring; a postponement which, however, there is no reason to fear will lessen the complete success of the meeting on its newly-announced date. The International Medical Congress is, indeed, a splendid demonstration of the solidarity of the profession and of the world-wide scope of the objects we pursue.

This Congress represents much more, however, than our common interest in medical science and the common feeling of brotherhood which animates the entire profession. It is, indeed, it always has been, and forever may it so continue, the glory of the medical profession that their allegiance is one and undivided, for their service is solely in the cause of truth and humanity. Dynasties have risen and crumbled; the map of the world has been changed times almost without number, but the march of medical science through the ages has been ever onward and upward toward those lofty goals—the prevention of disease, the relief of suffering, the improvement of the race.

For us who meet here there is all of this glorious recollection and animating purpose, and there is much more to unite and to inspire us. We meet under the shadow of giant conceptions, as old as Aristotle, which agitated the minds of the great thinkers of antiquity, and were but slowly approaching a definite form when the sublime faith and genius of Columbus solved the problem of the globe.

It is true that this vast American continent, with its sixteen million five hundred thousand square miles of territory, already numbers one hundred and ten millions of inhabitants, embracing all types of human life, and many varieties of political organization. But all that has yet been accomplished is but the feeble beginning of the development which awaits us. When Canning secured the recognition of the republics of South America, he boasted that he had

called the New World into existence to redress the balance of the Old, and yet the luminous suggestions of Franklin, of Bolivar, and of Blaine as to the political and commercial relations of the countries of the western hemisphere are still only prophecies which must long await their fulfillment.

The destinies of nations are slowly evolved, and occurrences which fill the horizon of a generation appear to the broad gaze of history as mere features in the great panorama of the ages.

HISTORICAL REFLECTIONS.

Even a period of four hundred years is but a fraction of the history of Spain, of France, of England. Yet four hundred years ago this entire continent was not only undiscovered and unknown, but its very existence was unsuspected save in the ingenious speculation of philosophers. We recall the familiar but ever interesting lines of Seneca:

*"Venient annis secula seris
Quibus Oceanus vincula rerum
Laxet, et ingens pateat tellus,
Tiphys que novos detegat orbis
Nec sit terris ultima Thule"*—

and do not marvel that their strain of glowing conviction should have led Columbus to write them out twice over in his "Profecias." But all the same, this new world lay shrouded in the obscurity of the great Sea of Darkness, cut off, as we have since learned, from the known inhabited world, by changes wrought in remote geologic eras, and waiting the fullness of time which should lead the inspired genius of Christopher Columbus to seek the east by sailing west. We now know that in his quest of a western passage to Asia he reached the eastern shore of this continent on October 12, 1492, but even to the time of his death, on January 20, 1506, neither did Columbus nor any voyager or writer have any conception of the vastness and real significance of his discovery. All that the geographical knowledge of the day enabled them to grasp was the belief that Columbus had found a new route to the Indies by sailing west. Within a few years, however, the daring sailors of Spain and Portugal, of Italy and of England, pushed their voyages along the coasts. The astonishing discoveries of Americus Vesputius on his celebrated third voyage in 1501-02, when between Lisbon and the Island of South Georgia he traversed an arc of ninety-three degrees, led him to apply for the first time to this continent (it really was South America of which he spoke) the title of New World (*Mundus Novus*). It concerns us not to consider further how, by no intent or design of Vesputius, portions of South America at first, and later the entire continent, came after his death to be named after him. Yet when a few days ago I held in my hands the little quarto published in 1507, in which Professor Martin Waldseemüller, of the College of Saint Dié in Lorraine, first suggests the name America, in utter ignorance that the coast explored by Vesputius was continuous with or even related to the land discovered by Columbus, I could not help smiling sadly at the frantic and fruitless efforts we make to secure immortality by our petty observations, while here Fame, in strange whimsy, threw her laurels for the greatest discovery ever made around the head of one who neither had nor preferred a claim to it.

WHAT GEOLOGY AND PALEONTOLOGY HAVE TAUGHT.

Geology and paleontology have taught us that this

so-called New World is in reality, in a scientific sense, better entitled to the name of the Old World. The oldest known strata have their widest development on its surface, and animals, such as the horse, which are said to have been introduced after 1492, are shown to have had their original habitat here, and to have migrated hence to Europe, so that Cortes and Pizarro only reintroduced them to their former home. It is more important to recall the fact that the entire stretch of North and South America was, at that date, 1492, peopled more or less thickly with the descendants of tribes who had resided here from very remote antiquity. A high authority assures us that the number of these aborigines was probably from twelve to fifteen millions, and in spite of considerable differences in physical appearance, as between the Iroquois of New York and the Aztecs of Mexico or the Incas of Peru, in dialect and habits, it is generally conceded that this vast aboriginal population, of North America and South America alike, with the exception of the Eskimos, belonged to one great race of Red Men.

Eskimos and Red Men alike seem to have migrated to our continent at one time, or more probably in successive waves, in the remote past, either when the northwest corner of America was joined to Siberia by the elevation of the area now known as Bering Sea, or when the lofty submarine ridge which now passes from France to Greenland was elevated so that it would be possible to travel on foot from Europe to America. If the attempt be made to decide at what period of geologic time such immigration occurred, and whether in one great migration, or, as seems most probable, in successive waves, problems of extreme if not insurmountable difficulty present themselves.

The aborigines who were living on this continent at the time of its discovery by Columbus presented, it is true, considerable differences in the stage of development they had reached, as well as in their language and even in their appearance. There are long intervals of social development evident between the squalid sty of the California savage, the log house of the Iroquois, and the great structure of the Zuni, of Tlascala, or of Uxmal. Yet in them all can be demonstrated an underlying principle of adaptation to a certain mode of communal life such as all American aborigines are believed to have practiced. All attempts to distinguish the existence of special races, as of the mound-builders, have broken down in the light of critical study, and the powerful arguments of philology confirm the results of zoological study as to the essential unity of the American red race. The tribes in different parts of this vast territory certainly presented marked differences in physical appearance, and our ethnological collections show that as regards size and weight of frame and shape of skull considerable variety existed among them. But all possessed the cinnamon-colored or copper-colored complexion, the high cheek bones and small, deep-set eyes, the straight black hair, with scanty or absent beard; and the conclusion of the most competent authorities is that no sufficient differences, physical, linguistic, or social, existed to invalidate the evidence in favor of the unity of the race.

Fortunately we are not called on to attempt to read the geological record. For our purpose it is indifferent whether all the relics of the ancient

Americans are of the neolithic type, or whether the apparently plausible claim be ultimately established that paleolithic remains are also found in various places. This at least we know, that the soil and climate had shown themselves favorable to the development of a population already numerous, vigorous, hardy and enduring, and brave and warlike, though often cruel, and evidently advancing in social development, though at very different rates at different localities. Ignorant as we are of their primitive origin, it is doubtful if the most earnest advocates of the monogonist view that all mankind was originally descended from one pair, will urge that our aborigines were descended from a single couple, or even from a few boat-loads of Asiatics accidentally carried to our Pacific coast or that we shall hear again the arguments drawn from the many striking resemblances between the myths, languages, customs, or hand-wrought objects of the aboriginal Americans and of various Oriental nations. The surprise which, I am sure, all of us have experienced at these resemblances must be checked by these two thoughts so well expressed by Fiske and by Lubbock respectively, that one of the most important lessons impressed on us by a long study of comparative mythology is that human minds in different parts of the world, but under the influence of similar circumstances, develop similar ideas and clothe them in similar forms of expression; and again, that different races in similar stages of development often present more features of resemblance to one another than the same race does to itself in different stages of its history.

TREATMENT OF THE ABORIGINES.

An immense amount of sympathy has been expended upon the cruel treatment of the American aborigines by the European invaders. Of course, it was the sad old story, so often repeated, whenever a better armed and more highly civilized power has come into conflict with a primitive, ignorant, and ill-armed people. Over the ghastly picture of Indian slavery one would indeed wish to draw a veil, though its darkest shadows are relieved by the splendor of the character and labors of the illustrious Las Casas, and by the enlightened actions of those great men, Emperor Charles V, Pope Paul III, and Cardinal Ximenes. But it is a romantic extravagance to deplore the destruction of any system of government or society which existed in 1492 in any part of the continent. If the present state of the native Indian population in North and South America is far from satisfactory, and fails to fulfill the promise shown, especially in South America during the first century after the conquest, may this not fairly be attributed to unwise legislation by the ruling nations, to the absence of continued, effective religious instruction, and to the base cupidity which has led us to promote the fatal passion for stimulants, so common among barbarous people? There seems no sufficient evidence to make us lose hope that the remains of the aboriginal Americans may, under more wise and equitable treatment, gradually develop into useful citizens of our republics, and be capable of wholesome assimilation with the body of the population.

It is easy to assert and hard to disprove that the development of the red race on this continent was progressing slowly prior to 1492. As a matter of fact, we do not possess the data, either about their

early history or about the primitive condition and rate of development of any of the more civilized races, to permit us to institute a comparison. Our earliest knowledge of the ancient Egyptians, for instance, reveals them living in a state of civilization already advanced at least a full ethnical period beyond that even of the Aztecs. How many centuries had elapsed while the successive stages of savagery and barbarism were passing in Egypt can never be even surmised. There seems no reason to doubt that, had America not yet been discovered, there would have been going on here for the last four hundred years a slow and irregular approach to a higher social condition. There certainly is no doubt that during and since the conquest many sad mistakes, and not a few atrocious crimes, have been perpetrated in the name of civilization and of liberty. But, on the whole, the student of history is forced to admit the enormous advantages which have resulted from the conquest, by Europeans of the fifteenth and sixteenth centuries, of tribes the most advanced of which were still in a very primitive state of civilization. I have ventured upon this rapid sketch of a familiar subject because it is well that we should be clear in our comprehension of the conditions which existed in America four hundred years ago, when the start was made to introduce the European races and civilizations.

TWO CENTURIES REQUIRED TO DEMONSTRATE THE MAGNITUDE OF THE DISCOVERY OF AMERICA.

We meet here to-day to represent what these have accomplished in their new environment during these four centuries in regard to certain highly important subjects. We cannot fail to be interested in considering what scientific acquisitions in these branches were actually brought here, what disadvantages were to be contended with, how far our progress may be regarded as satisfactory, what great questions there are which concern us all deeply, and in what lines of research and work we may unite for the common good, and for the greater advancement of science.

The words graven on the tomb of Ferdinand Columbus in the cathedral at Seville: "To Castille and Leon, Columbus gave a New World," are indeed true, but they do not express the whole truth. John Fiske well says: "The discovery of America may be regarded in one sense as an unique event, but it must likewise be regarded as a long and multifarious process. The unique event was the crossing of the Sea of Darkness in 1492, and no ingenuity of argument can take from Columbus and from Spain the glory of an achievement which has, and can have, no parallel in the whole career of mankind. It established a true and permanent contact between the eastern and western halves of our planet, and brought together the two streams of human life that had flowed in separate channels ever since the glacial period." But to demonstrate the magnitude of this discovery, to determine the physical features of this Western Hemisphere, to plant firmly the seeds of European civilization, demanded the heroic exertions of two full centuries. Not Spain alone, but Portugal, Italy, France, England, Holland, Denmark, Russia, played their part, and the names of Cabral and Pinzon and Magellan, of Cortes, Balboa, and Pizarro, of Ponce de Leon and De Soto, of Champlain and LaSalle, of

Drake, Hudson, Baffin, Davis and Bering, must remain associated forever with this stupendous and progressive work of discovery. Not until 1806 was the last step taken by Lewis and Clark, who then succeeded in crossing the continent of North America from east to west, and thus completed the task undertaken by Champlain in 1608. And if the mere study of the outlines and dimensions of America occupied two centuries, what are we to say of the far greater obstacles opposed to the colonization of the vast territory, and to the determination and establishment of suitable forms of government, and of harmonious relations between the numerous States and countries into which America soon came to be divided?

The older political systems of Europe seem to require still the assistance of considerable artificial support, and their occasional disturbances are of a decidedly unpleasant character. Is it strange that some of us still have our little unpleasantnesses at home or with our neighbors, which indicate that the education of our people is as yet woefully imperfect in those things that most nearly concern their welfare? Of this, at least, we may be sure, that all that promotes free intercourse among us helps on mightily the solution of these hard problems. It is a true saying that to know is to excuse, and, more than this, in regard to nations if not strictly in regard to individuals, it may be added that to know is to love. We turn with quickened interest to the sage advice of the illustrious Franklin, who, in 1749, embodied in his plan for the organization of the University of Pennsylvania an earnest advocacy of the thorough teaching of the Spanish and Portuguese tongues as likely to hasten the development of those close reciprocal relations which he foresaw would inevitably arise between the countries of the two Americas. The spirit of the age as it embodies itself in our educational systems and in our literature, the giant forces of steam and electricity, as they link together the most distant points of our territory, are working inevitably together for the enlightenment, the elevation, the better mutual understanding, and the more cordial relations of all of us.

The year whose four hundredth anniversary we now celebrate found the world stirred as never before. A work of tremendous importance for the future of the human race had been going on amid the gloom of what are often called the Dark Ages. The more closely this period of absorbing interest is studied the more do we appreciate the magnitude and the necessity of the changes effected during those centuries in preparation for the splendid activities of the Renaissance. The mission of the Middle Ages had been really, though not obviously, a cosmopolitan one, and it was fitting that the noblest achievement of the Renaissance should be the discovery of America. The barriers between nations had been lowered, and there had been going on the process of blending and interpenetration which was soon to be extended to this Western Hemisphere with such large results. The protest against mere dogma in religion and in philosophy; the revolt against usurped and abused absolutism; the demand for light and knowledge and the common rights of humanity, these awakened then to be stifled no more, but to swell forever in larger utterance until they shall, in some yet distant golden time, announce universal liberty under equitable laws and universal

peace through arbitration. It is not for us to taunt the glowing expectations of the men of 1492 with their long-postponed fulfillment. It ill becomes us of to-day to speak in other than tones of humility when across the brightest spots of the vaunted civilization of the close of the nineteenth century after Christ there still fall so many dark shadows lingering from the deep medieval night.

How each generation turns aside with the restless impatience of children from the lessons of the past, and shuts its eyes to the truth which inexorable history calmly shows, that long periods of time are required for the accomplishment of each great advance in religious, or political, or social, or scientific truth.

Yet though we smile somewhat sadly as we read the bursts of enthusiasm so plentiful at that time, we dare not challenge the fitness of that grand name, the Renaissance, to the age which, through its mighty discoveries and the master minds who used them, diffused among the nations the new conceptions of the earth and the skies, of the church and the state. Only the pity of it that such long centuries of travail must ensue between this implanting of the seed of religious and political liberty and the mature growth for which we still wait.

THE DISCOVERY OF AMERICA, THE DIVIDING LINE BETWEEN
THE MIDDLE AGES AND THE MODERN ERA.

In no respect may the discovery of America be regarded as the dividing line between the Middle Ages and the Modern Era more truly than in regard to medical science. In spite of the prodigious learning of the most distinguished Arabian and Jewish physicians, such as Avicenna, the Prince of Physicians, of Albucasis, of Avenzoar, the Wise and Illustrious, of Maimonides, their medical science was too largely speculative and philosophic. Great universities were established, some of which, as those of Bagdad and of Cordova, possessed regal revenues and magnificent libraries. Numerous hospitals were founded, of which the large and wealthy one established at Cairo in 1283 merits special mention. But the outcome of this long dominion of the Arabs and the Moors, so far as concerns medical science, was merely a marked advance in chemistry and pharmacy, the introduction of many new remedies, and the advocacy of the union of the natural sciences with medicine. Their chemistry was tinctured strongly with alchemy, their clinical teaching was elementary, their diagnosis and treatment lacked the true Hippocratic force and directness.

The endless speculations and metaphysical discussions of the schools had shown that it was not that way true progress lay. Unaided observation had scarcely gone further in eighteen hundred years than the point to which the immortal Hippocrates had carried it. True medical science, which could not progress without precise methods and instruments of precision, was forced to wait until from very different quarters came the development of the natural sciences and the era of exact experimentations which alone rendered them possible. Harvey's immortal discovery of the circulation of the blood was not announced until 1616, and his almost equally important and epoch-making discovery of the origin of the higher animals from the egg was published in 1651; yet it may be safely asserted that the work of this modest and truly scientific Englishman did more to advance medicine than all the labors of all

the schools from the days of Hippocrates. Not only were the facts demonstrated of infinite importance, but his method of patient, exact observation and experimentation until the truth was developed by cautious induction marks the introduction of a new era, and stamps Harvey as the father of modern medicine.

Galileo first indicated the use of the thermometer in medicine about 1595. Sagredo, of Venice, improved it in 1613, and Sanctorius, in 1625, urged its importance in the study of disease forcibly, but as yet ineffectually. Just as the astronomer, Galileo, gave us the first rude thermometer, Kepler, another illustrious astronomer, gave, in 1604, the first record of an accurate count of the human pulse. But so slowly did the importance of this datum in the study of disease impress the medical profession that the acute Sydenham, who lived until 1689, nowhere mentions a single pulse count. It is hard to find anything which illustrates better the radical difference between the spirit of medieval and of modern medicine than the vast mass of obsolete literature upon the pulse, loaded with fanciful speculation and super-refined subtleties of description, and yet wholly deficient in the only features which would give practical value to the study. What progress in exact medicine could be made without chemistry? Yet scarce any development in this branch occurred between the eighth and seventeenth centuries. And it was Boyle, the father of modern chemistry (not born until 1627—died 1691), who first succeeded in freeing from the trammels of alchemy this noble science. Not until the end of the seventeenth century did the value of quantitative analysis begin to be appreciated. Lastly, it was not until 1590 that we hear of the first compound microscope in the hands of Jansen.

Meanwhile the gross superstitions, combined with a blind dependence on the great authorities of antiquity, and especially on Aristotle and Galen, which had so long dominated medical science, yielded slowly to the growing light of positive knowledge. Fine-spun subtleties, drawn from metaphysical speculation; the fantastic notions of alchemy and astrology; the rank growth of impostures which flourished in the soil of ignorance, and the bigotry which placed every organ under the charge of a special saint and conjoined with every remedy a special form of supplication, still marked medical teaching and medical practice. But the bold, fearless, investigating spirit of the sixteenth century did its work for medicine as it did for other great matters. Vesalius (1514-1564) and his contemporaries created accurate anatomy. Paré (1500-1590) stamped imperishably on surgery the influence of his genius and lofty character. Paracelsus (1493-1541) hurled the shafts of ridicule and invective against the groveling subserviency to ancient authority, and did a rough but important stroke of work toward the emancipation of the medical mind. The grand old Hippocratic method of careful observation and cautious reasoning was reasserted, the unproductive philosophy of Galen and his Arabian worshipers was discarded, and at last there began to emerge from the darkness of so many centuries modern medicine, the medicine of loyalty to Nature and revolt against mere human authority; of reverent skepticism and reasonable faith; the medicine of scientific experimentation and of humane vivisection, that insisted upon knowing

the causes of disease and that looked to hygiene as its noblest expression.

The history of European medicine for more than three hundred years is a record of which we may well be proud, when the enormous obstacles to progress are held in view. It is not necessary to remind this audience of a single one of its great triumphs. Vesalius and Paré, Harvey and Sydenham, connect themselves with Richat and Lænnec, and Hunter and Jenner, and Pasteur and Lister, and Virchow and Koch, and the torch of genius is passed down the line of these immortals and lights up the ages with the splendor of their achievements. But it is sad to reflect upon what has been done as contrasted with what might have been. The dense ignorance of rulers and masses on scientific questions, the slow progress of sound, useful education among the people, the huge claims of imperialism and of militarism, the wanton waste of luxury, have retarded research, have left but paltry sums available for the diffusion of knowledge, have hindered the embodiment in legislation and in actuality of much that would help the healing of the nations. It is an odd commentary on the vaunted civilization of to-day to contrast the sums doled out by the most enlightened governments of Europe for the promotion of higher education and original research, or for the suppression of preventable diseases, with those lavished on the vast hosts of armed men and the huge fleets of unwieldy armored ships deemed necessary for the maintenance of peace and order.

THE DOCTRINES OF DARWIN.

Within our own day we have seen the announcement of the grandest generalization reached by the human mind, in this century at least, and advanced in the most philosophic and inoffensive manner, received with a burst of intellectual skepticism and of religious intolerance, which showed that the old forces against which the Renaissance protested, and still protests, are yet alive, though happily shorn of most of their power. The marvelously rapid spread of the illuminating doctrines of Darwin, and their incorporation in the thought and speech of the world, and in the teachings of the churches, may indeed be pointed to as the crowning intellectual achievement of the nineteenth century.

PROGRESS OF MEDICAL EDUCATION IN AMERICA.

If the actual progress of medical science was slow in Europe during the years which followed that *annus mirabilis*, 1492, surely no word of reproach may be uttered against the early settlers in North and South America, because, amidst their heroic efforts to conquer this vast continent, it was long before they found time or energy to devote to the cultivation of that practical and essential subject of medical science. It is true that in 1551 Charles V founded the University of Lima, in Peru, and in 1553 the University of Mexico. Yet it does not appear that medicine was taught at these universities until a little prior to 1700.

In North America, although Harvard College was founded in 1636, the title of university was first applied to the University of Pennsylvania, which in 1765 established the first school of medicine in the United States. The scattered handfuls of early settlers on our shores had, indeed, problems facing them more urgent than the promotion of science,

They differed as widely in their motives for undertaking the appalling task of conquering and colonizing America, and in their fitness for the work, as they did in their nationalities. Separated widely from the mother countries, hampered very often by unwise and vexatious interference from the home governments, they waged war against the powerful tribes of aborigines who swarmed over the country, and against the no less serious obstacles of untried climatic and political conditions. Bloody warfare raged promiscuously and disease was rife. We have seen that the work of mere preliminary exploration occupied two centuries. The close of the third century found the early struggles approaching a successful ending, only to be followed by violent political changes, not accomplished save by long and costly wars. The English conquest of Canada in 1759-60, the achievement of independence by the United States in 1783, the establishment of the independence of the South American republics in 1810 and the ensuing twenty years—these are the events from which the future historian will date the Renaissance or the Decadence in America, and to which reference will always be made in estimating our capacity for progress in politics, in literature, in art and in science.

For a long time it seemed even to friendly critics that the new races which strove for a foothold on American soil were unlikely to thrive as vigorously as in their accustomed habitats, and the impossibility of developing a genuine and lasting American type was freely asserted. To those of us who have considered this point with anxious care the last two decades have brought results that put to rest all apprehension. Whatever may be the future changes in the political organization or relations of the countries composing America, it is a demonstrated fact that the European race in America, which already numbers over one hundred millions, will show no decline in vigor or in energy, in physical or in mental strength. It is not on account of mere bigness in material achievement that we point to the millions who fought in the great civil war; or to the one hundred and seventy thousand miles of railroad in the United States—almost as much as in all the world besides—and the \$10,000,000,000 of capital invested, and the army of nine hundred thousand employees; or to that tremendous structure, the Canadian Pacific railroad; or to the plans now under consideration for developing a continuous railway system for the entire continent, from Montreal or Puget's sound to Buenos Ayres. It is, even more, as evidences of large imagination, of courageous resolution and dauntless tenacity of purpose, and of enormous power of physical endurance that we value the enterprises which have subjugated this continent so swiftly and are hastening its commercial consolidation. We may be assured that countries which have shown such sturdy love of independence and resistance to outside interference, which have displayed so much sagacity in adapting their political constitutions to their peculiar conditions, which liberate and enfranchise all who dwell within their limits and afford to all an equal chance of advancement, will work out their destinies to far larger and wiser plans of friendly cooperation than we can now foresee.

Turgot, in his memorable address in the Sorbonne, well declared: "Tous les âges sont enchaînés par une

suite de causes et d'effets qui lient l'état du monde à tous ceux que l'ont précédé." The discovery of America depended on the operation of causes which can be traced back many centuries. The present condition of our continent, four hundred years later, is the result of the action and reaction of mighty movements which involve every country of the world. Here is the new and probably the last great place of gathering and intermixture of all nations. Here, as nowhere else are to be studied with all the aids of exact science the problems of ethnology and sociology. Here are to be worked out to the best advantage the problems concerning the relations of man to his physical environment; and the demonstration that in spite of the apparent magnitude of the powers of nature, and in spite of the admitted influence of climate and physical condition upon the progress of civilization, the powers of man for intellectual and social advancement are incalculably superior.

In all of this work a large share must devolve upon medical men, and fortunately our position in America is one which will enable us to work together with good effect. The high average intelligence of our people will make them prompt to appreciate results of solid utility or scientific value. The enormous wealth, present and prospective, of this continent should readily be diverted more and more bountifully to the promotion of learning and research—if, as may be trusted, we shall strive more and more after peace among ourselves and abroad.

We shall never cease to be proud of our lineage, or to acknowledge the immense debt we owe to Europe. Its languages are ours; its glorious past is part of our heritage; its mighty names in art and philosophy and science are household words with us; its rapidly advancing civilization incites us to loftier efforts. But the balance between the Old and the New Worlds is being redressed.

All know how the examples of our young and vigorous communities have supplied and fed the infectious principles of political liberty and of social equality. In every struggle for the rights of man, from the terrible but beneficent drama of the French revolution down to the present hour, our example and our assistance have been invoked.

—SERVICES RENDERED BY AMERICA TO MEDICAL SCIENCE.

I cannot detain you by an enumeration of the services already rendered by America to medical science. Almost immediately after the discovery, important contributions to pharmacology were announced, chiefly from South America, and from the introduction of guaiacum in 1508, until now, these contributions have become more and more frequent. The entire medical world was agitated during the latter half of the seventeenth century by the struggle over the merits of cinchona bark, introduced into Europe in 1640, by Juan del Vego, and no more convincing tribute can be adduced as to the value of medical and sanitary science than the prominent place occupied by malarial diseases in the general and medical literature of the seventeenth and eighteenth centuries as contrasted with the feeling of impunity with which they are now regarded. Among the results which may be anticipated from this meeting is, I trust, the adoption of some well-considered plan for systematic conjoint study of our American remedies and their pharmaceutical preparations, looking to their scientific classification, to

greater uniformity in their preparation, and ultimately to a single pharmacopœia for the entire continent.

The introduction of nitrous oxide (1844) and of ether (1846) into medical practice, with which the names of Wells and of Morton are so honorably connected; the establishment of the operation of ovariectomy by McDowell of Kentucky, upon a secure scientific basis—these and hundreds of other achievements of lesser brilliance are too familiar to need mention. Every one knows now how superfluous it is to say a word in defense of American literature, and certainly we who know how powerfully the opinions and practice of medical men in Europe and throughout the world are influenced by American writings may view our position with some complacency. Yet a survey of what America is actually contributing to medical literature shows clearly how far we are behind the nations which lead in medical thought. In the year 1879 Rupprecht's *Bibliotheca* gave as the total number of new medical books, excluding pamphlets, periodicals and transactions, 419, divided as follows, viz.: France, 187; Germany, 110; England, 43; Italy, 32; United States, 21; all others, 26; and for 1891 I find the same *Bibliotheca* gives the total number as 1,063, divided as follows, viz.: Germany, 360; France, 243; Great Britain, 141; United States, 80; Italy, 78; Austro-Hungary, 70; Spain, 24; and other countries (chiefly Switzerland and Denmark), 67.

On the other hand, in the more ephemeral forms of medical literature the figures are very different. I have had a careful count made of the volumes of medical journals and transactions filed in the library of the Army Medical Museum at Washington with their respective places of publication, and from this it is clear that of these classes of medical literature there were in 1890 and in 1891 published in America (including Canada, the United States and Latin America) about twice as many volumes as in Germany or France, and fully three times as many as in Great Britain.

Of course we must not forget the fact that in the hurry of our life of to-day many observations and investigations of great value are published in journals, instead of being reserved to become part of more serious and complete volumes. But it will not be doubted, I think, that the great excess of medical journals in America, as contrasted with the comparatively small number of new medical works, is entirely consistent with the admitted leadership of Germany, France, and Great Britain in medical science. The fact that during the past twelve years Germany has risen from a place in this list second to France, 110 as against 187 in 1879, to the first place at present, with 360 new medical works in 1891 as against 243 published in France, speaks eloquently of the strenuous effort with which newly-united Germany is straining forward in science as in other fields. The truth is that the apparently extraordinary number of medical journals in America is due chiefly to a substantial reason, and one which influences equally the existence of very numerous medical schools and medical societies. The vast extent of territory, and the relatively sparse population render it impossible to serve the country with as low an average of medical men, schools, societies, or journals as is possible in more densely-populated countries. As to other and less satisfactory reasons which have operated, especially in the United States,

to produce a great growth of ill-equipped medical schools and of poorly-supported new journals it is not necessary to speak here. Indeed, the rapid rise in the standard of scientific requirements, both of medical men and medical literature, and the increasing appreciation on all sides of the fact that the higher medical education is the true interest, both of the profession and of the public, is accomplishing the much-needed work of checking the ill-considered establishment of new medical enterprises, and of stimulating those in existence to more earnest life and more lofty aims.

So true is this in regard to our medical journals, that no one who has occasion to consult regularly the files of any number of them, can fail to be struck forcibly with the steady and decided improvement in the tone of their management and in the scientific quality of their contents.

This Congress meets at a period of peculiar and critical interest in medical education, and I am glad to say that for the first time in the medical history of the United States we may feel proud to have such a meeting convened here, and to invite a close examination of our educational standards and facilities. I should fail in courtesy and in candor alike, were I not to acknowledge the great value of the example which has been so consistently set by Latin America and by Canada in the maintenance of a high standard of qualifications for medical practitioners.

Fifteen years ago the medical profession of the United States arraigned severely the management of their over-numerous medical schools. While Canada then exacted a reasonably strict entrance examination and a course of medical study extending over four years, with one session of six months in each year, and while every country in Latin America exacted a collegiate degree or a rigid entrance examination, and a course of medical study extending over six years, it was the general custom with the medical schools of the United States to grant a diploma conveying the full right to practice medicine to applicants who had been admitted without preliminary examination, and had attended without term examinations two courses of lectures covering about five months, and had passed a single and final examination conducted by their own teachers, whose emoluments were derived solely from the fees of such students. This discreditable prostitution of a great educational trust had been gradually brought about by large causes upon which I may not now comment. But it is with justifiable pride that we may point to the admirable and sweeping reforms that have since been instituted. It remains true that the laws of many of the States allow charters for medical schools to be secured without any guarantee of the standard of education that shall be maintained. But the awakened sentiment of the profession and of the community has, in a rapidly increasing number of the States, insisted that medical graduates before being admitted to practice shall pass a State examination conducted by an impartial board of examiners appointed by the governor. The medical schools, to their honor be it proclaimed, have, with few exceptions, been foremost in the struggle to secure this wise and beneficent legislation. They have done much more. In advance of these laws which will ensure a far higher standard of medical qualifica-

— Regular schools, 65; Homeopathic, 11; Eclectic, 4; total, 80, in 1877.

tions in the States fortunate enough to be so protected, the faculties of a number of the leading schools have forced their standard up at first to three years of obligatory study, and now to four years of eight months' study each, with a carefully graded curriculum and with strict examinations before entrance, at the close of each term, and finally before graduation.

When we recall that this has been done without the slightest governmental aid; and further that, owing to the prevalent view that medical schools have been sources of large profit to their faculties, the streams of private benefaction had not yet been directed in their favor, you will appreciate the high sense of duty and the devotion to science which have led these faculties to assume greatly increased labors with an expectation of considerably diminished remuneration owing to reduced attendance of students and to augmented expenditures.

The committee of arrangements of this Congress has wisely provided for a tour of inspection of some of these institutions. It is trusted that all of our foreign delegates, and as many as possible of the members of this Congress, will avail themselves of this opportunity to examine the equipment of some of our leading medical schools. They will be gratified to find in hospitals, in laboratories, and in libraries and museums alike, facilities which bear comparison with those of Europe. They will find an arrangement of studies and, above all, an organization for the conduct of daily, thorough bedside instruction in all branches of medicine, which leave little to be desired. It is easy to foresee, as another of the desirable results of such meetings as this held successively in various parts of America, such increased acquaintance with and confidence in our respective methods of medical education and medical treatment as will retain on our continent many of our students and many of our invalids who have been in the habit of going farther to fare no better.

A broad field opens before us for the study, with the aid of collective investigation, of the distribution and course of phthisis and rheumatism and other important diseases as influenced by race and locality. The endemic fevers, other than malarial and typhoid and yellow fevers, which are said to prevail in various parts of North and South America, have long demanded systematic investigation to complete the study which the illustrious Drake began. We shall now have the opportunity of studying, equally by means of collective investigation, the relative effects of various climates on the numerous races now represented in America, and of determining more accurately the scientific and practical questions connected with our extensive series of health resorts, which embrace the finest examples of every type. There are, indeed, none of the Sections provided for in this Congress from whose work more valuable results should follow than from those on medical pedagogies, on hygiene and climatology, and on quarantine. It was a sense of the urgent importance of these latter subjects, especially at the present time, and of the valuable results sure to follow their consideration by such a body as this, which led the government of the United States to extend the cordial invitation which has been uniformly accepted on the part of the Pan-American governments. I feel that by this action there has been secured for the subject of hygiene and State preventive medicine a formal recognition never before accorded on

this continent, and one which must surely be followed by the willingness of the respective governments to use their influence to secure the enactment and efficient administration of proper legislation in accordance with the recommendations of this body of eminent experts.

PROFESSIONAL ORGANIZATION NECESSARY.

When the International Medical Congress met in Philadelphia in 1876, the address on hygiene and preventive medicine, delivered by the distinguished Bowditch, himself a pioneer in sanitary science, was one of the most impressive utterances on that important occasion. The review there given of the work of the previous century in this country in sanitary science was not flattering, but with the fine enthusiasm which marked that gifted man he predicted the immediate opening of the grandest epoch yet seen in the history of medicine. His closing appeal must be quoted: "OUR PRESENT DUTY is organization, national, State, municipal and village. From the highest place in the national council down to the smallest village board of health we need organization. With these organizations we can study and often prevent disease." These stirring words were in accord with the spirit of the times and with the developments of science. When the brilliant discoveries of Koch brought to light the specific bacillus of tuberculosis and of cholera, and pointed out the scientific method to be pursued in similar investigations in the future, an unanswerable argument was provided against skepticism or indifference or official penuriousness. It required courage and showed rare breadth of view in Lord Palmerston to issue his celebrated reply to the presbytery of Edinburgh on the occasion of the threatened outbreak of cholera in 1853, in which he urged that the weal or woe of mankind so far depends upon the observance or neglect of the natural laws by which the affairs of the world are regulated, that if the local causes of disease were not removed before the return of the hot weather, the pestilence would be sure to return in spite of all the prayers and fastings of a united but inactive nation.

Much was accomplished, it is true, in preventive medicine between 1853 and 1876, when Bowditch spoke, but it is scarcely an exaggeration to say that the progress in the past twenty years has been greater than in the preceding twenty centuries. We have not, indeed, yet detected the specific poison of every infectious disease; even in regard to the familiar and much studied yellow fever, the latest publication of our distinguished Surgeon General, U. S. A., shows that this point is still unsettled. But the position of the whole matter is changed radically. Hypotheses have given way to facts. Every one now knows, or ought to know, that the most dreadful diseases are inseparably connected with definite organisms; that these organisms have special laws of development and distribution; that to destroy or exclude them is to avoid the disease, and that to tolerate conditions which favor their development is to encourage and invite the attack of the disease. When these simple, demonstrable propositions are considered in connection with such scourges as cholera and yellow fever, and typhus and typhoid fever, and scarlatina and diphtheria, and epidemic meningitis, it needs no further argument to prove the value and the necessity of quarantine, and of efficient medical inspection.

tion and protection. Nor does it need further argument to show the wisdom of establishing laboratories of hygiene at many points over the country, of equipping them amply with the ablest men and the finest apparatus, and of endowing them liberally, so that the search after the yet unknown causes of disease, and after the best methods to prevent the development of such causes as are known, may be prosecuted with ceaseless vigor.

It is easy now to get a hearing for these views, when public comfort is disturbed, the public purse threatened, and the public conscience awake and sensitive. At this moment our great commercial communities are reposing in confidence upon the sanitary measures adopted by our governments, in accordance with medical advice, for the restriction and exclusion of two dreaded pestilences, cholera and yellow fever. Recall with me the popular terror of last summer. Recall the hideous loss of life and the disastrous effects on commerce caused by former invasions of these diseases when the communities afflicted were smaller and less wealthy than are ours at present. We do not have to seek back to the Middle Ages for pictures of desolation wrought by infectious disease. Recall that tragic story of the great yellow fever epidemic in Philadelphia just one hundred years ago, as told by Rush. Try to estimate the result if cholera had effected a lodgment in New York city in July, 1892, and having found favoring local and climatic conditions, had, as on former occasions, spread its deadly germs to the north and south and west. The fair White City that was rising by that distant lake, under the magic wands of Art and Industry, would have been stricken with a fatal blow. No computation can well exceed the loss that would have fallen on this country. The entire people gazed with bated breath at the struggle waging in New York harbor, and universal thanksgiving arose when the dread invader was finally repulsed by the vigorous and sustained efforts of the sanitary authorities. That we, in America, are not to-day witnessing the aggravated recurrence of the epidemic, in accordance with unvarying precedent, can be due only to the continuance of these same efforts, reinforced with large authority, and aided by more efficient local sanitation. When this gratifying result is associated with the success which for some years has attended our efforts for the exclusion of yellow fever, no further argument can be needed to urge the adoption of such uniform measures as will for the future afford most sure protection against these diseases. These instances exhibit in the most striking manner the need and the value of the international sanitary agreements this Congress may do much to promote. But there will occur to all of us many other important questions to be solved only by earnest and united work. Nor can this work be accomplished until Bowditch's cry for organization is far more fully answered than it has yet been. Nothing but organization and coöperation, and, yet more, the establishment in the government of every civilized nation of a department of public health, will secure the continuous and forcible attention which the magnitude of this enterprise demands. There should be, and the day cannot be far distant when there shall be, in the cabinet of every government here represented, a secretary of public health, of rank, influence, and prerogative equal to that of any other cabinet officer.

Here, then, is the last and greatest service to be rendered to science and to the nation by our Congress. Our combined influence will be irresistible when used in advocacy of higher education; in carrying out large plans for the scientific study of our national life, as affected by social and climatic influences; in the adoption of remedies and remedial measures of demonstrated merit, and in the insistence upon a fuller recognition of the lofty function of preventive medicine. "Salus Sanitasque Reipublice, suprema lex." Let us acquire here a closer touch with each other, a deeper faith in our profession and its noble destiny, and a stronger determination to labor in brotherly coöperation for the loftiest ideals of service to science and the race.

ADDRESS TO MEMBERS OF THE PAN-AMERICAN MEDICAL CONGRESS.

BY BRIGADIER GENERAL GEORGE M. STERNBERG.

SURGEON GENERAL U. S. ARMY.

EXECUTIVE PRESIDENT OF THE SECTION ON MILITARY MEDICINE AND SURGERY.

Washington, D. C., Sept. 6th, 1893.

Gentlemen:—We are assembled for the purpose of discussing questions relating to military medicine and surgery; to consider what progress has been made in the treatment of camp diseases, and of gunshot wounds as a result of recent discoveries relating to the etiology of infectious diseases and of traumatic infections; to profit by the experience of those who have had experience in the care of wounded men upon the field of battle and of the sick of armies engaged in actual warfare; to deliberate as to the best methods of transporting the wounded from the firing line and of rendering them the immediate assistance which may be required to save life; to compare the injuries inflicted by firearms now in use with those which came under our observation when a larger bullet with a much less initial velocity was the missile which caused a majority of the wounds we were called upon to treat.

All of these questions are interesting to us as military surgeons and of vast importance so far as the victims of future wars are concerned. It is true that peace prevails everywhere in the new world; that a most friendly feeling exists among the republics of North and South America; and that the modern way of settling disputes between nations is by arbitration rather than by a resort to arms. But so long as armies exist and deadly weapons are manufactured it will be the duty of the military surgeon to be prepared to render efficient aid to those who fall in battle, and to give the victims of those "camp diseases" which sap the strength of armies the benefit of the most efficacious treatment.

A still more important part of the duty of the medical officer in garrison or in the field consists in the sanitary supervision of the command with which he is serving; for, without doubt, most of the sickness which prevails among soldiers, and especially among new levies of troops, is due to insanitary conditions, and is preventable to a greater or less extent according to circumstances. But the subject of military hygiene does not properly come within the province of this Section, and we simply refer to its importance *en passant*.

We are, however, especially interested in the subject of the transportation of wounded men from the

field of battle. And in future wars we will have to meet new conditions, arising from the use of weapons having an extremely long range and from the nature of the wounds inflicted by bullets of small caliber projected with enormous velocity. Men will be disabled in great numbers within very brief periods of time, and of those struck by these missiles a large portion will require to be promptly removed from the field of action, for a smaller proportion will be killed outright.

Under these circumstances it is evident that our organization for the purpose of rendering first aid to the wounded and transporting them to the field hospitals must be carefully considered, and that the most efficient service will require a corps of assistants especially trained for this duty.

This matter has already received the careful attention of medical officers in the United States army, and we have now an organization designed to perform these duties, with the assistance of "company bearers" who also receive special training with reference to first aid, litter drill, etc. In time of peace our enlisted men of the "hospital corps" perform the duties of nurses, cooks and attendants in post hospitals, and they are regularly drilled in the most approved methods of handling wounded men and removing them from the field of battle.

A manual of drill for the hospital corps has been prepared by a board of medical officers and approved by the secretary of war. It will shortly be published "for the information and government of the army and for the observance of the militia of the United States." A demonstration of the litter and ambulance drills, as directed by this manual, will be made by Major Hoff of the medical department of the army, English speaking secretary of this Section, who was one of the medical officers to whom the duty of preparing the manual was intrusted. After this demonstration I hope we may have a free discussion of the merits of the system, as compared with the older, haphazard way of caring for wounded men which prevailed during our civil war. There are many present whose experience upon the field of battle will enable them to judge of the advantages which are likely to result from system and previous training in handling wounded men; and also as to the practicability of carrying out, upon the firing line, the methods which have been adopted.

The results obtained by our military surgeons during the late war are summarized in the accompanying table, which has been prepared, at my request, by Major Charles Smart, Surgeon U. S. A., from the data on file in the surgeon-general's office. The table also shows the number of amputations and excisions made by medical officers of the army since the war and the percentage of mortality from the same. It will be seen that the mortality rate has been considerably reduced. This is no doubt partly due to improved methods of treatment, and especially to antiseptic surgery, although a considerable proportion of the operations made since the war were made before the general adoption of antiseptic methods, or under circumstances which did not admit of the strict application of these methods.

For the purpose of showing the enormous responsibility of the medical department of an army in time of war the following figures are given, showing the total number of cases treated in the armies of the United States during the late war, as given in

the "Medical and Surgical History of the War of the Rebellion." The figures relate to white troops only, and are for the period from May 1, 1861 to June 30, 1866:

TABLE SHOWING THE NUMBER OF AMPUTATIONS AND EXCISIONS OF THE EXTREMITIES DURING THE WAR OF THE REBELLION AND THE PERIOD 1866-1891, WITH PERCENTAGES OF MORTALITY.

	UPPER EXTREMITY.			
	During the War.		Since the War.	
	Number of Cases.	Percentage of Mortality.	Number of Cases.	Percentage of Mortality.
Amputations:—				
Shoulder	852	28.5	7	14.3
Arm	5,456	23.6	62	19.4
Elbow	36	8.4	1	1
Forearm	1,747	13.9	57	8.8
Wrist	68	10.6	10	1
Fingers, with or without metacarpals	7,842	2.6	830	.1
Total	*16,001	...	967	...
Excisions:—				
Clavicle or scapula, partial	80	2.7	5	1
Shoulder	485	84.8	1	20.0
Humerus	696	28.5	11	1
Elbow	624	23.7	5	20.0
Bones of forearm	986	11.2	7	1
Wrist	96	15.6	1	1
In hand	116	8.6	22	4.5
Total	3,485	...	52	...
	LOWER EXTREMITY.			
	During the War.		Since the War.	
	Number of Cases.	Percentage of Mortality.	Number of Cases.	Percentage of Mortality.
Amputations:—				
Hip	66	82.3	4	75.0
Thigh	6,229	53.8	63	41.3
Knee	189	56.6	7	1
Leg	5,432	32.9	87	20.7
Ankle	161	25.1	21	9.5
Partial of foot	1,548	5.7	182	...
Total	*13,655	...	364	...
Excisions:—				
Hip	66	88.6	6	33.3
Femur	175	69.4	3	33.3
Tibia	57	81.4	1	1
Knee	287	28.2	6	16.7
Bones of leg	33	29.0	3	1
Ankle	97	19.5	6	1
Bones of foot	97	19.5	6	1
Total	815	...	24	...

*In addition to the amputations reported above as performed for gunshot fracture during the war, there were 568 amputations of parts of the lower extremity, with a mortality of 25.5 per cent, and 135 of the upper, with 10 per cent, mortality on account of extensive flesh wounds, in which the fatality was due mainly to shock.

The total number of cases recorded in reports of sick and wounded was 5,825,480, with a total mortality of 166,623. The total number of gunshot wounds was 230,018, with a mortality of 32,907. (The total number killed in battle was 42,724.) The total number of deaths from disease was 157,004, the principal causes of mortality being: typhoid fever 27,056; typho-malarial fever 1,059—31,115; chronic diarrhoea, 27,558; inflammation of lungs, 14,738; consumption, 5,286; small-pox, 4,717; measles, 4,246; acute dysentery, 4,084; chronic dysentery, 3,229; remittent fever, 3,853. No doubt many of the deaths attributed to "remittent fevers" were in fact due to typhoid infection, which in this war, as in many of those which preceded it, proved to be nearly as fatal to the troops engaged as the bullets of the enemy.

No question is more important for the medical officer than that which relates to the prevention of typhoid fever and the various forms of intestinal

flux which in the past have caused such enormous losses to armies engaged in active field operations. No doubt a very large proportion of the sickness from these causes could be prevented by the simple prescription—boil all water used for drinking purposes which does not come from a source that is unquestionably pure.

But the question of the prevention of these camp diseases so destructive to armies, and especially to new levies of troops in warm climates, belongs to the Section on Military Hygiene, and I must restrict myself to topics which come strictly within the province of military medicine and surgery.

I therefore ask your attention for a short time to a subject which has been of great interest to military surgeons in the past but which, in the light of our present knowledge, should be interesting to us rather from an historical than from a therapeutic point of view. I refer to the question of traumatic infections. Hospital gangrene, erysipelas, septicemia and tetanus have no longer the terror for us that they had for our predecessors, for the etiology of these traumatic infectious diseases has been elucidated by researches made during the past fifteen years and, knowing the cause, the proper measures of prevention are apparent and are systematically applied whenever this is practicable.

That the infectious diseases mentioned result from the introduction into wounds of pathogenic bacteria is now definitely settled, and in the case of erysipelas and tetanus we know the specific characters of the parasitic invader which gives rise to these forms of wound infection. But no such demonstration has been made as regards hospital gangrene, probably because bacteriologists have had no opportunities for investigating this disease since the introduction of Koch's admirable methods of research. The writer, while in charge of the surgical wards of a large general hospital at Portsmouth Grove, R. I., in 1862, witnessed a typical epidemic of this disease which served as a lesson never to be forgotten. The two wards devoted to the treatment of surgical cases were filled with wounded men from the Army of the Potomac. A considerable proportion of the cases were simple flesh wounds, progressing favorably to a cure by granulation and cicatrization. Others were of a more serious character and were attended with profuse suppuration. The hospital was favorably located on Narragansett bay; supplies of all kinds were abundant; nurses were in sufficient number and attentive but the medical officer in charge was young and inexperienced. Under his direction the wounds were systematically cleansed and dressed with absorbent lint, etc. Nature seemed to be fully equal to the work of repair, except in those cases where a mistaken conservatism at the field hospital had left compound fractures to her unaided efforts. In such cases profuse suppuration, and septic toxemia sapped the strength of strong men. Possibly it was in such a case that the mischief commenced. Doubtless it was from one or more initial cases that the infection was carried by the sponges of willing but ignorant attendants to a considerable number of wounds which up to this time were progressing rapidly towards cicatrization. The result was a conflagration. Wounds previously healthy became inflamed, painful and angry looking, and within two or three days the cause of this change

was apparent. The area of inflammation overlying the previously healthy tissues rapidly extended and sloughs formed, sometimes as large as a man's hand and extending deeply among the muscles and along the planes of cellular tissue. Fortunately the infectious nature of the malady was quickly recognized and the measures adopted arrested its progress. It is hardly necessary to say that these measures included the removal of those not yet infected from the overcrowded surgical wards, a general cleaning up, whitewashing of walls, etc., and the necessary precautions relating to the conveyance of infection by sponges, etc. The treatment of the gangrenous wounds consisted in deep cauterization by means of nitric acid applied with a swab, the removal of necrosed tissue as soon as practicable, and the application of charcoal poultices. Goldsmith's bromin treatment had not yet been suggested. Under the treatment adopted the local extension of the disease was promptly arrested, and as soon as the sloughs had separated healthy granulations sprang up and in time repaired the mischief which had so quickly occurred.

This brief account of an epidemic of hospital gangrene witnessed by myself is intended to serve as an introduction to some remarks upon the history and etiology of this affection.

It is altogether probable that it was known to Celsus, who has described a condition of wounds not properly treated, which appears to be identical with the affection known to us as hospital gangrene. Etius, who wrote in the fifth century, refers briefly to a similar affection. Some of the ancient authors appear to have described the form of wound infection under consideration by the name of "carbuncle." Rolandus, who wrote in the twelfth century, had a chapter in his third book on wounds, entitled "De Carbunculo supervenienti vulneri." Alphonsus Terrus, who, in 1534, published one of the first treatises upon gunshot wounds, was of the opinion that all wounds of this class were poisoned by the gunpowder. He gives an account of the results of such supposed poisoning which makes it appear probable that he encountered hospital gangrene. He recommended the actual cautery as a cure for this condition, and also as a preventive. Ambrose Paré combated the idea that gunshot wounds were poisoned by gunpowder or burned by the ball, and attributed the unhealthy condition into which such wounds were sometimes observed to fall, to a "corrupted state of the atmosphere." He remarks that, owing to this cause, "Nous en sommes devenus sages par l'expérience de tant de plaies, lesquelles lors que je m'efforçais à les guérir, rendoient une telle et si grande puanteur, indice et témoignage très certain de pourriture et infection, que les assistants ne la pouvoient sentir qu'à contrecœur, et avec bien grande difficulté."

Paré's treatment of hospital gangrene consisted in the application of an ointment containing pulverized alum, verdigris, and sulphate of copper. It does not appear to have been very successful, as he reports that in many of the wounded in the battle of St. Denis the wounds fell into putrefaction and were accompanied by putrid fever and other serious accidents, and nearly all the wounded died, although their wounds may have been slight and they were supplied with everything necessary for their proper sustenance and treatment. According to Paré the

wounds made by swords, pikes and lances became affected with gangrene (les pourritures) as well as those made by firearms.

La Motte, who wrote his "Complete Treatise on Surgery" early in the seventeenth century, gives a very complete account of hospital gangrene. He says: "On prend ce mot" (gangrène), "proprement pour une disposition à la mortification qui est ce qu'on appelle vulgairement *pourriture* à l'Hôtel Dieu de Paris, laquelle survient et accompagne presque toutes les playes qui sont traitées dans cet Hôpital, et la plus grande partie des absces que l'on y ouvre, a cause de l'air corrompu qui y regne et que ces blessés y respirent."

The practice of surgery in a hospital where the opening of an abscess was likely to be followed by rapidly spreading gangrene must have been rather discouraging, and so long as the idea prevailed that this resulted from "a corrupted condition of the air," rather than from direct infection conveyed from wound to wound by instruments, sponges, etc., there was little chance of eradicating the evil.

Ponteau, who wrote in 1783, referring to the prevalence of gangrene in French hospitals, raises the question whether such institutions are not, on the whole, more pernicious than useful to mankind. What would these surgeons of two hundred years ago have thought of our laparotomies for removal of the appendix, etc.; of our operations upon the principal joints; and of the absence of "surgical fever" after serious operations made antiseptically or with aseptic precautions?

Mr. John Bell, in his "Principles of Surgery" published in 1799, says:

"There is no hospital, however airy or well regulated, where this epidemic ulcer is not found at times." (p. 112). "He must indeed be ignorant who disputes this hospital sore being a general disease of the system; he must have observed very little who does not know it to be absolutely an infection." (p. 117). "Is the surgeon to seek for washings and dressings, use ointments and plasters, and expend butts of wine to cure such a disease? No; let him bear this in mind that no dressings have ever been found to stop this ulcer—but, on the other hand, that out of the circle of the hospital the patients are safe; carry them anywhere, and at any expense, even to a stable or a dunghill." (p. 118).

No doubt this was good advice in the absence of any exact knowledge as to methods of disinfection, for even if the infectious material was destroyed in the wounds by the actual cautery, or by applications of fuming nitric acid, there was always danger of re-infection so long as the patient remained in the infected hospital wards.

The total number of cases of gangrene reported during our civil war, as occurring among the wounded of the Union armies, was 2,642. Of these, four cases occurred in 1861; 223 in 1862; 623 in 1863; 1,611 in 1864, and 135 in 1865. 1,361 cases terminated in recovery, and 1,142 were fatal; but in a considerable number of the fatal cases death was due to the original injury or to other complications—septicæmia, hemorrhage, etc.

For details with reference to the principal epidemics of hospital gangrene during the war I must refer to the interesting reports of Acting Assistant Surgeon W. W. Keene, U. S. A.; Surgeon J. H. Brinton, U. S. V.; Surgeon M. Goldsmith, U. S. V.; Assistant Surgeon William Thomson, U. S. A., and others, extracts from which will be found in the third surgical volume of the "Medical and Surgical History of the War."

The facts detailed in these reports correspond with those previously observed in various parts of the world, and show that hospital gangrene is a local disease due usually to the infection of wounds from previous cases.

This brings us to the question as to the origin of the primary cases in an epidemic, a question which is of special interest, not only as regards this disease, but in its bearing upon the etiology of other local infectious processes.

Do epidemics originate *de novo* as a result of an increased pathogenic power on the part of some common putrefactive microorganism, or is there a specific "germ" of hospital gangrene? The former supposition appears to me to be more in consonance with the facts relating to the origin of epidemics, and is sustained by extended experimental researches which show that the pathogenic potency of many bacteria is greatly intensified by cultivation in albuminous fluids and under favorable conditions. This is true of the *pus cocci*, which may thrive upon the surface of the body of healthy persons or upon mucous surfaces as harmless parasites; but which under unfavorable conditions may invade the tissues producing acute abscesses, erysipelatous inflammations or gangrenous sloughs, according to the pathogenic potency of the micrococcus and the degree of vital resisting power on the part of the tissues. The streptococcus pyogenes from a malignant case of erysipelas or from the abdominal cavity of an individual who has succumbed to puerperal peritonitis may give rise, when introduced beneath the skin of a healthy person, to the most violent local inflammation and to general septicæmia. But if cultivated for a length of time in unfavorable artificial media its pathogenic potency may be so reduced that it gives rise to a local abscess only.

The same has been demonstrated, by experiments upon the lower animals, to be true as regards certain bacteria found in putrefying material. Some of these when injected beneath the skin of a mouse, a rabbit, or a guinea pig, give rise to a rapidly fatal septicæmia; others cause an extensive inflammatory oedema in the vicinity of the point of inoculation; still others to a progressive gangrene. By inoculating from animal to animal, the virulence of the pathogenic microorganism inducing these morbid phenomena is increased, so that the smallest fraction of a drop of blood, or of bloody serum from the subcutaneous tissues of an animal recently dead from such an inoculation suffices to kill another animal of the same species within a brief period. But there is another element which influences the result when virulent putrefactive material is introduced beneath the skin of an animal for experimental purposes, or into an open wound by accident, i. e., the vital resisting power of the tissues. The body of a dead animal under favorable conditions of temperature is quickly invaded by putrefactive bacteria. But in the living animal such invasion is successfully resisted in many cases, even when putrefactive bacteria are brought in contact with open wounds. This is especially true as regards carnivorous animals, while the herbivora are especially susceptible to local or general infection when putrefactive material is brought in contact with an open wound. There is also a difference in individual susceptibility in animals of the same race. As a rule, young animals are more susceptible than adults, and susceptibility to infec-

tion is increased by depressing influences, such as insufficient food, excessive exertion, bad air from overcrowding or putrid emanations, etc.

It is under such depressing influences that epidemics of hospital gangrene have commonly had their origin. That the disease may originate independently of pre-existing cases seems to be well established by the history of independent outbreaks in distant parts of the country during the war, in new hospitals and among wounded men brought directly from the field of battle.

Billroth, in his "Surgical Letters from the War-hospitals in Weissenburg and Mannheim" (1870), says:

"While I was at Mannheim but a single case of hospital gangrene occurred. This was in barrack J of the hospital which had been placed under my direction. The medical officer of the day did not recognize the disease and first called my attention to it on the third day. Fortunately no other cases had become infected. I cauterized the wound (a gunshot fracture of the upper arm) with fuming nitric acid and after separation of the slough it was again healthy. In Darmstadt, in the great barrack hospital, two or three cases occurred which were treated the same way and isolated. So far as I am informed this was the end of the trouble."

In discussing the origin of these cases Billroth says:

"Where did the contagion come from for the one case in Mannheim and for the cases in Darmstadt? That I really cannot say, but I suspect that the infectious material was attached to lint which had been made from hospital linen, or had been scraped in a hospital in which hospital gangrene existed. This suspicion may appear very singular to many physicians, but will serve to show how thoroughly I am convinced of the specific origin of hospital gangrene."

To the writer it appears far more probable that these were cases of the *de novo* origin of gangrene as a result of the introduction into a suppurating wound of saprophytic bacteria which, owing to favoring conditions in the wound itself or to slight resisting power on the part of the tissues, had acquired sufficient pathogenic virulence to enable them to invade living tissues. It may be that there is some particular saprophyte, which is widely distributed, to which this result is commonly due; or it may be that there are a number of putrefactive bacteria which under favorable conditions may acquire this power of invading living tissues. The result is probably due, to some extent, to the development of toxic ptomaines in the secretions of the wound by putrefactive bacteria present in these secretions, which, being absorbed, lower the vital resisting power of the tissues. Deep and profusely suppurating wounds, and especially gunshot fractures of the larger bones, in which pockets and sinuses occur from which it is difficult completely to remove accumulations of pus, furnish the conditions most favorable for the development of such pathogenic virulence as may suffice to make a saprophytic bacillus a facultative parasite.

The greater liability to the development of hospital gangrene in wounds complicated by fracture of bones is shown by the accompanying table, which is taken from the "Medical and Surgical History of the War." (Third Surgical Volume, p. 824.)

It is a remarkable fact that while the larger number of cases occurred in wounds attended with fracture, the greatest mortality resulted in simple flesh wounds.

From our point of view the etiology of hospital gangrene does not differ materially from that of

traumatic erysipelas so far as general conditions are concerned, but the two diseases are doubtless due to different microorganisms. That which is the usual cause of erysipelas is now well known to bacteriologists under the name of streptococcus pyogenes, or streptococcus erysipellatus.

SUMMARY OF 2312 CASES OF GANGRENE, INDICATING THE RESULT AND RELATIVE FREQUENCY.

Seat of Injury.	Recovery.	Fatal.	Un- der- treated.	Total.	Percent of Fatality.	Percent of Recovery.
Flesh wounds of head, face, and neck	5	7	12	24	60	22.5
Fractures and penetrating wounds of head, face, and neck	32	16	48	96	37.5	37.5
Flesh wounds of trunk	35	32	75	142	47.9	29.5
Fractures and penetrating wounds of trunk	44	97	141	282	57.1	28.2
Flesh wounds of the upper extremities	47	50	102	199	51.3	30.6
Fractures of the upper extremities	456	245	701	1,399	50.9	30.6
Flesh wounds of the lower extremities	125	127	252	504	50.2	29.8
Fractures of the lower extremities	596	568	1,164	2,328	48.7	30.6
Aggregates	1,261	1,342	139	2,742	45.6	30.6

Whether hospital gangrene is a specific infection in the same sense that erysipelas is, i. e., an infection due to a specific microorganism has not been determined, but it seems probable that such is the case. It does not follow from this, however, that all cases of these traumatic infectious diseases originate by direct or indirect transfer of the infectious agent from previous cases. Erysipelas does not necessarily result from the introduction of streptococcus pyogenes into an open wound. This streptococcus is frequently found in the pus of acute abscesses unattended with any erysipellatous inflammation. But under favorable conditions it may develop virulent properties, which are manifested especially by a tendency to invade the tissues by way of the lymph channels and along cellular planes, producing a dilation of the capillary vessels and more or less serous effusion, leading often to suppurating and sometimes to necrosis of the invaded tissues. The development of first cases of either disease probably depends upon predisposing causes relating to the individual or his environment. A traumatism is more likely to be followed by erysipelas in a man whose vitality is below par on account of intemperance, insufficient food, bad hygienic surroundings, etc., and the same is true as regards hospital gangrene. Under such conditions the comparatively harmless streptococcus pyogenes may overcome the barriers established by nature to resist invasion by saprophytic bacteria, and having acquired the power to multiply as a parasite in tissues enfeebled by the causes mentioned it soon attains a pathogenic virulence which enables it to invade healthy tissues when transferred by accidental inoculation to another individual.

The view here advanced with reference to the *de novo* origin of erysipelas is supported by the fact that solitary cases frequently occur at remote military posts. Thus during the past year twenty-eight cases are reported as having occurred among the enlisted men of the United States army. Of these eighteen occurred at eighteen different posts, while three posts had two cases each and one post had four.

The facts relating to the etiology of pneumonia correspond with those referred to as relating to

that of erysipelas. In this disease, also, the specific cause has been shown to be a micrococcus (*Mic. pneumoniae crouposa*) which is frequently found in the salivary secretions of healthy persons, and which varies greatly as to its pathogenic virulence. Solitary cases of the disease occur at our military posts, as elsewhere, as a result, no doubt, of predisposing and exciting causes which give the specific cause the mastery over the resources provided by nature for resisting the local infection which constitutes the disease in question.

The total number of cases of traumatic erysipelas reported as occurring in the armies of the United States during the war was 1,097, with a mortality of 41 per cent.

The micrococcus which is now recognized as the usual cause of erysipelatosus inflammations is capable of growing either in the presence or absence of oxygen: i. e., it is an aerobic and facultative anaerobic microorganism. We infer that the same is true as regards the microorganism which produces hospital gangrene. But in the case of tetanus, which has been proved by recent researches to be an infectious malady due to a bacillus widely distributed in the superficial layers of the soil, it has been shown that this bacillus is a strict anaerobic. It does not grow in the presence of oxygen and could not thrive in superficial wounds. This probably accounts for the fact that epidemics of tetanus are not common. The cases which occur are for the most part sporadic cases, due in each instance to infection, resulting from the introduction of surface soil or dust containing the tetanus bacillus. Such material in an open wound might be innocuous. But introduced into the depths of a gunshot wound, into a closed amputation wound, or into a punctured wound made by a rusty nail, for example, the tetanus bacilli (spores) present find the conditions favorable for development and this fatal infectious malady results.

Sporadic cases of hospital gangrene probably occur in a similar way, but as there is a free escape of virulent material from the infected wound, the danger of the disease being transmitted to other wounded individuals is infinitely greater.

The total number of cases of tetanus reported in the "Medical and Surgical History of the War" is 505, or a little more than two per thousand of the total number of injuries by weapons of war. More than one-fourth of the cases followed operations upon the extremities; 116 after amputations, and fifteen after excisions. We can scarcely doubt that a majority, at least, of these cases would have been prevented by modern methods of treatment—antiseptic or aseptic.

The same statement applies to the considerable number of cases reported under the heading pyemia. It seems probable that of the 2,818 cases reported under this heading a large proportion were in fact cases of septicemia resulting from wound infection. The very great mortality, and the results of post-mortem examinations made, indicate this; but as it was before the days of bacteriological research there is no direct evidence on record showing the presence of bacteria in the blood and in the metastatic abscesses found in the lungs, the liver, the kidneys, spleen or joints in those cases in which an autopsy was made. Doubtless septic toxemia occurred in numerous cases but, as stated, we infer that a majority of the cases reported under the heading

pyemia were in fact cases of septicemia resulting from infection through the wound, by the pathogenic micrococci which are commonly concerned in this form of "blood poisoning," and especially by *staphylococcus aureus*. The mortality in the class of cases under consideration exceeded 97 per cent. Out of the total number of deaths (2,747) but twenty-one are reported to have resulted from other complications,—viz., hemorrhage seven, gangrene six, tetanus two, erysipelas one, peritonitis one, and typhoid pneumonia four.

One of the questions to be settled by the military surgeon in the next great war, which we earnestly hope will not occur on this continent, is to what extent the large mortality which has heretofore occurred from traumatic infections can be prevented by antiseptic methods of treatment. Certainly there will be no excuse for the occurrence of septicemia after amputations, or for the appearance of erysipelas or hospital gangrene in wounds made by the knife of the surgeon. But how far it may be practicable to prevent such complications in gunshot fractures remains to be seen, and the proper treatment of such injuries is an important point for consideration. If such cases could at once receive skillful surgical treatment, including the removal of splinters, foreign substances carried into the wound by the bullet, and antiseptic dressings, no doubt many would be saved without loss of life or limb. But the changing fortunes of the battlefield often make it impossible for medical officers to give such prompt attention to the wounded. It is generally conceded that on the firing line nothing more should be attempted than the arrest of hemorrhage, and such support to the fractured limb as will enable the wounded man to bear transportation to the field hospital with the least possible suffering. It is here that the fate of the unfortunate victim of war will often be decided, and the responsibility resting upon the military surgeon under such circumstances cannot be overestimated. His decision with reference to operative interference must be prompt, and will often be governed by circumstances other than those laid down in surgical textbooks. How far must the man be transported before he will reach a resting place at a permanent hospital? What are the means of transportation? Is he to be left at the mercy of the enemy as a prisoner of war? Shall his case be passed by because of others more urgently requiring attention? Many a leg must be sacrificed which might be saved under more favorable conditions, and conservative surgery must often yield before the inexorable contingencies of the battlefield.

In future wars the question will be decided as to the propriety of performing laparotomy at the field hospital in penetrating wounds of the abdomen, for the purpose of exploration, and suturing the intestine if it is found to be wounded. This is so important a question that I have attempted to make it the most prominent surgical topic for discussion at the present meeting, and trust that as a result of this discussion we may arrive at definite conclusions as to what our action should be if called upon to treat such cases.

What has been said will suffice to indicate to the young medical officer that much is expected of him; and that in view of recent additions to our knowledge relating to the etiology of the more common camp diseases, and of traumatic infections, and to our resources for preventing and curing such dis-

cases, we have a right to expect a great reduction in the mortality from sickness and wounds in the armies engaged in future wars.

MEDICAL EDUCATION IN THE UNITED STATES.

An Address delivered before the Section on Pedagogy of the Pan American Medical Congress.

BY J. COLLINS WARREN M.D.

Professor of Surgery in Harvard University. President of the Section

GENTLEMEN:—The work of this Section is of a character which does not usually form a prominent part in the proceedings of medical gatherings.

In almost any department of education, pedagogy or the science of teaching is a recognized specialty.

The rapid progress which has been made in medical education in this country within the last few years has brought about such profound changes in methods of instruction, and the strides which medical science is making all over the civilized globe are bringing into view so many new fields of work, that the teachers of to-day have a far more complex and difficult task than was presented to their predecessors. The art of teaching medicine has not been taught, in this country at least; the time has arrived to take up the subject.

In introducing such a subject as this, it seems appropriate to take a brief retrospective glance at the history of medical education in this country.

There lies before me as I write, a quaint little volume entitled, "A Discourse upon the Institutions of Medical Schools in America," published in 1765. It bears the following inscription:

"To Doctor John Warren, Physician in Boston. This Copy is presented by his respectful and affectionate Friend, John Morgan, Philad'a, Feb. 27, 1783." This book may be safely regarded as the first contribution to the subject which we are to discuss to-day and the two dates are memorable; the former indicating the foundation of the medical department of the University of Pennsylvania, and the latter the birth of the medical department of Harvard University.

Dr. Morgan justly remarks that "medicine is a science as important in its object as it is difficult in the acquisition. It is very extensive in its researches and presupposes the knowledge of many other sciences. The cultivation of it requires no small abilities, and demands of those who engage in the arduous pursuit an enlarged and benevolent mind."

It is interesting to note that one whom we might justly look upon as the father of medical education in this country and who "had spent five years in Europe under the most celebrated master in every branch of medicine," should have taken so optimistic a view of the knowledge of medicine at that time as to say: "The industry of many centuries has already been employed to bring Physic to that degree of perfection at which it is now arrived." Fortunately he adds: "It will still require a long time to remove the obscurities which yet veil many parts of it."

Three years after this book was written, Pennsylvania held her first medical commencement and the provost justly remarked: "This may be considered the birthday of medical honors in America."

The men who started this movement had received much encouragement from across the ocean and the

remark of one of their teachers, Dr. John Fothergill of London, is of special interest to those concerned in the work of this congress. Writing to James Pemberton in 1762 he recommends Drs. Shippen and Morgan as men well qualified for the work of teachers, "both of whom," he says, "will not only be useful to the province in their employment but if suitably countenanced by the legislature will be able to erect a school of physic among you that may draw students from various parts of America and the West Indies."

During the colonial period of our history it was the custom for young men who entered upon the study of medicine to become regularly apprenticed to some practitioner for a term of three or four years during which time the preceptor was entitled to the students' services in preparing and dispensing medicine, and serving as an assistant in minor surgical operations. As a return for this, the physician was obliged to give the student detailed and thorough instruction in all the branches of medicine. Many of the leading men frequently had several students in their office, constituting a small class, who were drilled as regularly in their studies as they would be in college. In some instances the term of apprenticeship was extended even to six or seven years.

When the medical school sprang into existence it was at first intended merely to supplement the apprentice system, and as means of communication of one part of the country with another were exceedingly limited it was found desirable to concentrate school work into as small a part of the year as possible. Hence the origin of the short term of four months which has clung so persistently to the American system.

I will not undertake to weary you with a detailed account of the history of the development of our system of education. Suffice it to say that the close of the century found schools established not only in Pennsylvania and Massachusetts but in New York, Maryland and Vermont. There were, however, in 1810 only five medical schools in existence with an aggregate number of medical students of about 650, of whom 100 received the degree either of bachelor or doctor of medicine. The bachelor's degree was given to those who had attended one full course of college instruction. It was hoped that such students after a short period of practice would eventually return to take the higher degree, but as this expectation was not fulfilled the degree of bachelor of medicine was soon wisely abolished.

A noticeable feature of the education of that early period in our medical history were the requirements for a high standard of general education. Those students who did not possess a college degree were expected to pass an examination in Latin, mathematics and "Natural and Experimental Philosophy."

To obtain the degree of doctor of medicine it was necessary that the applicant should have been a bachelor of medicine for at least three years, should have attained the age of twenty-four years and should write and defend a thesis publicly in the college.

When we consider how imperfect was the knowledge of chemistry, physiology and even anatomy, and many other branches of medical science, and how

¹ N. S. Davis, Med. Ed. and Med. Institutions in the United States of America, 1877.

² William Pepper, Higher Medical Education, 1877.

little of what we now consider the foundation of medical education there was to teach—such a course cannot be regarded as a very complete and exacting one.

"Under these influences the first thirty years sufficed to cause the bachelor's degree to be abandoned by all the schools, the number of professors in each school to be double, and the length of the annual college term to be shortened one-third." (Davis.)

Such was the standard of education with which the present century opened. New schools continued to be created, not infrequently in connection with some university, as in 1810 at Yale University, in 1817 in Lexington, Ky., in 1820 at Brunswick, Me., in 1825 at Charlottesville, Virginia, until in 1840 twenty-six new medical colleges had been added to the list, the whole number of students in the country amounting to 2,500, the population in that year being 17,069,453.

A glance at the report of a committee to the Medical Society of the State of New York in 1833, gives a good idea of the amount of work done by the schools at that period.

In the twenty schools mentioned in this report the number of courses of lectures required was two, with one exception—that of the University of Virginia, where three courses were required; and to the credit of this university be it said, the length of each course was ten months, whereas, the almost invariable custom of the other schools was to give a course of four months' duration only. The time of study purported, however, to be in all cases three years, "including the time devoted to lectures," as is stated in most of the reports. This straw indicates that at that time the chief dependence, or nearly so, was placed upon the extra-mural instruction which was given to the student. At Yale University there was this additional requirement, namely, that the student was required to study four years, "if he had not graduated," which phrase, I presume, means if he had not already taken the academic degree. This seems to be the first intimation that a longer term than the standard then set was necessary for a complete equipment for the practice of medicine.

The Medical Institution of the State of Georgia (incorporated in 1828) gave at first the bachelor's degree with one year of study, but immediately abandoned it for the usual curriculum.

In the University of Pennsylvania, to which we look for the standard in these early, as well as later days, two full courses were required, but as in many other schools one course only was demanded from those who had attended a course at some other reputable school. In addition, a course of clinical instruction in one of the Philadelphia hospitals was required.

The course was then three years in length, but as each course of lectures lasted only four months, it was expected that during the remaining portion of the first two years the student should receive private instruction.

As the period of the school term was so short, it is interesting to note at what time of the year the various courses of lectures began.

This, it will be seen, varied greatly according to the geographical position of the institution. At Dartmouth and the University of Vermont the term began in August. In Bowdoin College, Maine, however, it began in the middle of July, continuing until

the middle of May—that is, the term time in the far north was in the summer or spring.

At Yale and Harvard and in Philadelphia and New York the term opened at the end of October or the beginning of November, as did also the schools in North Carolina and Kentucky. The University of Virginia, with its long course of ten months, began September 10.

Although the term time was exceedingly short in some schools a large amount of work was crowded into the daily routine of the students. Five or six systematic lectures a day, with attendance on clinics and dissections when possible, was considered nothing more than a fair amount of work for the medical student to digest properly.

This system of teaching remained practically unaltered in 1851, if we may judge from a report to the Committee on Medical Education of the American Medical Association.² In regard to the private instruction which was supposed to continue during the remaining eight months of the year, the report states that a very large proportion of students simply read medicine under the direction of their preceptors. Anything like careful instruction upon the part of the teachers did not exist. The student neither while attending lectures nor while in his preceptor's office was encouraged in anything like faithful and rigid study. To remedy the defect, private schools for teaching medicine were founded by enterprising physicians and surgeons and these quiz classes which were then inaugurated, became a prominent feature of the national system of teaching. Many a distinguished professor has first won his spurs at these private schools, and many valuable experiments in medical education were carried on by these men. As the college term has lengthened, the necessity for these accessory courses has diminished, and in many cities the extra-mural instruction, whether by private school or by teacher, has passed into history. No one will, I presume, regret the departure of the year of private teaching, "by some respectable practitioner," whose certificate, purchased by a handsome fee, came eventually to have so little meaning. When this custom was first inaugurated it was the sole method of inspection, and during the long period of apprenticeship the student received a large amount of instruction of the most valuable sort. When the medical school came into existence the attempt was made to combine the two systems. The practitioner, relieved from the responsibilities of giving a complete course of study to the student, gradually relaxed his efforts as a teacher until this part of his daily work came to have only a nominal value.

According to Davis it consisted in 1877 in little more than the registry of the student's name in the doctor's office, permission to read the books of his library or not, as he chose, and the giving of a certificate of time of study for the student to take to the medical college where he expected to graduate.

At the beginning of this century the successful practitioner gave a prominent place in his household to the medical student. I have often heard my father and many other practitioners of his day tell stories of the school life of those times. The office in the old homestead where I began the practice of medicine, then a luxurious library, was in those times a plain room with a sanded floor, occupied during the day by a small band of medical students who all

²W. Hocker, M.D. 1851.

boarded in the same house. The old room was the scene of many amusing stories of schoolboy life, and also of thrilling tales of escape from the indignant pursuer, by the hero of some graveyard scrape which was rendered necessary by the peculiar laws of that period. This phase of student life has long since passed away and the equally agreeable and far more profitable experience of hospital life has taken its place. Would that I could add that such hospital experience was now the privilege of every medical student in the land.

As we approach the middle of the century, we find the nation growing rapidly in population and prosperity, and a corresponding increase in the numbers and activity of the medical profession. From 1830 to 1845 the number of medical schools in the United States had more than doubled.

At a meeting of the Medical Society of the State of New York in 1839, when the subject of medical education was brought forward, it was proposed to hold a national medical convention the following year in Philadelphia, consisting of representatives from the different schools and State societies. No response was made to the action of this society, but in 1844 Dr. N. S. Davis, then a delegate from Broome county, New York, offered a resolution that a national convention be called in 1846, and the American Medical Association thus sprang into existence, the fundamental idea, which brought about the formation of the association, being the improvement of our system of medical education.

It was high time that some such movement should take place, as the rapid increase of the number of medical schools brought with it a constant increase in the laxity of methods of teaching.

The equipment of a new school was sometimes pathetic in its meagerness—a mannikin and a few lecture rooms constituting the entire "plant" of the infant institution. It would not do to question the dean too curiously about the clinical facilities which the school enjoyed; and as for laboratory work there were few teachers sufficiently advanced in their ideas to think of criticising the absence of such instruction. There was, indeed, no time for it. Every available space in the tabular view was filled with lecture hours. Professors were asked to come from neighboring towns to assist in teaching, and often gave two lectures in the same day. This cramming process, which seems so peculiarly American in its hustling activity, is perpetuated to the present day in a limited number of schools, chiefly those situated far from medical centers. As Oliver Wendell Holmes has said, life at that time was cheap; medical visits in the country were worth only twenty-five cents apiece, and the ambitious student could not afford to make an expensive outlay for his future work.

The American Medical Association therefore justly put on record its opinion, "that the abuses which exist in the modes of medical education pursued in this country demand the serious consideration of the profession," and at each meeting it continued to sound a note of warning on this all-important subject.

One of the principal reforms which it proposed to bring about was the lengthening of the term of each year from four to six months, and you will doubtless be somewhat surprised to hear that at the second meeting of the Association, which was held in Boston, a paper was presented from the faculty of Harvard University opposing this proposition.

Tempora mutantur et nos mutamur in illis.

If Harvard was unwilling to lead in the matter of reform at that time, it is not surprising that the other schools should not have been persuaded to change their customs. To the Chicago Medical College—which was founded in 1859—must be given the credit of having been the first to attempt to lengthen the college course and to establish the system of teaching upon the so-called graded plan.* The school was in fact organized for this express purpose.

Little change was, however, effected by the Association in the methods of teaching at that time, although the discussions which were constantly held were destined eventually to bring forth good fruit. During the following decade little was done in the way of reform.

Graduating from the academic department of Harvard in 1863, I had an opportunity to study personally the methods in vogue at that time and am the more competent to express an opinion as I passed one year of my course of study in Philadelphia. The old system of medical education was then in all its glory and presented a striking contrast to one who had been subjected for four years to the strict discipline of a well conducted university.

The course of lectures in Philadelphia began about the first of November, and the day was occupied in a bewildering succession of lectures, on all of which the student felt called upon to attend, as he had been obliged to "take out tickets" for the full course. The teachers were able, conscientious, and in many cases brilliant men, and many a lesson then learned has been of value in after life. Clinical teaching was, however, largely crowded aside by the superabundance of systematic lectures. The course came to an end on the first of March, and the class—which was an enormous one—was allowed to scatter to the four quarters of the country. Many of my classmates returned the following autumn, and after attendance on a second course of lectures and having also handed in the certificate of study from the "respectable practitioner" were able to graduate in the following March; that is, after having been connected with the school less than eighteen months. This may appear to the younger members of this Section an absurdly short curriculum, but there were a considerable number of enterprising young men who did not propose to occupy so long a time in obtaining their education.

You will remember what has already been said about the period of the year occupied by the school term. At that time there were not only schools who had their college "year" in the winter, but there were spring "years" and summer "years" as well.

Several of my friends proposed accordingly, after leaving Philadelphia in March to take a spring "year" at another school, in accordance with a custom which many at that time followed. Such a student was therefore able on July 1st to show to the examining body, tickets for two full courses of lectures and a letter testifying to private instruction. It was notorious that many students at that time were able to obtain a degree after nine months only of medical study. The custom of short courses of study at different periods of the year unfortunately still prevails. This zodiacal paradox has not yet been fully eliminated from the medical calendar. The condi-

* N. S. Davis. Contributions to the History of Med. Ed., etc., 1877.

tion of teaching at Harvard was practically the same as at Philadelphia.

It is not surprising that the best class of students were dissatisfied with the opportunities, and that the number of those who found it necessary to go to Europe to complete their education was constantly increasing. Two and even three years of study was not considered too long a time to occupy in this manner. It is true that spring terms of a supplementary nature were organized by most schools, and those students who chose to remain could receive instruction throughout the year. The majority of students, however, disappeared, many of them employing their time in other occupations to earn sufficient money to pay for a second course of lectures. The class of individuals who studied medicine at that time seemed far inferior to the medical student of to-day in culture and refinement. President Eliot says of the medical students of that period: "In this university, until the reformation of the school in 1870-71, the medical students were noticeably inferior in bearing, manners and discipline to the students of the other departments; they are now (1888) indistinguishable from other students."

The date which I have just mentioned marks the era of a great change in the history of medical education. The rising generation of teachers were not content with the antiquated methods of a previous century; they had learned of a new order of things in the centers of medical learning in Europe. As the old generation of teachers went out and a new one came in, the modern ways of teaching grew into a substantial system which had come to stay. Harvard adopted the graded course of three years' study, but she did also far more than that—and in this respect she stands in advance of almost every other school in the country—she lengthened her course to nine months, so that her two terms correspond with those of the other departments of the university and represent a full year's work.

I will not undertake to record the history of the reform in medical education since that time; it is familiar to most of you. The example which has been set to the rest of the country by the University of Pennsylvania and by the College of Physicians and Surgeons of New York is too well known for me to repeat them here.

While criticising, as I have done, the work of a previous generation, I ought to remind you that our forefathers accomplished what they did only by individual efforts. There were no governments, and as a rule no liberal benefactors to back them in their undertakings. Their schools had to be conducted on business principles, with a keen eye to the practical success of their venture. During the past twenty years, it is true, a number of State universities have been established. In the University of Michigan, and possibly in one or two other State universities, the medical professorships like those of other departments, are sustained by the income from the general endowment, independent of fees derived from medical students; but, as a rule, the success of the school has depended upon the patronage which it has received. It may be justly said, therefore, that the whole system of medical education in this country is the spontaneous outgrowth of the work of the medical profession, and that it is due to their public spirit and disinterestedness that so important a department in the educational devel-

opment of a great nation has been brought to its present state of excellence.

The good work has, however, but just begun. The reform of medical education is still in its infancy. If we are to believe all the glowing announcements which we read in the annual catalogues of the various schools, we might be lulled into a sense of calm security for the future; but, unfortunately, the actual practice of many. I might say a majority, of the schools does not come up to the ideals which are here set forth.

The essential points in the new scheme of education have been well stated by our President, Dr. Pepper:

1. The establishment of a preparatory examination.
2. The lengthening of the period of study to at least three full years.
3. The careful grading of courses.
4. The introduction of ample clinical and laboratory instruction.
5. The establishment of fixed salaries for the teachers.

In a general way we may obtain some notion of the improvement which has been made by a study of the report of the Illinois State Board of Health for 1891. According to this report there are now 148 medical schools of all kinds in the United States and Canada. The number of those requiring certain educational qualifications for matriculation is 129.

The number of schools requiring attendance on three or more courses of lectures was, in 1882, twenty-two. In 1891 the number was eighty-five.

There has been also a gradual increase in the duration of the lecture terms from an average of 23.5 weeks in 1882-83 to 26.3 weeks in 1890-91. In 1882-83 there were eight colleges that had but sixteen weeks; the number of colleges having terms of six months or more is now 111. The number of colleges which have graduated students at the end of the second course of lectures the present year is less than 10 per cent. of the whole number of schools in the country.

There are now in the United States thirty-two examining and licensing bodies that do not give instruction. Although the work of these licensing boards is far from uniform, a great deal has been accomplished by them. There are at the present time fifteen States with Practice acts that require an examination of all persons desiring to practice medicine in the respective commonwealths. These States include nearly 50 per cent. of the entire population. In many States the whole complexion of the medical practice has been changed by the clarifying influences of these bodies. The reports on medical education by the Illinois board, I do not hesitate to say, have exerted a more powerful influence on the movement in education than any other publication which our medical literature has produced.

The effects of these Medical Practice acts which establish a minimum of time spent at medical lectures and provide an examination for those who wish to become practitioners, are shown in the statistics which have just been given. At the present time State examinations are required in Minnesota, North Dakota, Montana, Washington, North Carolina, Alabama, Florida, Virginia, New Jersey, New York, Nebraska, Maryland and Utah.*

* Introductory Address, Philadelphia, 1877.

* Millard, "The Necessity and Best Methods of Regulating the Practice of Medicine," *Journal Amer. Med. Ass'n*, July 30, 1892.

Millard, who has had experience in framing the act of Minnesota, believes that it would be an improvement upon the Medical Practice acts at present in existence, to separate the two functions of the board, the licensing power and the educational supervision. He thinks that the best interests of the public will be observed by assigning the duties of the State licensing power to the various State Boards of Health. The regulation of all forms of education should, on the other hand, be vested in a central power consisting of a single board, to be known as a State Bureau of Education, with power to regulate all educational institutions granting degrees, together with the power of granting charters and revoking the same; particularly should this apply to all institutions wishing to afford the community any of the various forms of higher or special education.

Having thus sketched the progress of medical education up to the present time, let us now glance at some features of the present system in which it is desirable that further improvement should be made.

The importance of a preliminary training for the study of medicine is a problem which has occupied the attention of our most prominent teachers. That the medical student should have received a fair amount of education goes without saying. The importance of a proper preliminary education is thus forcibly stated by that most experienced of German teachers, Professor Billroth. He says in reply to the objection to a preliminary study of the natural sciences as a basis of a medical education:

"The educated of all nations should not fail to encourage to their utmost knowledge and study—in all countries and stations of life they should not fail to maintain the standard which they have set up, both for themselves and others; they should not fail to support the government in all efforts directed towards this end.

"The physician, the lawyer, the school teacher and the clergyman form the nucleus of culture in the community; they are, especially in the country or small towns, the representatives of the educated element of society. The people seek their advice in time of need, and they are their sole source of knowledge in many things.

"To neglect the education of such persons, to lower their mental and scientific standard, to bring them up so that they know no better education than the tradesman, the tailor and the cobbler, would be, in my opinion, the suppression of the educational development of a nation and is a policy both corruptible and immoral in principle, as it would inevitably ruin a nation and bring it prematurely to that point of decadence where it would become the prey of others."

The importance of these views is fully appreciated in Germany, where the professional schools are integral parts of the university, and entrance to the professional schools depends upon the previous completion of the course in philosophy, a course which corresponds to that of our academic degree.

In Dr. Holmes' suggestive article¹ on this subject it is shown that while the increase in the total number of medical students has been very great during the last decade, the increase in the number of "college men" who have entered the profession has been very slight, and in some of the more prominent schools the percentage has even slightly diminished. The author says: "It can not then be doubted that relatively a smaller number of medical students have a bachelor's degree than in 1880, though the education of the average medical student is superior to the average medical student ten years ago." Al-

though the proportion of medical students to students of law and divinity is greater in the United States, the relative proportion is as diminishing as in the last ten years, whereas in Germany, in the same period, a period during which medicine has become more of a science and the demand for surgery has increased under antiseptic methods, the proportion of medical students to the students of other professions has greatly increased. The reason for this variation in the proportion of students in the two countries is explained by the imperfection of our system of education. Educators have not had proper control and medicine has not been placed upon that dignified scientific basis which it enjoys in Germany. Dr. Holmes complains that the medical department is neglected by every university in the United States. "It is farmed out or left to shift for itself."

Harvard has recently made an attempt to overcome the difficulty by a modification of the academic course. As Welch points out in an article on this subject: "If a young man choose the medical profession he should devote at least four years to medical studies, including the preliminary sciences. If he supplements this with a year in a hospital and a year or two in study abroad, and all this work has been preceded by a college academic course, he would not be able to enter upon the practice of his profession much before the age of thirty."

Dr. H. P. Bowditch, dean of the Medical Faculty of Harvard, has strongly advocated a change which would overcome this difficulty. The average age of students who enter the Harvard academic department, as President Eliot has shown, has been gradually rising during the whole of this century until it has reached nearly nineteen years. The student who enters the medical school therefore finds himself just beginning the preparation of the real work of his life at an age when many of his contemporaries are already engaged in the productive work of their professions. In Germany the best class of students begin their professional studies at a little earlier age than that at which our young men enter Harvard College. As the course of study leading to the degree of doctor of medicine lasts five years, it follows that the German physician is ready to begin practice before he is 23½ years old.

The average age of matriculants at Oxford is 19 years, and it is perfectly possible for an Oxford student desiring to study medicine to begin his purely professional studies before the end of his second year of college life. The dean writes me upon this subject as follows:

"There are many students in our school who have had one or two years of college life either as special or regular students, and these have entered the medical school because they have felt the necessity of getting started in their life work. These men would have been glad to take the A.B. degree if it could have been procured in a shorter time, but they consider it too dearly purchased when it involves so much delay in beginning their professional life."

It seemed, therefore, reasonable to the medical faculty of Harvard to make the following proposition, namely, that the academic council should consider the expediency of granting the degree of A.B. to all undergraduates who should subsequently take the longest course of study offered at the professional school after three years' attendance in the academic

¹The Forthcoming Report of the Bureau of Education on Professional Education in the United States," Jour. Amer. Med. Assn., Vol. 1, No. 14, 1893.

²Some of the features of the Medical School of Harvard University, 1888.

³Remarks made at a meeting of the American Medical Association.

department—the professional degree and that of A.B. to be given simultaneously at the end of the professional course. One of the medical studies at least can be obtained in the usual college curriculum, and general chemistry is frequently “anticipated” by students who enter the medical school. It is hoped, indeed, that this course will soon become one of the “preliminary studies” to medicine. It would be a short step to place one or two more of the scientific medical studies on the list of academic electives, and a whole year could be thus anticipated. The relations of professional schools to the university are not appreciated in the same light that they are in Germany, and the proposition of the medical faculty after much discussion was finally declined. The advantages of a more intimate relation between the medical school and the university are clearly set forth by Welch in the article referred to. The duplication of laboratories is thus avoided, and men of different branches of sciences are brought more intimately together. The important departments of botany, zoölogy, and comparative anatomy cannot fail to have an elevating influence upon the work done in a medical school. How much more rapidly might not original investigation progress when different branches of science work in a common cause. It is here that the great strength of German science and progress takes its origin.

A movement in the same direction is the establishment in our colleges and scientific schools of courses of tuition, intended specially for the benefit of those who intend ultimately to study medicine. Such a course has been planned by Prof. Shaler in the Scientific School of Harvard, and a similar course is offered by the Institute of Technology.

Professor Shaler's course preparatory to medicine consists of two years. In the first year we find physics, zoölogy, botany, general chemistry, rhetoric and elementary French or German, and freehand drawing among the studies required.

In the second year there is botany, zoölogy, comparative anatomy, geology, comparative osteology, physics, qualitative analysis and themes.

It is certainly to be hoped that the medical teachers of the United States will not remain content with the very elementary examinations which are now demanded for those students who have not received a college education.

The advantage of a previous college training is shown in some statistics given by Billings¹⁰ of examinations conducted by the examining boards of the army and navy. Of those candidates who had a college degree 31 per cent. were successful, and of those who had no such degree 28.9 per cent. succeeded. It is interesting in this connection to note that taking the medical schools of Harvard, Yale, the College of Physicians and Bellevue Hospital of New York, the University of Pennsylvania, and the University of Virginia together, 46.1 per cent. succeeded, while for all the rest of the schools in a body 22.3 per cent. succeeded.

One of the most prominent features of the new education is the character and amount of laboratory work which is now required by our medical school. The new building of the Harvard Medical School, erected twelve years ago, showed the importance which its faculty attached to this means of teaching the student. Already the large addition of the Sears

laboratory has more than doubled the facilities of this department of the school. The University of Pennsylvania has felt the necessity of increasing the facilities of laboratory work and has received a munificent endowment for its department of hygiene. The literature of this part of our educational system is already becoming voluminous. The recent reports of Vaughan and Holmes in behalf of the work done at the University of Michigan and of the College of Physicians and Surgeons of Chicago, respectively, show the interest which is taken in this subject in some of the western schools.

General chemistry forms so large a part of the first year's work in the Harvard Medical School that it is proposed to make room for other valuable work by making this study one of the requirements of admission. This course is already anticipated by most of the college graduates. The course on embryology and histology is at present a required one, and lasts throughout the year. Students are obliged to keep books in which drawings are made of the specimens studied and these books are examined by the teacher. Those who do not possess microscopes are provided with them by the school, and the equipment of this department enables it to handle classes of 150 students. Prof. Minot, who conducts this course, urges the addition of a course on biology to the work of the first year, as it would not only enable the student to pursue many of his studies more intelligently, but would add greatly to the value of all original work done by the student or physician.

The new four years' course has been so arranged that the technique of bacteriology comes in the first year. This is a time when the student has more time for laboratory work, and it paves the way for special work in the study of these organisms in connection with pathology, which is placed in the second year. I shall leave a more detailed statement to Prof. Ernst, who will have something to say upon this subject later. Bacteriology needs no special plea to-day. It cannot even be regarded as a purely scientific study. No practitioner of medicine or surgery who emerges from one of our schools to-day should be considered properly equipped for his work unless he has been trained in such a laboratory. No physician can expect to unravel the secrets of disease without a practical knowledge of the demonstration of certain forms of bacteria, and there is certainly no better school for aseptic surgery than the bacteriological laboratory.

The study of pathology at the Harvard Medical School¹¹ is conducted by Professor Councilman, not only by lectures, but by demonstrations, recitations and exercises in pathological histology. The latter course, which has hitherto been optional, is now obligatory. The relation of bacteria to disease is taught by the study of certain types of disease, as tuberculosis, suppuration, pneumonia, etc.

Demonstrations are given twice a week of material obtained from the hospitals and private practitioners. This is a laboratory exercise. Individual members of the class are called upon to study the specimens. They then carry them around to the other members of the class and demonstrate and explain to them the lesions. Each student in this way has the specimen demonstrated to him. In the course on pathological histology the student is required to make drawings of the sections studied.

An opportunity is given to a certain number of men, who have gone through with their course in pathology to act as demonstrators the following year and to assist in teaching. Places are assigned in the pathological laboratory to a certain number of students who have done well in their studies, and opportunity is given them for special study or original investigation.

A type of laboratory course, which I think is peculiar to Harvard, is that on the application of bandages and surgical apparatus. It is a purely laboratory course, is given to students at the beginning of their second year and is confined to a detailed study and drill in the practical part of such work. Bandaging is taught upon the living subject and upon wooden models. The feature of this course which is perhaps most valuable is the preparation and application of all the forms of stiff bandages. In this way every member of the class learns thoroughly the elementary part of this work before he begins to practice upon patients in the hospital, and no student leaves the school without becoming an adept in the application of the stiff bandage.

Another subject which is receiving more and more attention yearly is that of clinical instruction. The weakness of this feature of medical education was one of the glaring faults of the old system, and arose out of the fact that hospitals were far less numerous than they are at the present time, and that, from the necessities of the situation, the independent origin of the medical school became a custom which has continued almost unimpaired to the present day.

In Boston the medical school flourished for nearly one-third of a century before its teachers realized the importance of this problem. A circular was then issued in 1810, in which the statement was made that "a hospital was an institution absolutely essential to a medical school." Would that all teachers of that time had realized sufficiently that fact and had educated the public to recognize the necessity of such a close relation of the two. Many of the older members of this congress can remember the old-fashioned prejudice which resented the intrusion of students into the hospital wards. The theory of the trustee of that time was: This money was given for the cure of patients and not for the education of physicians. They could not be persuaded that the two interests were identical.

The change of feeling in more enlightened times was indicated by the benefactor of the great Johns Hopkins hospital. At the opening of that hospital in 1889 Dr. Billings showed the advantage of such a union in the following words:

"It is well known to those familiar with the subject that the sick in a hospital where medical instruction is given receive more constant, careful and thoughtful attention than do those in a hospital where no such instruction is given. The clinical teacher must do his best; keen eyes will note every error in diagnosis, every failure in results of treatment. Moreover, the very act of teaching clarifies and crystallizes his own knowledge in attempting to explain, the dark places become prominent and demand investigation, and hence it is that those cases which are lectured on receive the best treatment. I need say nothing here on the other side of the question; the value of properly trained physicians to the community and the necessity for hospital instruction in such training. Johns Hopkins understood all this, and especially directed that 'in all your arrangements in relation to this hospital you will bear constantly in view that it is my wish and purpose that the institution shall ultimately form a part of the medical school of the University.'"

The reaction in favor of clinical teaching is becoming daily stronger, and no school can hope to compete with the great schools of the country which does not have control of what is usually called "clinical facilities." This term must unfortunately still be used; for the number of schools which have a hospital of their own is yet exceedingly small. The union between the two is in most of our large cities becoming a more and more intimate one.

Another immense advantage which the possession of a hospital gives to a faculty is the control of appointments. Most schools are now obliged to select their teachers from members of the staffs of hospitals in their city who have services at times of the year which enable them to teach. These individuals are appointed by laymen who have no knowledge of or regard for the necessities of medical education. Faculties thus placed are unable to select teachers of national reputation, as there is no appointing power which enables them to give such a person the material with which to teach. This is a grave defect in our system, and one which the leaders in medical education should not forget to impress upon the profession and the public.

But, while applauding the movement in favor of clinical teaching it is perhaps well at the present time to consider whether systematic or, as it is usually inaccurately called, "didactic" teaching should be abandoned. The discussion as carried on in medical journals, appears to lean in this direction. A course of systematic lectures enables the teacher to cover ground which he would be unable to do, even in a clinic most richly endowed with material. The method of handling the subject differs entirely from that adopted at the bedside, and in a well regulated four years' course I believe the systematic lecture should still retain a prominent place. Clinical instruction should be abundant and of the most varied kind. Instruction of the class in small sections is a most desirable feature of this department. It involves a greater expenditure of time, an increase in the teaching staff and great ability as an organizer in the head of the department. It is the squad drill, however, which brings the student in most intimate contact with disease.

To carry out these ideals necessitates a "plant" far in advance of that which the average school now possesses. No such enterprise can be undertaken without that aid which has hitherto been conspicuous by its absence. I refer to endowments; the valuable paper of Dr. Bayard Holmes already referred to gives some interesting data on this subject. He says:

"The productive funds in the hands of medical schools, both those connected with and those independent of universities in the United States was in 1889, \$249,200, while at the same time there was in the hands of schools of theology productive funds to the amount of \$11,839,931. The value of buildings and grounds used by medical schools at the same time was \$1,047,618, and the theological schools were accommodated with buildings and grounds valued at \$7,762,095. The medical schools had in 1889, 12,238 students who paid tuitions to the amount of \$763,761, while at the same time the theological schools enrolled 6,959 students.

I am able to reinforce these figures by an abstract of the statistics for medicine, theology and technology as reported to the Bureau in June, 1892. The medical schools possessed buildings and grounds in 1892 valued at \$7,507,337, and productive funds amounting to \$611,214. Medical departments of State universities also received State aid in 1892 amounting to \$40,500, which, if capitalized at 5 per cent., would be equal to an endowment of \$810,000; making a total endowment of \$1,421,214. There were 16,731 medical students in attendance.

The theological schools report productive funds amounting to \$17,599,979, and stated, at the same time, the value of their buildings and grounds was \$10,720,860. They had 7,672 students in attendance.

Technological schools report productive funds amounting to \$13,229,940. These institutions received from State appropriations or municipal aid in 1891-92, \$747,594, which, if capitalized at 5 per cent., would be equivalent to an endowment of \$14,950,080; making a total endowment for schools of technology of \$28,180,020. There were enrolled in the schools of technology 10,921 students, about one-third of whom were in preparatory courses. It will thus be seen that the endowment of theology is increasing at the rate of about two million dollars a year. The technological schools are well provided for, but medicine has scarcely raised its endowment, even at the most liberal estimate, to a million and a half."

Probably the available funds possessed by our medical schools are somewhat larger than these statistics show, but they give the proportions which are needed to impress upon us how little financial encouragement medicine receives. When we realize what a valuable factor the medical man is in the rapidly increasing development of the territory of a vast and prosperous country like ours, it seems as if his claims to receive encouragement should be listened to. He does not build railroads or organize society in new lands, but he is in the foremost rank of pioneers, with the complete equipment which our teachers can give him to-day, and he becomes a most valuable member of society. He protects the young colony from epidemics; without him State medicine could not exist, and States could not be provided on a basis which could ensure prosperity.

These ideas should be impressed upon our men of wealth and upon the State governments as well. In the meantime it is important that we should adopt as a principle in our new departure in education that the medical faculty should have personal control of hospital wards and management. Let this work begin in a small way at first, but with a view to future development. Such a change can only be brought about by a slow process of evolution. The sooner, therefore, the principle is recognized and adopted, the better. It is difficult for a prosperous school which has abundant opportunities for bedside teaching to realize this, but it can not develop beyond a certain point until it has established its own independence.

I cannot help believing that in this direction lies one of the greatest avenues of development of our system of medical education in the future.

ADDRESS OF THE PRESIDENT OF THE SECTION ON NEUROLOGY AND PSYCHIATRY OF THE PAN-AMERICAN MEDICAL CONGRESS.

BY C. D. HUGHES, M.D.

ST. LOUIS, MO.

Collapses of the Continents.—I bid you cordial welcome. For the first time in the history of the world the medical profession of all the Americas meets fraternally for mutual work and words of counsel for the welfare of the North and South American medical profession and people.

In this Neurologic and Psychiatric Section, brothers, we also, for the first time, grasp the hand of fellowship. We heartily clasp hands with you and in our hearts we embrace you, with the prayer

that nothing shall ever dis sever the friendship between the Northern and Southern American profession now so auspiciously consummated. May the final handshake between the profession of the North and South American States never be permitted to take place. We want your friendship forever. So long as "earth grows a plant or sea rolls a wave," we pray that it may endure, growing closer and closer in ties of inseparable fraternity.

In our special departments of medical research and labor we have a common interest, and in every department of medical investigation and advance, our interests are likewise mutual. The sanitary welfare of all the American States is alike. The same hygienic, therapeutic and pathologic problems press upon us all for solution; the medical discoveries of each one of these States redounds to the welfare of all the others.

To this end, therefore, we salute and welcome you, wishing you health and happiness, through a mutually advanced and glorified medical profession, and in behalf of the Neurological Section of this great Congress, I join you in the sentiment, "*America laudamus—rica Americana.*"

Before proceeding to the work before us, it may prove a source of pleasure and profit, and it certainly is flattering to our professional pride to note some of the neurological advances of our day and especially the contributions of neurology to general medicine and the consequent welfare of the world.

None of the many victories in the onward march of American medicine during the century now nearing its close, have contributed, or are destined yet to contribute, more to the happiness of mankind than the light which has been thrown on the nature and treatment of inebriety, dipsomania and chronic alcoholism and their neural sequelæ, especially multiple neuritis.

To a distinguished American physician, signer of that Declaration which gave a nation birth, surgeon-general of the Continental army and teacher of the practice of medicine in the first medical university founded in America, Dr. Benjamin Rush, the scientific world is indebted for having taught that inebriety is a disease. His followers, living in the Pan-American States, taking their cue from this distinguished pioneer medical *savant*, have pursued the study until the therapeutics of inebriety has become as successful as that of any other grave nervous disorder and its pathology as well understood, while medical philanthropy, following his advice, has erected hospitals for the cure and care of its unfortunate victims, though, as yet, no monumental shaft mementos, as it should, a nation's grateful memory of Benjamin Rush's noble work.

We record, also, with satisfaction scarcely exceeded by that we enjoy from contemplating the salvation of the inebriate, the successful cure of the opium habit and other kindred forms of baneful drug enslavement. Yet it has not been long since that once brilliant *littérateur*, De Quincy, himself enthralled, proclaimed in despair the "pangs of opium" and the "Iliad of woes" its enslaved victims hopelessly endured.

The opium fiend, as he is with cruel facetiousness so often called, need not be longer regarded as a hopeless wreck if the hand of charity will only conduct him within the pale of professional resource.

This and alcoholism and all similar forms of nervous derangement are now treated successfully much like certain forms of mental aberration are—by change of environment, by therapeutic repression, including hypnotic support and reconstruction of the damaged and aberrantly-acting neuropsychic centers. This is another jewel medicine offers for the crown of modern progress.

Notwithstanding the illustrious names which, in our own day, the world beyond our geographical boundaries has given to medical science, our American States have likewise their great physicians whose offerings on the altar of that science whose special care is the welfare of man, are worthy of exalted place beside the Old World's gods. For the Virchows, Charcots and Lombrosos, Maraglianos and Kowalewskys, Gulls and Horsleys, of world-wide fame beyond our shores, we have given to the world our Brown-Séquard, who went from America to cosmopolitan fame; our Hammond, another pioneer American neurologist whose books have been translated into all the languages of civilization; our Seguin likewise, and our Pepper, President of this Congress and the peer of Sir William Gull of Great Britain, and Ferran, whose preventive inoculations against cholera Asiatica called the medical world's attention anew to the grandeur of Spanish medicine. If Wigan could conjecture the duality of the mind from theoretical considerations and the general division of the brain into hemispheres, Brown-Séquard later, and at the time an American, proved it, and even my own feeble contribution on the "Duality of Action and Vicarious Functions of the Cerebral Lobes and Hemispheres," in 1873, might count for something, even though it emanated from a lunatic asylum in the valley of the Mississippi. If Hitzig, a German, and Ferrier, an Englishman, demonstrated and located motor centers in the cerebrums of the lower animals, Bartholow, an American established by satisfactory physiological experiment their correspondence in the human brain.² If Victor Horsley and others first clinically applied the discovery of cerebral localization to surgical therapeutics for brain diseases, Professor William Fuller, a Canadian anatomist and surgeon, first trephined the skull in a case of idiocy, an operation which has recently been heralded from abroad as a new surgical procedure.

The author of this operation, now residing in this country, in Grand Rapids, Mich., is the designer from life of a series of brain sections and sectional casts, photographs and models, some of which I now show you, which have not been excelled in Europe.

Now that this operation of Dr. Fuller has come back to America with European approval as a European procedure, it is interesting to note the reception, a part at least, of the medical press of England, gave the novel surgical procedure at its inception on this continent.

The following extract from *The London Doctor*, a monthly review of British and foreign medical practice and literature, No. 1, Vol. 8, page 5, January 1, 1878, is appended as evidence that the case reported in this paper, received at the time a wide publication:

"Dr. Fuller of Montreal, has, says the *Canada Lancet*, conceived the novel idea of trephining out portions of the skull

of an idiot child of two years old, so as to allow the expansion of the brain. The idea is certainly novel, so far as we know, no surgeon having previously ventured to remove portions of the skull cap so as to allow the brain to expand. We sincerely hope this brilliant experiment will not be repeated. How does Dr. Fuller propose to protect the exposed portions of brain, should the brain protrude through the apertures he has made? According to latest advices, Dr. Fuller contemplates removing another piece. We hope not."

Under the name of linear craniotomy, this operation has recently found decided approval both at home and abroad. Engel speaks enthusiastically of it even for dementia epileptica.

If European surgery first excises a stomach, or a kidney, or cuts down upon and removes a stone from the bladder or gall cyst, American surgery, represented in the person of Ephraim McDowell, with a temerity that startles the conservatism of Europe, first cuts into that surgical terra incognita, the abdominal cavity and saves an imperiled human life by successfully removing an abdominal tumor; a feat common enough now, alas, all too frequently performed by novices with the knife, lacking in mature surgical judgment. He and Battey, another American, led the way for the successful ovariectomies of Lawson Tait and his followers, and Marion-Sims. God bless his gentle, precious memory, lays the foundation, by a peerless procedure on the female perineum, for the rescue of womanhood from untold misery. Marion-Sims, who, when asked to unsex a woman, in whom there was other possibility of salvation, could say to Weir Mitchell, "Let us give her a reprieve; I never unsex a woman without a pang," and the woman got well as you and I know hundreds of others would, if permitted to do, without oophorectomy. God bless Marion-Sims.

As we are justly appreciative of the part which American skill has performed in the world's surgical advancement; as the recalling of the names and deeds of our Motts, Brainards, Popes and Stones and Physies, Gross and Hodgins, gives us pleasure; if we revere our Rushs and Woods as England does her Hunters, Sydenhams and Gulls, so of our own American alienists and neurologists and their achievements, we are justly proud. The accomplished Isaac Ray and the gifted Amariah Brigham, Pliny Earle and Tyler, now no longer among us, and Van Dusen, the son of Michigan and a Kalamazoo asylum superintendent, whose essay on "Neurasthenia" preceded that of the classic work of Beard on "Nervous Exhaustion"—Beard who gave to the world a new disease, and gave it a new name, although the term "neurasthenia" was borrowed unknowingly from Van Dusen (*ride Alienist and Neurologist*, Vol. I, No. 4, 1880). Since these contributions appeared, the subject of nervous exhaustion has become too common in the literature of this country and Europe to need further mention here.

There are three works of Dr. Hammond which have had much influence on neurology and medicine generally, and these were accomplished during his service as surgeon general on the active list of the United States army:

1. The establishment of the Hospital for Injuries and Diseases of the Nervous System in Philadelphia, where the foundation of Dr. Weir Mitchell's most original work, "Wounds and Injuries of Nerves" was laid, Dr. Mitchell having been placed in charge by Surgeon General Hammond.

² American Journal of Insanity, Vol. XXXII, 1875.

³ American Journal of the Medical Sciences.

2. The establishment of the Army Medical Museum in Washington.

3. The origination of the "Medical and Surgical History of the Rebellion."

These three things give our colleague just claim to distinction. I think the Hospital for Nervous Diseases was the first of its kind ever established in the world. Besides, our colleague wrote the first systematic "Treatise on Diseases of the Nervous System" in the English language, if not in any language.

If we look for discovery and classification of disease, America has not been entirely wanting. For a long time Beard's claim was controverted abroad; afterward neurasthenia was called "the American disease," then "American nervousness," till finally foreign writers recorded it among their people, even away off in far-off Russia, where Kowalewsky has written his classic book on the subject and given us due credit for our discovery. So in regard to Hammond's discovery of athetosis and mysophobia, and the coinage of these terms; and in regard to neurasthenia, I believe it is even now conceded that the original American claim¹ of general functional neurotrophias as the foundation of nervous exhaustion is universally admitted.

Seguin, in his clinical lectures in 1890, first suggested the substitution of a mixture of chloral and bromid for simple bromid, in the treatment of idiopathic epilepsy, when certain indications are present, chloral being indicated when the bromids alone produce undue stupor and extremely severe acne; also in cases where psychic disorder follows the stoppage of the bromids. This practice has now become general. He first attempted to subdivide the symptomatology of "cerebral hyperemia" (of Hammond and others) into several new groups according to etiology, e.g., cases due to lithemia, to feeble or diseased heart, and (a large group) to eye strain, etc. He also attempted to give the distinguishing clinical signs (*N. Y. Med. Jour.*, Dec., 1892), between cases of cerebral paresthesia due to insufficiency of the interni, and those due to insufficiency of the externi, and recommended the use of nux vomica and strychnia for weakness of the interni and of belladonna, cannabis indica and other mydriatics for weakness of the externi. These drugs to be used as tests for diagnosis, and also for continuous treatment. He contributed by autopsies and clinical cases to confirm the doctrine of cortical localization of functions, in respect to the visual center (cuneus, in 1880, I think); the speech center (1868); and in subsequent years the facial, brachial and pedal, or crural, centers, and gave absolute postmortem evidence in support of the idea that such centers exist.

Besides Bartholow's communication, the whole subject of cerebral localization has received additional light from the contributions of our Charles K. Mills, of M. Allen Starr, Eskridge, Spitzka, myself and nearly every American neurologist, while the contributions of the latter to cerebral pathology, as those of Isaac Ott to cerebral physiology, have been justly acknowledged abroad.

Seguin and Hammond early advocated before any one else abroad, I think, the use of large doses of potassium iodid in syphilitic or non-syphilitic diseases of the nervous system, giving historical proof of its American origin (New York) and called it the "American method." Attempts have been lately

made in Europe to ignore our great priority in this. Seguin says he learned it from Van Buren and Draper in 1865-7. I adopted this practice at the insane hospital at Fulton in 1867-8.

It falls to the lot of but very few men to discover a really important thing and to cause a great forward step to be made in medical science. Most of us must be content with helping the good work of adding new facts of secondary importance, and trying to apply scientific methods to the treatment of disease. I think that in this sphere of secondary scientific usefulness, American neurologists have made and are making good records.

The clinical relation of absent patellar reflex to locomotor ataxia, though first shown by Westphal and Erb, was extensively studied by Seguin, Gray, myself and others, and its relation to other diseases and the possibility of the knee-jerk being naturally nil in some persons was first shown in this country and acknowledged abroad,² so that the knee-jerk criteria of tabes dorsalis is a lost reflex, and an exaggerated jerk in lateral sclerosis and other states. I myself offered the first proof many years ago that it need not be present in apparently healthy individuals. One of those persons still lives and is free from any spinal or other nervous disease to this day. What is true as to elucidation of this reflex is equally true of the cremasteric and other reflexes, *vide* writings of Weir Mitchell and others. The bulbo-cavernous reflex and the virile reflex, practically the same thing, were discovered and clinically elucidated about the same time in Europe and America.

The value of the cremasteric reflex has been studied by Weir Mitchell with the same thoroughness of elucidation as that he has given to lesions of the peripheral nervous system generally; and Dr. John Ferguson of Toronto, Canada, has also thrown new light upon the patella reflex (*vide* "Remarks on Some Cases of Hemiplegia," *Alienist and Neurologist*, January, 1892). This subject has also lately been enriched in this country by Dr. F. X. Dercum, in a paper on "Optic Neuritis, Blindness and the Knee-Jerk in Cerebellar Disease," read before the American Neurological Society, July 25th.

The important subject of rheumatism affecting the nervous system was embodied in the recent address of Dr. Henry M. Lyman, before the American Neurological Association, and attention called to important clinical facts, especially affections of the sensory nervous system, not commonly recognized as associated with this disease.

The gastralgias, enteralgias, cutaneous irritations, sensitive feet and arthritic and cutaneous neuritides of rheumatism, have often attracted my attention, and have been to me an interesting clinical study, and much more is yet to be written on this important subject.

In the therapeutics of the nervous diseases, as well as in clinical description and pathology, to America belongs much credit for originality and efficiency of discovery and suggestion. Was it not in this country that the great Brown-Séquard first conceived and promulgated his famous treatment for epilepsy, which has done more than all preceding or subsequent therapeutics suggested for the alleviation of this grave malady?

¹ "Diagnostic Significance of Absent Patellar Reflex."—*Alienist and Neurologist*, January, 1890; *St. Louis Medical and Surgical Journal*, February, 1879.

All the now acknowledged virtues of *phytolacca decandra*, or poke root, except the property of *phytolacca* to reduce corpulency, were brought to my attention through the thesis of a student candidate for graduation of the St. Louis Medical College in 1859; and Dr. Bealle, a fellow-graduate with me that same year, from Texas, told in a thesis, which he entitled "Ups and Downs of a Texas Doctor," how he made a satisfactory flexible bougie out of green slippery elm bark, how he employed a smooth green wheat straw for a catheter and the crushed potato-bug mixed with lard as a satisfactory vesicant in lieu of Spanish cantharides—practices which I imitated myself while doing a general country practice in Missouri in 1859 and '60, when I could do no better, and there is nothing much better for gentle dilation in certain surgical emergencies than a smooth slippery elm bougie. I could relate other instances of western American surgical genius in the use of therapeutic expedients in pressing emergencies of practice were they strictly germane to our subject.

I claim the credit myself of having first suggested and used in private practice chloral hydrate per rectum in the treatment of convulsive affections, a method based on the West Riding asylum practice in epilepsy, and used by me for arresting the convulsions of children and of the puerperal state.

Leonard Corning's method of local anesthesia is original and we justly claim the discovery and therapeutic application of general anesthesia as American, Sir James Y. Simpson, to the contrary notwithstanding. Copious ether douching for cephalo-spinal pain was practiced by myself thirty years ago. I was the first to employ capsicum, hot coffee and ammonia enemata to resuscitate from profound opium narcosis (*vide Appendix*), after failing with a battery. Kiernan was the next to follow the practice.

In the department of electrotherapy, especially in diseases of the nervous system, America stands well forward in therapeutic suggestion and resource. Beard and Rockwell and their followers in this country have done much in this line. It has been fully thirty years since I first employed the constant current for cerebral and other congestive states, not excepting ovaries and pelvis, and recommended it in gynecology, based on a prior recommendation of Legros and Onimus that it would reduce inter-pelvic sanguineous fluxes. It has been more than twenty years since I began the systematic employment of constant cephalic galvanizations for the cure of insomnia and the treatment of epilepsy, under the conviction that the prominent symptomatology of both of these affections were dependent upon disorder of vasomotor control, which cephalic galvanizations tend to restore as the bromids do. But I must not speak further of myself.

In this connection I may properly mention Dr. Henry M. Lyman's book on "Artificial Anesthesia and Anesthetics, Insomnia and other Disorders of Sleep," as a valuable American contribution to these subjects.

We have done no markedly original work in hypnotism, but have some imitators of Charcot and others, as Charcot and his followers have with professional applause followed Braid, the professionally tabooed Manchester follower of Mesmer, the mount-bank original.

Cataphoresis in neurotherapy has been considerably advanced in America by Corning, Peterson and

others, and likewise the hypodermic use of arsenic by Moyer; also the employment of antipyrine, acetanilide and other coal tar derivatives, by the last named and many others. (*Vide Appendix*.)

The therapeutics, as well as semiology, of insanity has been enriched by Jewell and Moyer in this country, by treatment directed to the colon. (*Vide Appendix*.)

Nitroglycerine, or glonoine, was first suggested to the regular profession in 1876 and '78, by Allen McLane Hamilton, before Murrell or others abroad had used it, for anemic cerebral states and cerebral arteriole spasm. It was on this recommendation and the recommendation of nitrite of amyl for a similar purpose, that I first employed the latter for the differential diagnosis of supposed hyperemic from anemic intracranial states. (*Vide editorial in Hygienist and Neurologist*, October, 1880.)

A decidedly original and successful procedure in American surgical neurotherapy is that of pudic neurectomy as a remedy for masturbation, reported by Dr. J. S. Eastman in the *Medical News* of August 12th, of this year. The nerve being more sensitive on this side, Dr. Eastman cut down upon the left pudic nerve, which he found hypertrophied, and removed three inches of it. The patient gained weight and was freed from this vice, which had existed from the sixth to the twenty-sixth year. She had been previously sutured in the labia, cauterized, oophorectomized and clitorrectomized without benefit.

Veratrum viride, one of the very best remedies I know of for sthenic states of high cerebral and pulmonary congestion with full, bounding pulse and violent cardiac systole, is better than the lancet in high grade apoplexy and pneumonia, as it is fatal to apposite asthenic states of pulmonary inflammation and cerebral congestion, is a distinctly American remedy, and the practice of using it, as well as abusing its use, is of American origin. It may sometimes well substitute the bromids in certain phases of neurotherapy. I have so employed it. But we must not further dwell specially on American original contributions to neurotherapy. We could not complete the subject in the limits of an ordinary duodecimo volume, while another volume of equal size would not record the real practical progress and unequaled elegance of American pharmacy as applied to our therapeutics.

In the direction of neurological originality and advance, the work of our own distinguished Spanish-speaking secretary, Dr. M. G. Echeverria must not be overlooked. Though his modesty has prevented him from publicly claiming his due reward of merit, his claims have not been overlooked by foreign sources of appreciation.

His English publications, notably his great book on "Epilepsy," although scarcely noticed by American authors, are much and favorably quoted by neurologists in Germany, England and France. On their merit he was elected honorary member of the Medico-Psychological Society of Paris, and of Great Britain and Ireland; also vice-president to the first *Congres International de Medecine Mentale*, held in Paris in 1878, when he was called upon to preside on motion of the late Prof. Lesegue, after the sudden illness of Dr. Baillarger, chairman of the congress. So far as I know, Dr. Echeverria was the first physician in this country who, as "Professor of

Nervous and Mental Diseases," delivered didactic courses or lectures on this subject. This was in 1861, in the University Medical College of New York, while Seguin followed at the College of Physicians and Surgeons, in 1873. On his removal to New York from the National Hospital for the Paralyzed and Epileptic, in London, where he had occupied the position of resident assistant physician with Drs. Brown-Séquard and Ramskill as visiting physicians, he induced the Commissioners of Public Charities and Correction to establish the Hospital for Epileptics and Paralytics on Blackwell's island, New York, under his chief direction, and to found a school for idiots in Randall's island. Dr. E. Seguin, *père*, Drs. Kerlin and Wilmarth, of Elwyn, in their literary and practical works as revealed in the pages of the *Alienist and Neurologist*, *vide* Appendix, Dr. Brown of Barre, Mass., and the Wilburs have certainly done much creditable pioneer work with this class of defectives.

We may here remark, as facts of historical interest, that Dr. Echeverria was the first in America to perform, in 1865, assisted by Dr. J. H. Douglas, excision of a large portion (two inches) of the ulnar nerve at the elbow for the radical cure of epilepsy following upon traumatic injury. In 1869, in the presence of Prof. Boeck of Christiania, and other physicians and students, he removed at the hospital in Blackwell's island, the largest sanguineous clot (one and three-fourth inches long by three-fourths of an inch wide) ever extracted, to that time, from the base of the second parietal convolution of an epileptic lad, another operation lately originated abroad. The conical fibrinous clot was deeply imbedded in the cerebral substance, and the patient directly recovered his lost intellectual faculties upon the successful operation. The case is reported in his "Clinical and Anatomopathological Researches on Epilepsy," and in a subsequent paper published in Paris in 1878 (*Lesquin's Archives Gênerales*), with the records of five similar cases from Dr. Echeverria's own practice, and one hundred and forty, mostly by American and English surgeons. This paper was written mainly to show how unwarranted was the risk of this procedure then ascribed to it by French surgeons.

This distinguished neurologist, one of our colleagues, to-day, and those I have named before him, will not be overlooked when a candid world enumerates in history America's neurological benefactors.

Worthy of special mention with the foregoing is our indefatigable co-worker and colleague, Prof. Chas. K. Mills, whom the University of Pennsylvania has so lately honored with its chair of mental and medical medicine. His recent studies in "Lesions of the Superior Temporal Convolution," accurately locating the auditory center, his presentation of the subject of aphasia and other affections of speech in their medico-legal relations, and lesions of the cauda equina, are real advances that must be universally acknowledged, as are likewise the complications of multiple neuritis and other papers, which we present in the appendix.

And now I name another star which shines in the neurological firmament of New York—a star emphatically spelled by his far-seeing parents with a double

book on "Brain Surgery" (published by Wm. Wood & Co., New York), he has given us a special study of "Local Anæsthesia as a means of Diagnosis of Lesions of the Lower Spinal Cord" (*American Journal of Medical Science*, July, 1892); "The Cerebral Atrophies of Childhood, with Special Reference to Imbecility, Epilepsia and Paralysis" (*N. Y. Medical Record*, Jan., 1892); "Trephining for Hemorrhage of the Brain Producing Aphasia—Recovery" (*Brain*, 1892); "Hemi-Anæsthesia Alternans" (*N. Y. Med. Record*, Feb. 11, 1893), and has thrown some new light on the subject of "Syringo-myelia" (*vide American Journal of Medical Science*, May, 1888). His book, "Familiar Forms of Nervous Disease," is a credit to any country. Other bright neurological stars are shining, and many have shone longer, in the same scientific and humanitarian sky.

It is my impression that Ord's discovery of myxœdema received its first clinical confirmation in this country, and McLane Hamilton, I think, furnished five of the earliest clinical proofs of its verity as a distinct disease.

Hamilton first pointed out the neuro-genesis of certain meningeal inflammations, and I have maintained and do yet maintain that hemophilia is a vasomotor neurosis.

The *Alienist and Neurologist* (April, 1884, *ad seq.*), early maintained that oophorectomy was too often performed, upon the mistaken assumption that the ovary originated nervous disease, whereas the reverse is the most common clinical fact. This is not only an original American claim, but it is now becoming a generally admitted fact both abroad and at home, and the latest and best articles on this subject are by Dr. Hamilton.

Another rising luminary of this field is Dr. Frederick Peterson, a reference to whose late contributions (*vide* the Appendix) will interest you and show some good spokes, at least, in the wheel of neurological progress. His recent papers on "Cataphoresis," his physiological experiments with magnetism at the Edison laboratory, and his joint papers with Sachs on "The Cerebral Palsies of Early Life" (*Jour. of Nervous and Mental Diseases*, May, 1890), and other papers to be found in Appendix, are all valuable.

But the stars of this firmament are too many to be counted. Should we dwell long enough to attempt it, we should not during our hour get round the circle. There remain Sachs, who has translated Maynert's "Psychiatry" for us; Bert Wilder, "The Brain Builder of Ithaca"; A. Jacobi, "The Universal Genius"; Corning, already mentioned, whose book on "Brain Exhaustion" is standard. There is also Dana, to whom we have already alluded, with Carter Gray, whose respective books are abreast of all neurological advance, and in every way creditable to American neurological science; besides E. N. Brill, Graeme M. Hammond, and Brown of the *Journal of Nervous and Mental Diseases*; also Ambrose L. Ranney and his standard textbooks on "Nervous Diseases and Neurological Anatomy," and Geo. I. Stevens with his Belgian Academy prize essays on the "Oculo-Neural Reflexes, and the Relation of Eye Strain to Nervous Diseases," whose first article on this subject appeared in the earlier numbers of my journal. Too many stars to classify and minutely describe, but they make a brilliant constellation.

If we look back to Philadelphia we discover another neurological star that has escaped our gaze, Wm. C.

Among numerous recent contributions, besides his

Wood, whose treatise stands high, and yet another, Dr. A. H. P. Leull, of neuro-anatomical fame, also Harrison Allen. There is Wormly, too, of Philadelphia, who is not altogether without the pale.

Far to the southward are Joseph Jones of New Orleans, and Buckley of the occidental metropolis.

And now, casting our eye to Baltimore, our vision falls on three luminaries, Miles, Osler and Hurd, whose light has not shone in vain; there also shine Conrod, Reed, Berkley, Welch and Halstead of Johns Hopkins hospital.

Skirting the sky northward we come to the Hartford constellation, Stearns and Crothers. The book of the former is devoted to practical psychiatry; the contributions of the latter to that important branch of psychiatry which, through Mason, Wright, Crothers and others has made such rapid forward strides in America, as well as in England, the study of inebriety.

The subject of alcoholic trance has been almost exclusively an American neurological study, and Dr. Crothers has contributed more than any other American, perhaps, to make it plain. In the Appendix appear further evidences of American advance in this direction:

"Law of Periodicity in Inebriety" (*vide Alienist and Neurologist*, July, 1892), showing a uniformity in the drink impulse and the laws which regulated it.

As our vision ranges further, Boston, with its neurological and psychological *savants*, comes into view—Philip Coombs Knapp and his book on "Intra-Cranial Tumors and Other Diagnoses;" Putnam, Channing, Webber, Folsom; John E. Tyler, the departed alienist of Somerville, and Oliver Wendell Holmes, the poet sage and anatomical and psychological *savant* of Harvard. The subject of "Arterial Tension in Neurasthenia" received some new light from Boston in 1888 (*vide* article on the subject by Webber, *Boston Medical and Surgical Journal*, May 3, 1888); likewise the subject of "Lead Paralysis as it Affects the Brain" (*vide* same source, October 29, 1891); also the "Condition of the Blood in Certain Mental States" *vide idem*, March 24, 1892). The same journal for August 29, 1889, also contained some additional light on "Paramyoclonus Multiplex," and other peculiar forms of spasm, and in September of the same year, in same journal, page 277, this American writer throws additional light on the subject of "Cerebral Tumors and Their Treatment."

As we continue our survey of the neurological heavens, we come to the constellation Chicago, with such bright, particular, neurological stars as Lyman, with his book on "Practice;" Kiernan, the polygot; Moyer, the tireless; Paoli, Sanger, Brown, Brower, Clevenger, Lydston, and their books, and Church,—sadly remembering one bright luminary of these heavens now blotted out, whose light shone for a time upon our particular sky with effulgent luster—Dr. J. S. Jewell. He was a star of the first magnitude, a neurological Jewell of the first water, an indefatigable student, a painstaking observer, and a writer of the highest ability.

He blotted out his own bright life in the prime of his manhood by over zealous work in the cause he loved above his life. He founded and maintained while he lived the *Journal of Nervous and Mental Diseases*. And this reminds us that we should not omit most honorable mention, in this connection, of the name of Dr. Jewell's worthy and industrious co-worker, Dr. H. M. Bannister, among the men of might

in Chicago who have contributed to brighten her brilliant neurological sky.

Moyer has contributed a paper for the advancement of clinical neurology not already referred to: "Clonic Rhythmical Spasm of the Pronator Radii Teres" (*JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*, 1887); "Periodically Recurring Oculo-motor Paralysis" (*The Medical Record*, 1887), being the first case described in this country; "Akinesia Algeria" (*Medical Standard*, 1893), being the sixth case reported, and the second in this country; and "A Rare Occupation Neurosis?" (*Medical News*, 1893). By his works ye shall know him (*vide* Appendix for much more than we have here noted).

Within almost a suburban radius of Chicago is McBride of Milwaukee, and his "Review of Insanity and Nervous Diseases."

Modesty forbids my dwelling at length upon what St. Louis has done for the advancement of neurology. We may recover from our modesty sufficiently to appear in the printed Appendix; however, I might briefly intimate that both Dr. Bremer and myself have within the past few years added something to the literature of "Astasia-Abasia;" Fry to "Chorea;" Shaw to the subject of "Trapping for Brain Disease," and Bauduy to the "Study of Alcoholism and its Treatment." This is not all that we have done; but it were better that some one else, non-resident, should record and comment on our work, and I may say again, as I have said before (*vide* Appendix).

Now, if we continue our survey, we find the sky of neuriaty and psychiatry is not dimmed as we approach the region of the apparently setting sun. On the contrary, bright stars illuminate the western heavens. See how Eskridge shines:

He has contributed a valuable paper on "Nervous-Vascular Disturbances in Unacclimated Persons in Colorado" (*The Climatologist*, March, 1892); the important conclusion of which is for persons on going to the high altitudes of Colorado, especially for those who are nervous or who suffer from pulmonary trouble or cardiac weakness, to live comparatively quiet, until they become accustomed to their changed environments.

Likewise another on "Chorea in Relation to Climate, Especially the Climate of Colorado" (*Climatologist*, August, 1891). This study of the effect of the climate of Colorado on chorea shows but little, if any, modifying influence due to altitudes of 5,000 feet to 6,000 feet.

Another exceedingly valuable and advance contribution to the literature is "Retro-Anterograde Amnesia, with Report of Two Cases" (*Alienist and Neurologist*, July, 1892). This is an exceedingly interesting subject, both from a psychological and medico-legal point of view.

This is as far as we can go with Eskridge. But he has written much from his high standpoint in the Rocky mountains, and all is in the line of advanced neurology. (*vide* Appendix.)

Next comes Howell T. Pershing of Denver, who records five cases of pre-ataxic tabes dorsalis with optic nerve atrophy in which there were marked atrophy of the optic nerves with little or no ataxia. He gives a statistical study of tabes, and shows that (as Walton and Gowers have recently claimed) the early occurrence of optic atrophy is in some way associated with an arrested development of the spinal symptoms.

This fact modifies the ordinary rules of diagnosis and prognosis.

He also records a case of Jacksonian epilepsy, with successful operation; no recurrence of the paroxysms more than a year after operation. Other articles by this writer are: "Language and Brain Disease" (*Popular Science Monthly*, October, 1892), and "Disseminated Sclerosis following Syphilis" (*International Clinics*, July, 1891).

But we cannot go farther in this manner. If we went hence south to the City of Mexico, thence across the gulf to New Orleans, thence north to St. Paul and crossed the continent to San Francisco, we should find working neurologists contributing their quota to the world's neurological and psychological progress.

As I am about to conclude, the proceedings of the July meeting of the American Neurological Association have just appeared in the weekly medical press, and here are its notes of American neurological progress:

Besides the President's Address and Dr. Dercum's paper, to which I have referred, Dr. Smith Baker's paper on "Heterogeneous Personality;" Matthew Field's on "Hospital Detention;" Frederick Peterson's on "Temperature in General Paralysis of the Insane;" Joseph Collins' on "Changes in the Spinal Cord in Old Cases of Infantile Paralysis;" G. M. Hammond's of "Progressive Muscular Atrophy;" C. L. Walton's "New Method of Reducing Dislocation of the Cervical Vertebrae;" Dana's "Acromegaly, Gigantism and Facial Hemi-hypertrophy;" J. J. Putnam's "Thyroidectomy in the Treatment of Graves' Disease;" B. Sachs' "Tubes and Syphilis;" Kraus' "New Pedodynamometer;" Drs. Lloyd's and Reisman's joint communication on "Infectious Endocarditis with General Septicemia and Multiple Neuritis;" C. L. Walton's "Tumor of the Angular Gyrus;" Dr. E. D. Fisher's "Autopsy and Report of Congenital Cerebral Hemiplegia;" C. K. Mills' "Lesion of the Thalamus and Internal Capsule;" Wharton Sinkler's "Tumor of the Optic Thalamus;" Geo. J. Preston's paper on the "Localizing Value of Aphasia;" Leonard Weber's on "Neurasthenia;" Kraus' "Case of Myxedema, with Observations;" Philip Coombs Knapp's "Simulation in Traumatic Nervous Diseases;" and "The Microbic Origin of Chorea," by Dr. C. L. Dana, are all instructive, suggestive and progressive in our department. The proceedings of this favorite American society are becoming every year more and more valuable. They are indispensable to neurological advance. The neurological world would not march on to its manifest destiny to rule paramount in the world's medical thought without the original work of this great American society of distinguished neurologists.

There were also papers read only by title before this body, the names of whose authors are also adequate warrant of worth. Among them—"The Genesis of Hallucination and Illusion," by H. A. Tomlinson of St. Peter, Minn.; "The Diagnosis of General Paresis," by L. C. Gray of New York; "Two Cases of Friedreich's Disease," by F. R. Fry of St. Louis; "The Metapore or Foramen of Majendie in Man and in the Orang-Outang," by Bert G. Wilder; "The Relations of Chorea to Rheumatism," by C. Eugene Riggs of St. Paul; "Experiences in the Use of Testiculin and Cerebrine," by J. J. Putnam of Boston; "Paralysis after Surgical Operations," by V. P. Gib-

ney of New York; "Traumatic Brachial Plexus Paralysis in Infants," by Wm. Leszynsky of New York.

If I should go on enumerating the work, present and recent, of American neurologists, it would develop acute cerebraesthesia. It would make you tired.

I had almost forgotten to note the contributions of our hospitals for the insane to the pathology of mental diseases. I cannot now go entirely over this vast subject. Besides what has been done at Utica, N. Y., and Middletown, Conn., with which you are familiar through the *Journal of Insanity*, you may not know that it has for a long time been the custom of Dr. J. W. Blackburn, the eminent pathologist of the Government Hospital for Insane, at Washington, to each year select a number of cases for special study as a pathological supplement to the annual reports of the Government Hospital for Insane. This and the making of nearly one hundred post-mortem examinations yearly, constitutes the work of this hospital, to which I also invite your attention in the Appendix.

You see, America breeds and develops neurologists as the water breeds and develops fishes. The pabulum neurology feeds on is in the American people—their hustling, rushing habits, their business, professional, social and political environment, and the numerous newspapers they read every morning before breakfast and every night before they forget to say their prayers—this moral, political, social and business atmosphere of ambition and bustle, tends to develop the strongly endowed, neurologically and psychologically, as it tends in the weakly endowed to the development of neuropathic conditions. It develops neurologists and psychologists to care for the neuropaths. It builds and it breaks the nervous system. It can not yet be said that we are a neuropathic people, though we are tending that way; but neurology is advancing with equal pace with neuropathic break-down, and will, it is hoped, ultimately enlighten and save the people from their neuropathic sins.

ADDRESS.

BY E. FLETCHER INGALLS, A.M., M.D.

CHICAGO.

EXECUTIVE PRESIDENT OF THE LARYNGOLOGICAL SECTION.

Gentlemen and Colleagues:—In calling to order the Laryngological Section of the Pan-American Congress, I take the opportunity to congratulate you upon the number and excellence of the papers which have been secured for your consideration.

I feel that there is a special reason for felicitation upon the propitious circumstances under which we have convened, because of our success in spite of many obstacles.

The laryngologists of this country as well as those who would have visited us from abroad, have been called upon for more than the usual amount of work during the past few months. Early in May the American Laryngological Association met in New York and was largely participated in by those who otherwise would have been free to aid us. Shortly afterward the American Climatological Association met in Philadelphia, taxing the energy and taking the time of many of the laryngologists of this country. Only three weeks subsequently the American

Medical Association met in Milwaukee, with a large attendance upon the Laryngological Section. In addition to these, the various State Medical Societies called out a considerable number of papers upon diseases of the throat and nose. Besides this, many of the laryngologists who contemplate going abroad have undertaken to prepare papers for the International Medical Congress which was to have met in Rome shortly after the close of this Congress.

When the American Laryngological Association held its first meeting in 1879 there were, all told, less than thirty men in the United States sufficiently interested in the subject to be counted laryngologists. But the ranks have been added to rapidly year by year, until now there are probably not less than four times that number who are well equipped; and in all of the cities and larger towns throughout the country are others more or less qualified who are doing considerable work in this special line, and it is probable that to-day 500 men could be found in the United States who might present something of interest to this body, though I have been able to discover only about 200 of them.

Nearly a year ago I opened correspondence with the physicians of Central and South America and of the West Indies, hoping to get them to join us in this Congress, but I regret to say that in only a few instances have I been able to obtain replies to my letters, and that only two or three of our colleagues in those countries have promised papers for this occasion. Considering the limited intercourse which has always existed between the United States and the Latin Americas, this is not a matter of surprise, but it is hoped that this Congress will be a beginning of closer alliance and personal friendships which will in coming years bring us often together, and build up a powerful International Congress in this western hemisphere.

The railroad already projected through Central America which will connect with various railroad systems in South America, and increased means of communication by sea will, it is believed, ere long open up to physicians of the United States many new and valuable resorts whose climatic influences may be made subservient to our patients in their search for health. When this has been brought about it is obvious that our acquaintance with the physicians in these southern climes will be of the greatest advantage to our patrons.

We welcome you, one and all, to our National Capital. We ask of each, your hearty coöperation in the work before us, and we believe the final results will justify the large amount of labor and anxiety which have been expended in this undertaking.

ADDRESS OF THE EXECUTIVE PRESIDENT. SECTION ON GENERAL SURGERY.

BY JOHN B. HAMILTON, M.D., LL.D.

CHICAGO.

Colleagues:—For the first time in the history of the American continent, the medical men of the Americas meet in convention, for the purposes of scientific advancement and the cultivation of closer professional relationship.

The country of WASHINGTON, the land of BOLIVAR, and the sunny islands of the southern seas, have sent their representatives to this capital of their

oldest republic, to exchange courtesies, and set forth a fair statement of their degree of enlightenment in the various branches of medical knowledge.

Our statesmen have long desired this close union between the American republics, and the medical profession, now as ever, stand ready as citizens to carry out their share of this patriotic duty. After our own civil war, the medical profession, through the American Medical Association, met in annual reunion at Atlanta; and it should always be a matter of professional pride that our own led the van in this march of professional and social reunion. Here again we are inaugurating the first of what we hope may be the beginning of a series of Pan-American professional congresses, each more interesting than its predecessor, and all serving to unite our glorious lands in common aims and mutual regards.

As the United States has had the honor of proposing the Congress, the burden of organization has fallen largely upon its representatives, and the overflowing program is to-day evidence of the faithfulness with which our President, our Secretary-General and their coadjutors have performed their task.

We welcome you, dear colleagues, to a rare treat in the republic of letters; our foremost medical men will address you, and the topics they bring for your consideration have living interest, for they are topics of to-day.

A glance at our program shows that our own Section, notwithstanding the subdivisions by which many branches of surgery have been organized into separate Sections, is ample to fully occupy the time set apart for our deliberations.

The rapid evolution of surgical knowledge is one of the wonders of this remarkable age, and surgeons may fairly claim that their own branch of medicine has kept equal pace with the stupendous advances made by the collateral sciences. A review of the surgical progress of the last decade, alone, constitutes one of the most brilliant pages of the history of medicine. And yet one must remember that all scientific progress is based on antecedent fundamental facts, discovered by slow, laborious and painful steps.

The labors of Darwin, Huxley, Herbert Spencer, Pasteur and Lister, in the last decade, have made possible the practical successes in the present decade.

There is at this time no diseased organ or tissue of the body that escapes the remedial scalpel, and an examination of the discussions of this time shows that the questions presented are rather those of method, than those of original discovery. We no longer question the propriety of surgical interference, in hitherto dark portions of human anatomy, but we are concerned in the technique of that interference; and to the improvement of surgical technique the ablest minds of the present decade have been directed.

The subject of surgical bacteriology, which includes the chemical study of microbic products, has still much to disclose, but we already base our practice on the immortal discovery of Pasteur. The success of modern surgical treatment, even with the imperfect knowledge of the bacteria that we now possess, is such that no surgeon thinks for a moment of comparing the results of any given operation with those obtained in the pre-microbic epoch. This comparison, however, only relates to the age of gunpowder, for history tells us with abundant detail, that the ancient treatment of wounds corresponded very closely with our own. The vulnerary com-

pounds of the ancients were largely composed of what we now know as antiseptics; the terebinthinate and metallic dressings of the Alexandrian period we can accept to-day as true anti-bacillary agents; and even the boiling oil and the red hot iron, we could now admit as forming an eschar, or impermeable wall against the entrance of microbes. It was aseptic surgery of which the ancients knew nothing. The empirical results of the boiling oil, of the actual cautery, were enough for the ancient masters; like the heroes of Balaklava:

"Theirs not to reason why;"

they only knew results were satisfactory, wounds healed quickly and without sepsis; what matter if the theory on which their treatment was based—that of arrest of hemorrhage—was faulty, the result satisfied them. Like the blind man of the New Testament the logic was simple: "Whereas I *was* blind, *now* I see;" therefore the touch was adequate. All medical science seems to have run in cycles, and there was less medical superstition in the Alexandrian period, than in medieval medicine—less in the Hindoocharaka than in the pages of Guy de Chauliac or Ambroise Paré. Bacteriology has added much to our knowledge of tuberculosis, and given more precision to its treatment, but that knowledge is still imperfect, and its treatment far from satisfactory. Much less has bacteriology added to our knowledge of the carcinoma, which still remain one of the mysteries of medicine. We have for years studied the varying departures of tissues from the normal to the abnormal type, and bacteriologists have in vain sought to connect the atypical structure of carcinoma with some bacterial development, but no Pasteur or Harvey has yet dawned upon our horizon to pick the lock of a mystery to which Heaven seems to have allowed our generation no key. Looking to the future we can not doubt that the solution of the formation of the carcinomata will yet be discovered, but it will necessarily be through the influence of some now totally unknown factor. The study of embryology and atavism seems at present the most probable avenue to the truth.

What may we hope for the future of surgery?

It seems likely at this day that improvements in technique will continue to occupy the surgical mind until some epoch-making discovery in physiology shall have been made. It is not likely that the present generation of surgeons will witness another discovery as far reaching as that of Pasteur. We must digest and fully assimilate the discoveries of the bacteriological epoch; that process will probably fully occupy our time and that of our immediate successors. It is true that we may have some help from advances in the collateral sciences; transillumination of the body for example, may be yet fully developed in our time, instruments of precision as aids to hearing and vision may greatly assist us in making our present knowledge useful, but the great outlets to human life such as carcinoma, in all probability will have their genesis understood only by the surgeons yet unborn. When that time shall come, carcinoma and tuberculosis will be classed among the preventable diseases. These two affections have cost more human lives annually than cholera or yellow fever, and yet no government has ever set on foot any systematic and regular inquiry into their causation or propagation. It is true that the study of cattle tuberculosis

has been the subject of much study by the Bureau of Animal Industry, but so far as the human race is concerned little has been done in the direction indicated.

Colleagues! I feel that I have too long detained you with these speculations, when we have before us a program so rich and so varied, but I can not refrain from expressing my heartfelt congratulations on the success of this meeting, my thanks for your generous response to the call for papers, and as an American surgeon to bid you welcome. Welcome, thrice welcome, foreign colleagues, to our hearts and homes. We pray you to kindly join us in warmest fraternal greetings to our European guests, and let us remember the saying of Livy that true friendships are immortal.

NECROLOGY.

Dr. Clinton Armstrong of Carrollton, Ill., died at Eureka Springs, Ark., August 23, aged 70. He was surgeon of the 61st Ill. Vols. and for many years a member of the Illinois State Medical Society and of this Association.

Dr. John F. Higgins of Port Jervis, N. Y., died at the German hospital in that city, Aug. 20, as the result of an accident received Aug. 16. He was a graduate of Bellevue Hospital Medical College class of 1879.

Dr. Augustus H. Salisbury of Minneapolis, died in that city, Aug. 26. He was a native of Canandaigua, N. Y., and 53 years of age. He was the first health commissioner of Minneapolis and had practiced there since 1874.

Dr. Edgar G. Young died Aug. 17 at his new home in San Diego, Cal. He had been ill with a complication of lung and heart troubles. He was 47 years of age and leaves a widow.

Dr. D. A. Pancake died at Columbus, O., Aug. 28. Dr. Pancake was on his way to Columbus, but was taken sick in Cincinnati.

Dr. Henry H. Darst of Toledo, O., died in that city Aug. 25, aged 72 years.

Dr. Woodville S. Bates of St. Louis, died at Badenweiler, Germany, August 2.

A Hospital with a Single Bed.—This caption is not intended to apply to the average sickroom, but rather to indicate the modest beginnings of a missionary plant in a benighted section of Asia, at the city of Patna. Dr. Grace Mackinnon, in January rented a little mudhouse on the bazaar, and thither sent a patient from the city dispensary whose treatment was impracticable at the patient's own home. Since that time one patient has succeeded another until a series of ten has been under treatment. Other patients take up a temporary abode in some house near the gates of the dispensary, in order to enable the lady physicians to economize their time and steps. "It is the day of small things, but we are very far from despising our hospital with its one bed; far from it; we take great pleasure in it, and we have come to know some of the patients really well by its means."

Blank applications for membership in the Association, at the JOURNAL office.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:
PER ANNUM, IN ADVANCE \$5.00
SINGLE COPIES 10 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,

NO. 68 WABASH AVE., CHICAGO, ILLINOIS.

All members of the Association should send their Annual Dues to the Treasurer, RICHARD J. DUNGLISON, M.D., LOCK BOX 1274, PHILADELPHIA, PA.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Dunglison, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues and subscription for THE JOURNAL. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

SATURDAY, SEPTEMBER 9, 1893.

THE PAN-AMERICAN MEDICAL CONGRESS.

We publish this week the address of President PEPPER, the address of Surgeon General STERNBERG on Military Surgery, the address of Professor WARREN, Executive President of the Section on Pedagogics; the address of Professor HUGHES, Executive President of the Section on Neurology, and the opening remarks of Professors INGALLS and HAMILLTON, Executive Presidents respectively of the Sections of Laryngology and General Surgery.

A careful perusal of these addresses will show that, with scarcely an exception, the authors have taken a broader view of the scope of the Congress than a mere professional one.

The Congress is looked upon as the initial step towards cementing the grand brotherhood of American States into commercial and professional union. Political union may not be desirable, but commercial and professional unity of action will develop the Americas as nothing else could develop them. The republican idea, too, will gain new strength throughout the world, as an indirect effect of these periodical exhibitions of power.

CHOLERA.

The latest advices from Europe show that there is not much change in the cholera situation in Russia, but that the previous ratio of increase is maintained.

In Hungary and Galicia the disease is increasing. It is admitted that in Hungary three hundred communes are infected. In Galicia fifteen districts have been invaded and the disease is still spreading.

On the 1st inst., in Obecoe, in Hungary, there was a cholera riot owing to the removal of the corpse of a cholera patient.

The ignorance and superstition of the people prove a serious obstacle in the way of the authorities in the enforcement of proper sanitary precautions, leading inevitably to the spread of the contagion. This

is to be observed in Persia as well as in Hungary. There is no increase in Vienna.

The disease has broken out among the Jeddah pilgrims on the island lying off the city of Mogador in Morocco, as anticipated. We have not yet reliable returns of the instances in which these returning pilgrims have developed the disease or the places to which they have carried it. It is evident, however, that it is no longer confined to the northern shores of the Mediterranean, but is spreading on the southern seacoast as well.

In Italy, Genoa has been reached. New cases have appeared in Alessandria, and several other new points have been reported, but the disease does not seem to be spreading to any great extent. The number of cases has been greater at Palermo than at any other point.

In France, deaths have occurred at Nantes, one of the victims being a physician who had treated cases in hospitals.

New points are constantly infected in Germany, Holland and Belgium, but the authorities are keeping the disease under control wherever it appears. Another death has taken place at Hull. The port of Grimsby in Lincolnshire, has been declared to be infected with cholera, and traffic between it and other British ports has been prohibited. What has become of their *no quarantine* system in England? During August eighty deaths occurred from what was called choleraic disease. It is now believed that many of these were due to cholera. Why was not the character of the disease discovered before? This was to be expected, inasmuch as emigrants from the continent pass through Grimsby in considerable numbers en route for the United States, by way of Liverpool. A number of cases have also been found in Jersey City, the origin of which has not yet been satisfactorily traced. Every effort is being made to prevent the spread of the disease from that point.

PHYSICIANS CAN HAVE BUT ONE SATISFACTION.

Physicians can have but one satisfaction of their bills. An important illustration of this principle, suggestive of a wide application for it, occurs in the case of *Woon v. Muxon*, decided by the Supreme Court of New York, July 8, 1893, (just reported, 24 N. Y. Supp. 286). Here a physician and health officer of a town attempted, by way of counter claim, in a suit brought against him, to collect the balance of his charge for attending a family through an epidemic after a portion of his bill had been allowed by the town. The court, however, said that the physician having presented his bill to the auditors of the town was evidence, as against him, that he was employed by the town to attend the family in question. The fact that the auditors allowed a portion of his charge was also evidence to show such employment.

They would have no right to make him a present or to make him any allowance on account of such services unless a legal charge against the town. The presentation, audit, and acceptance of what was allowed him, extinguished his claim. When he voluntarily presented his bill as a claim against the town, the audit of the town board was a legal adjudication of the amount due thereon. Moreover, if there were any liability on the part of the person whose family was attended, as well as the town, for such attendance, which the physician might have properly claimed, his presentation of a bill to the town, and acceptance of the amount at which it was audited, must have had the effect of also extinguishing the claim as against such person. Where a debt owed by two joint and several debtors, is satisfied by either, nothing remains for either to pay. If the debt is once satisfied, to allow recovery again, even if against another person, would be to allow a satisfaction twice upon one debt. So when the physician above mentioned presented his claim to the town auditors as against the town, and accepted the sum that they allowed thereon in payment, the transaction extinguished his claim against the head of the family attended, if any such claim ever existed.

THE NEW PHARMACOPEIA.

A new revision of the Pharmacopeia has just been placed upon our table. We will give it careful review as soon as practicable. At a hasty glance the publication shows that many changes have been made; a great many drugs have been dropped from the former list and many new preparations added. It has been revised with more care than any previous edition, and gives evidence of high scholarship and a thorough understanding of the necessities of the profession. The last revision of the Pharmacopeia prepared the way for the decimal system of weights and measures by providing that medicinal preparations should be composed of parts by weight. In this edition, the decimal or metric system is employed in the compounding of preparations throughout without qualification or translation. This change must be approved by all who appreciate simplicity in our system of weights and measures, and we predict that by the time the next revision shall take place the medical profession will have generally adopted the decimal form in prescription writing. The form is so easy and simple when compared with the complicated system of grains, scruples, drachms and ounces, as to make it a matter of wonder that the decimal system should have so much difficulty in the way of its adoption.

When it shall have become generally used it will be as impossible to return to the present English system as it would be for our bankers and business men,

generally, to return to the English monetary system and account for financial transactions in pounds, shillings and pence. To be sure, there will be some difficulty in the minds of those long accustomed to a certain method, whatever that method may have been, but the medical profession, ever progressive, will soon adapt itself to the changes made necessary by the advances of science. We sincerely hope that no misguided person will publish sets of complicated rules for the conversion of the English system into metric doses, for the reason that it is not rules for conversion that are now needed. The prescriber should learn the dose of his preparation or drug according to the decimal doses; then when a single dose shall have been learned it is only necessary to multiply the units of that dose by the number of doses he wishes to administer. Complicated rules for conversion have long stood in the way of the practical adoption of the decimal system. Let us have dose tables in convenient form for immediate reference, that can be carried as a memorandum in the pocket and a moment's reference, then, will refresh the mind as to the exact dose and there need be no danger of making mistakes.

The American Metrical Bureau of Boston long ago published dose tables, with statements according with the foregoing remarks, but as time has gone on they have passed out of the minds of many and it is again necessary to bring them into view. The American medical gentlemen of the future will be astonished to find that more than a quarter of a century was required to effect the change from an arbitrary to a decimal system of doses after a hundred years of trial of the same system in the coinage of the country.

In our review columns we will again refer to some of the more prominent features of the Pharmacopeia.

SOCIETY NEWS.

Mississippi Valley Medical Association meets October 4, 5 and 6, 1893, at Indianapolis. R. Stansbury Sutton, M.D., president, Pittsburg; F. C. Woodburn, M.D., secretary, Indianapolis; A. M. Owen, M.D., treasurer, Evansville, Ind.; G. J. Cook, M.D., chairman committee of arrangements, Indianapolis.

PROVISIONAL PROGRAM.

- Allen, S. E., Cincinnati. Paper.
- Aulde, John, Philadelphia, Pa., "Cellular Therapy; its practical adaptation in the rational Treatment of Disease."
- Banker, A. J., Columbus, Ind., "Some Practical Points in the Treatment of Abscesses and Tuberculous Glands."
- Barr, A. B., Calimine, Ark., "The Physiology of Conception."
- Bauer, Joseph L., St. Louis, "The Treatment of Hip Joint Disease as related to its Etiology."
- Bauer, Louis, St. Louis, "Incurability of advanced and extreme Cases of Talipes Equino-varus by the Methods and Means in Vogue at the present Time. Suggestions of a Way to remove the Deformity, without disturbing the Usefulness of the Extremity."
- Berghoff, J. T., St. Joseph, Mo., "Treatment of Fractures of the Leg."

- Bishop, Seth S., Chicago, "Treatment of Mastoid Disease, with Operations."
- Bloom, N., Louisville, "Electrolysis in the Removal of superfluous Hairs."
- Braxton, A. W., Indianapolis, "Presentation of Cases of Skin Diseases—*a*, Sarcoma of the Face, with Sections; *b*, Lupus Deformans; *c*, Neuroderma Pigmentosum."
- Carpenter, J. G., Stanford, Ky., "Strictures of large Caliber; Follicular Erythritus; Urinary Infiltration; Abscess; Two Cases; Recovery."
- Cartledge, A. Morgan, Louisville, "Shall we Operate in all Cases of Appendicitis?"
- Cheatham, Wm., Louisville, "Medical Ophthalmoscopy."
- Comerys, C. G., Cincinnati, "Medical Jurisprudence."
- Corlett, Wm. T., Cleveland, O., "Pemphigus; its Varieties; Cause and Treatment, with a Report of some unusual Cases."
- Crothers, T. D., Hartford, Conn., "The Medical Treatment of Inebriety."
- Cox, N. D., Spencer, Ind., Paper.
- Culbertson, J. C., Cincinnati, "Diphtheria."
- Cutter, Ephraim, New York, "The Treatment of Sclerosis of the Spine."
- Davis, Wm. H., Denver, Col., Paper.
- Deweese, Wm. B., Salina, Kan., "The Erect Posture for Gynecological Examinations."
- Devilbiss, Allen, Toledo, O., "New Devices for Cutting Bone."
- Dixon, Arch., Henderson, Ky., Paper.
- Dunning, L. H., Indianapolis, Paper.
- Eichburg, Joseph, Cincinnati, "Essential Paroxysmal Tachycardia."
- Everts, Orpheus, College Hill, O., "Problems of Public Interest concerning the Insane."
- Galloway, Wm. A., Xenia, O., "Diphtheria; a Treatment giving a low Death Rate in Hospital and Private Practice."
- Gibbes, Henneage, Ann Arbor, "The History of a Case of Phthisis Treated with Gold and Iodin, and where Inoculations of Guinea Pigs with the Sputum was kept up until it became Innocuous."
- Hall, Rufus, Cincinnati, Paper.
- Hayes, D. J., Milwaukee, "Some Points on the Surgery of the Prostate."
- Heath, F. C., Indianapolis, "Hygiene of the Eye."
- Hibberd, J. A., Richmond, Ind., "Address on General Medicine."
- Hodges, Fred, Jenner, Anderson, Ind., "Continuous Submersion in Infected Wounds of the Extremities."
- Holmes, Bayard, Chicago, Paper.
- Humiston, Wm. H., Cleveland, "The Treatment of the Diseases of the Uterine Appendages."
- Hutchinson, Wm. F., Providence, R. I., "Electrical Anesthesia; further Studies."
- Kieper, G. F., Lafayette, Ind., "Etiology of Deafness and its Prevention."
- Kellogg, J. H., Battle Creek, Mich., "A Critical Study of the Symptomatology of the Disorders of Digestion."
- Kemper, G. W. H., Muncie, Ind., "A Case of Senile Gangrene Treated by Amputation."
- Lamphear, Emory, Kansas City, "Surgery of the Cranium; what is the proper Treatment?"
- Lash, H. M., Indianapolis, "Chorea; its Etiology and Treatment."
- Lewis, Bransford, St. Louis, "The Pathological Anatomy of Urinary Retention, with Deduction as to Treatment."
- Link, Wm. H., Petersburg, Ind., "The Value of a Close Observation of other Men's Work."
- Loeb, H. W., St. Louis, "Some Illustrative Cases of Nasal Headache."
- Love, I. N., St. Louis, "Chorea in its Relation to Rheumatism."
- Lydston, G. Frank, Chicago, "Some Heresies regarding Prostatic Pathology."
- McFarland, Anne H., Jacksonville, Ill., "The Classification of the Insane."
- McGraw, Theo. A., Detroit, Paper.
- McGahan, Chas. F., Bethlehem, S. H., "Physical Culture in Pulmonary Disease."
- McMurry, L. S., Louisville, Paper.
- Marcy, H. O., Boston, "Address on Surgery—The Anatomy and Surgical Treatment of Inguinal Hernia in the Male."
- Mathews, Joseph M., Louisville, "Ulceration of the Rectum; its Etiological Treatment."
- Meachem, J. G., Racine, Wis., "Lung Diseases as they occur on the Shores of Lake Michigan."
- Moulder, J. McLean, Kokomo, Ind., "Brain Surgery, with Report of Cases."
- Mitchell, Giles S., Cincinnati, Paper.
- Murphy, J. B., Chicago, "Perforative Peritonitis."
- Norbury, Frank P., Jacksonville, Ill., "Medico-Legal Aspects of Brain Tumors."
- Ohmann-Dumesnil, A. H., St. Louis, "Chaneroid of the Eyelid."
- Oliver, J. C., Cincinnati, "Tubercular Disease of the Tarsus; Surgical Treatment; Results."
- Page, L. F., Indianapolis, "Hay Fever."
- Pantzer, H. O., Indianapolis, "The Pathology and Principles of Treatment of Asthma."
- Price, Joseph, Philadelphia, "Why Gynecology and Obstetrics should be in the Hands of Specialists."
- Quimby, I. N., Jersey City, N. J., "A New Method of Operating at the Ankle Joint for Injuries of the Foot."
- Ravogli, A., Cincinnati, "Cutaneous Psoriasis-permosis."
- Reamy, Thad. A., Cincinnati, "Evolution in the Treatment of Uterine Fibroids—since 'My Entrance into the Profession.'"
- Ray, J. M., Louisville, "The Nose and Naso-Pharynx in their Relation to Suppurative Diseases of the Middle Ear."
- Ricketts, B. Merrill, Cincinnati, "Report of Surgical Cases with Photographs."
- Ridlon, John, Chicago, "Differential Diagnosis and Principles of Treatment of Hip Joint Disease."
- Sattler, Eric E., Cincinnati, Paper.
- Sexton, J. C., Rushville, Ind., "Study of a Fatal Case of Essential Tachycardia."
- Scott, M. T., Lexington, Ky., "Septic Infection of the Newborn."
- Stearne, Albert E., Indianapolis, Paper.
- Stewart, F. E., Watkins, N. Y., "Some of the Treatments Employed in Sanitariums."
- Stemen, C. B., Fort Wayne, Ind., "Antiseptic Precautions in Railway Injuries."
- Straus, Leon, St. Louis, "A Plea for more Frequent and Earlier Colotomy in Painful Malignant Diseases of the Rectum."
- Sutton, R., Stansbury, Pittsburgh, "President's Address."
- Thornbury, Frank J., Buffalo, N. Y., "The Bacteria of the Surface; Disinfection of the Litter; Non-Utility of Antiseptics."
- Thorner, Max, Cincinnati, "Modern Methods of Treating Ear Diseases."
- Todd, Lyman Beecher, Lexington, Ky., "Certain Diseases of Infancy; their Prevention."
- Vernon, Geo. W., Indianapolis, "Infantile Therapeutics."
- Von Klein, Carl H., Cleveland, "Nasal and Post-Nasal Vegetations."
- Von Ruck, Karl, Asheville, N. C., Paper.
- Walker, H. O., Detroit, Mich., "Kraske's Operation, with Report of Cases."
- Walker, Edwin, Evansville, Ind., "Reflex Irritation as a Cause of Disease."
- Werder, N. O., Pittsburgh, "The Present Status of the Treatment of Uterine Fibroids."
- Webster, Geo. W., Chicago, Paper.
- Wirt, Wm. E., Cleveland, "Treatment of Old and Neglected Cases of Hip Disease."
- Wishard, Wm. N., Indianapolis, Paper.
- Wood, E. A., Pittsburgh, "Therapy of Gold."

DOMESTIC CORRESPONDENCE.

Staff Correspondence of The Journal.

JOURNAL TRAIN, C. & O. R. R., Sept. 3, 1893.

The JOURNAL train left Central depot on time at 8:30 and traveled through the country without incident until nearing Indianapolis, where it was delayed an hour and a half by a wrecked freight train. The train service was excellent and the doctors, although delayed, preserved their equanimity and arrived in Cincinnati in good order. The St. Louis contingent were delayed for some reason or other and did not unite with the train at Indianapolis as was expected. The following named gentlemen among others were on the train:

Mr. Ernest Hart, editor *British Medical Journal*, and Mrs. Hart; Dr. Daniel R. Brower, Chicago; Dr. J. R. Wolfe, Prof. Ophthal., Glasgow; Dr. J. W. McLaughlin, Dr. E. H. Root,

Dr. A. M. Bromworth, Dr. C. M. Hobby, Iowa City; Dr. Bayard Holmes, Dr. E. F. Ingals, Dr. R. C. Corr, Carlinville, Ill.; Dr. S. H. Stevenson, Dr. S. S. Bishop and Mrs. Bishop, Dr. Geo. H. Cleveland, Dr. F. C. Green, Dr. W. Y. Dougall, Joliet, Ill.; Dr. P. C. Coleman, Colorado, Texas; Dr. James M. Craighill, Baltimore; W. J. Williams, Odell, Ia.; J. W. C. Love, City of Mexico; the editor of the *JOURNAL* and Mrs. Hamilton. Mrs. Holland, the stenographer of the Chicago Medical Society, was also of the party.

At Indianapolis the party were called upon by Dr. Woodburn and others who wore badges showing that they were on the Reception committee of the Grand Army of the Republic, which meets in Indianapolis this week. The city of Indianapolis was gaily decorated with flags, and presented the appearance of a place about to have a great fair or public entertainment. We were told that 200,000 strangers were already in Indianapolis attending the Grand Army encampment.

Prof. Weismann's Theories.

A late thoughtful editorial in *THE JOURNAL* on "Studies of Heredity," commenting on Dr. Weismann's published essays on this subject, seems to endorse the German professor's doctrines as the latest accepted conclusions of science. No mention is made of the widespread criticisms which Weismann's theories have called forth, the most notable of which perhaps are from the pen of Herbert Spencer in the *Contemporary Review*. After expressing surprise at the wide acceptance of Prof. Weismann's theories by the biological world, Mr. Spencer proceeds to show that the most fundamental proposition in his "Essays"—that on which the whole superstructure of his biological arguments rest—is untenable.

Prof. Weismann's primary contention is that animal organisms consist essentially of two kinds of ultimate cells—the somatic or nutritive cells and the reproductive germ cells; that the former are perishable but that the latter are immortal; that is, that in the propagation of the species from generation to generation, the reproductive cell is transmitted as such, retaining its distinctive nature in contrast with the somatic cell which varies according to the nutritive functions performed by it, and finally perishes when nutrition ceases. In a summary way and with masterly skill, Mr. Spencer entirely demolishes this theory. He proves conclusively that in important divisions of the animal kingdom, the alleged reproductive cell is wholly dispensed with for many generations together. Therefore, the transmission of hereditary qualities can not reside in the substance of these germ cells. Even in vertebrates, Weismann admits that the distinction between the two kinds of cells is not evident until the embryo is completely formed. Only nutritive cells during this period can be shown to exist. But the impress of heredity marks this period as plainly as any later stage in the development of the organism. Hence, Weismann's assumption becomes pure supposition.

The further assumption that acquired traits in the parent can not be transmitted to the offspring because the germ plasma from generation to generation is continuous and immortal and therefore unvarying, is shown to be equally without foundation. The great English scientist in his discussion appeals constantly to facts. And it is by an array of incontrovertible facts that the German professor's theories are upset. He shows conclusively that acquired traits are transmitted, not only in the human species but also in the animal kingdom generally. The evidence presented on this point by Mr. Spencer would seem to be sufficient to set-

tle finally the vexed question of the transmissibility of acquired traits.

Aside from the interest attaching to the consideration of the problems presented in Dr. Weismann's book, the discussion is extremely interesting as illustrating the different methods by which the ultimate truth is reached through scientific research. Theories are as necessary in scientific investigations as facts. But the observed facts must support the theories. Dr. Weismann insisted upon this and, like Mr. Spencer, makes his appeal also to the facts. But when the facts are observed through the false medium of an erroneous theory, the facts themselves become distorted, and it is not every mind that can allow for the aberration. Here is Prof. Weismann's weak point. In his eagerness to sustain his contention, he permits himself to bridge over great gaps in his theories by supplying suppositions. And through these gaps Mr. Spencer comes up with a phalanx of adverse facts which completely demolish the theories.

Prof. Weismann's books on this subject represent, no doubt, the work of a lifetime. His writings bear the impress of great erudition, and of elaborate, painstaking workmanship. Upon the soundness of the biological views advanced and advocated, the author has evidently staked his reputation as a man of science. To see these works rudely assailed and their fundamental doctrines discredited seems pitiless and unkind. But it is thus that science makes advances. No fabric that rests upon false foundations, however famous the architect or imposing the structure, may rest secure from her attacks. And in the onslaught against all forms of erroneous belief, the one trait of judicial mindedness counts for more in the outcome than all the other qualifications besides of the investigator. Here is where Mr. Spencer stands preëminent, and his methods are models for study for any who may have the inclination or the aptitude for scientific investigation.

JAMES L. TAYLOR, M.D.

The Pensacola Board of Health.

PENSACOLA, FLA., Aug. 26th, 1893.

To the Editor—Sir:—As requested, the following statement of the reported outbreak of yellow fever in the city of Pensacola, Florida, is made for the *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*:

On August 9th, the attending physician reported that Rev. F. C. Waite and Ellen Wood had died that morning of yellow fever. This report came to the Board of Health without any previous notice of even a suspicion of the existence of yellow fever in the city. Steps were immediately taken to isolate and guard the premises where those deaths had occurred, both of which are in the northern part of the city, and separated about five blocks. An autopsy was held during the afternoon of the same day, and the physicians performing the same, decided that both deaths had been caused by yellow fever.

Upon this, the county health authorities gave notice by wire to the State and the United States health authorities, and also to the Health Boards of adjacent States. Joseph Y. Porter, M.D., State Health Officer of Florida, arrived on the night of the 10th and next morning assumed official charge of the investigation of the decision of the reporting physicians, and the probable origin of the contagion. Under the direction of the State Health Officer, acting through the County Board of Health, a house-to-house inspection was at once begun and vigorously prosecuted, and in the meantime measures were taken to trace every rumored suggestion as to how yellow fever might have reached this city. P. A. Surgeon, G. M. Magruder of the Marine Hospital Service, arrived here on the evening of the 11th, and

Surgeon H. R. Carter of the Marine Hospital Service arrived on the morning of the 12th. These gentlemen entered at once into hearty coöperation with State Health Officer, Dr. Joseph Y. Porter, in carrying out his plan of investigation.

On Monday, Aug. 14th, the following official bulletin was published by the State Health Officer:

OFFICE OF THE STATE HEALTH OFFICER OF FLORIDA.

PENSACOLA, FLA., Aug. 14th, 1893.

To the Public:—The State Health Officer of Florida announces that an investigation in the cause of death of Rev. F. C. Waite and Ellen Wood, who were reported to have died of yellow fever in the city of Pensacola on the 9th day of August, has been thoroughly and impartially made, in which he has been ably assisted by Surgeons H. R. Carter and G. M. Magruder of United States Marine Hospital Service.

These gentlemen agree with the conclusions herein expressed.

These cases were not seen either in life or after death, and therefore the opinions hereinafter noted are based on:

The clinical history of the cases.

The record of autopsies, and the statements of the relatives, nurses and friends of the decedents who were in attendance during their late illness.

There is nothing in the clinical history of the autopsy of the Rev. Waite to justify a diagnosis of yellow fever. On the contrary he seems to have died from acute gastro-enteritis with marked abdominal symptoms.

In the case of the child, Ellen Wood, the opinion is given, that while the record of the case clinically and from the autopsy, does not give a clear history of yellow fever, yet it contained sufficient evidence to justify the statement that the case was "suspicious," and demands precautionary surveillance and disinfection of the dwelling and its contents, together with the premises.

At this present time there have been no other cases of yellow fever nor suspicious cases reported. A house-to-house inspection, which has been made within the last three days and is now completed, discovers no sickness of a suspicious nature among the residents of the city.

[Signed] JOSEPH Y. PORTER,
State Health Officer.

Surgeon R. D. Murray, the distinguished yellow fever expert of the Marine Hospital Service, arrived on the night of the 14th and after a thorough examination of the whole matter, fully concurred in the opinion of the State Health Officer and the concurring surgeons, as expressed in the bulletin of the 14th. And it is proper to add that the statements therein made were in full accord with the opinion of the local health authorities.

As further history of the reported outbreak and investigation, an extract is here quoted from an official announcement by the State Health Officer on Aug. 18th:

OFFICE OF THE STATE HEALTH OFFICER OF FLORIDA.

PENSACOLA, FLA., Aug. 18th, 1893.

To the Public:—The State Health Officer expresses the belief that the fears and apprehensions of the health of Pensacola, which for the past week have agitated the public, involving the interdiction of travel and the consequent embarrassment to commerce, should now cease.

Of the reported deaths on the 9th inst. a thorough and impartial investigation into the history of the cases confirms the opinion heretofore announced that the Rev. Waite did not die from yellow fever, and that the death of the child, Ellen Wood, from the history, was of such a doubtful nature as to only warrant the disinfection of the dwelling as a sanitary measure, which precaution the public was entitled to receive by reason of this element of doubt. This has been done under the direct supervision of the State and United States government officers.

Since this investigation was begun and during the entire progress, the State Health Officer has been cognizant of all diseases and ailments which have existed or occurred in Pensacola, and is able to aver that no cases have occurred of a quarantinable contagious nature. This fact, coupled with the long period of active and retrospective observation, warrants the statement that there are no hidden causes which may produce it.

A notable fact in connection with these cases is that during their occurrence no precautions were taken to prevent any possible infection from them, and free and unrestricted communication was had with each, notwithstanding which, there have been no developments of a suspicious nature among the non-immune so exposed; and further, that the meteorological conditions during that period were peculiarly inductive of yellow fever, had the germs of the disease been introduced in the place.

Under orders from the Department, Surgeon Carter left Pensacola for Brunswick, Ga., on the 14th, but the investigation into the sanitary condition of the city was continued until 6 p. m. on the 19th, and the result is set forth in the following bulletin issued at that date:

THE CITY'S HEALTH.

Now that the yellow fever scare is a thing of the past in Pensacola, those who fled from the city when the alarm was given should be coming home to take part in restoring business to its accustomed channels. A great many have already returned, and those who yet remain away need feel no hesitation in coming back. The city was never more healthy, and the following, which is printed as a part of the history of the scare, should assure every one who has a lingering doubt of the real condition of affairs here:

PENSACOLA, FLA., Aug. 18, 1893.

We, the undersigned representatives of the health departments of the State of Florida, the United States of America and the City of Pensacola, do hereby announce that after a thorough and careful inspection of this city, we have failed to find the existence of any infectious disease whatever.

[Signed] Respectfully, JOSEPH Y. PORTER,
State Health Officer.

R. D. MURRAY,
Surgeon U. S. Marine Hospital Service,
G. M. MAGRUDER,
P. A. Surgeon U. S. Marine Hospital Service.

ROBERT W. HARGIS,
Pres. Escambia County Board of Health.
Very truly yours,
ROBERT W. HARGIS,
Pres. Escambia Board of Health.

Wants Cerebrine.

To the Editor—Dear Sir:—Will you kindly insert the communication herewith transmitted, in your correspondence column, and oblige. Very truly yours,

G. ARCHIE STOCKWELL.

650 Congress street, E. Detroit, Mich.

\$5.00 Reward.—The undersigned will pay \$5.00 each for a few bottles of cerebrine (Hammond) of the lot issued by the Columbian Chemical Co. in May, 1893. This cerebrine was devoid of sophistication by nitroglycerin, and moreover did not have the label of the Columbian Chemical Co., cross-stamped by fac simile in red of Hammond's signature.

Address DR. ARCHIE STOCKWELL.

650 Congress street, E. Detroit, Mich.

BOOK NOTICES.

A Manual of Diseases of the Ear. By GEORGE P. FIELD, M.R.C.S., Aural Surgeon and Lecturer on Aural Surgery, St. Mary's Hospital, Medical School, London. In one octavo volume of 391 pages, with seventy-three engravings and twenty-one colored plates. Cloth \$3.75. Philadelphia: Lea Brothers & Co., 1893.

The American publishers of the fourth edition of Field's work on "Diseases of the Ear" have furnished to American readers an excellent work on otology.

The first thirty-two pages are devoted to the anatomy of the ear illustrated by twenty-seven woodcuts.

Nine pages are devoted to its physiology, with one illustration giving diagrammatic view of the organ of hearing.

Twelve pages, with six illustrations, are devoted to the methods of examination of the ear. The next fourteen chapters deal with diseases of the ear.

Chapter eighteen treats of deaf-mutism, its causes and statistics, as well as methods of instructing deaf mutes. The final chapter is on aids to hearing including ear trumpets, artificial membrane, audiphones and rodosteophones. The three chapters in which diseases of the auricle and external meatus are considered, give a full exposition of the diseases and accidents to that part of the ear, with which the general practitioner of medicine has more especially to deal, and will be of interest to them as well as to otologists.

The next seven chapters are devoted to the membrana tympani and the middle ear where the interest of otologists largely centers, since most of the affections and injuries of these parts are most dangerous to hearing, and not infrequently to the life of the patient.

Chapter fifteen deals with the most difficult part of the hearing apparatus—the internal ear or perceptive apparatus.

Diagnoses of the affections and injuries of the external ear, and their treatment, are well presented by the author. Naturally they are the least difficult of recognition, and the methods of treating them as detailed by the author will interest all physicians who are called upon to treat those diseases or injuries.

The variety of the conditions of the middle ear resulting in impairment of its function, whether from inflammation simple or suppurative, acute or chronic, or from mechanical violence, is well presented by the author. Their diagnosis is facilitated by the manner in which the subject is treated in the text and illustrations.

The therapeutics and surgery of the part will be recognized as presenting the advances made in this subject in the last quarter of a century.

The author's experience coincides with that of others, that of the many devices designed to aid those with impaired hearing, only ear trumpets and conversation tubes have given any great amount of assistance, except in a limited number of instances.

The illustrations of the work are fair, but most of the chromo-lithographs can scarcely be considered more successful than such efforts in the field of surgery usually are, when too often they are only misleading. Figure 53 is given as "method of passing the Eustachian catheter," but it is so evidently a mistake that no one would be likely to be led to believe otherwise.

The work as a whole will be welcomed by the medical public.

MISCELLANY.

Prof. Joseph R. Wilson of Philadelphia, recently delivered a lecture in the Mining Building at the World's Fair on "The Detection of the Presence and the Percentage of Explosive Gases in Coal Mines, and how to prevent Explosions and Loss of Life."

The apparatus by which this is accomplished consists of two pumps, one of which takes in pure gas and the other pure air as a basis of measurement. The cylinder is arranged so that any desired percentage of gas in conjunction with air can be produced, while the component parts always equal 100. The product of the two cylinders is pumped into the igniting chamber, which has an aperture in front of a gas jet. Should the mixture be ignitable, ignition will immediately take place and the expansion caused by the heat propels a loose piston head at the end of the chamber against a gong, which is caused to sound.

As can readily be seen, the percentage of explosive gas is accurately obtained.

By means of the comparative turpidity of CO₂ in lime water, this apparatus ascertains the percentage of CO in the exhalation of the breath and thereby determines the

condition of the lung tissue. In the treatment of consumptives this discovery is of great benefit to the medical profession, as an opportunity is given to watch the daily progress of the disease.

Emin Pasha (Dr. Schnitzer).—Dr. Junker, the African explorer, recently passed through New York. When asked what he thought of the reports of the death of Emin Pasha, stated that he discredited such reports, and that his belief was that Emin was securely established at or near the Albert Nyanza. The latest report that has come down to the coast from Lake Tanganyika asserts that Emin had been slain and eaten at an Arab station about one hundred miles west of the Albert Lake. An English missionary, named Swann, writing in April last, states that the event fatal to Emin took place in October, 1892. This news comes through several independent, though Arab, sources.

There is nothing hazy about the Surgeon General of Siam.—Dr. T. H. Hayes, a graduate of the Maryland University, and a few years ago a struggling drug clerk, is now, although still a young man, surgeon general of the Siamese army and physician to the household of the king. He is also at the head of large educational institutions, which he has modeled after prominent schools of learning in Baltimore, is in charge of all the hospitals, and, moreover, frequently preaches to the natives and foreign residents, being an accredited minister of the Presbyterian church. He receives from the king a salary of seven thousand dollars a year and perquisites.—*La Salle Tribune*.

Prosecuted on account of a Postal Card.—Dr. James E. Reeves' formerly of Wheeling, now of Chattanooga has been sued for damages on account of the following postal card, writ, ten to Dr. Mettner of Cincinnati:

CHATTANOOGA, Aug. 14, 1893.

My Dear Doctor:

I have sent your name in Amick's pamphlet. Please give me the outcome of your experience with the so-called "chemical treatment" for consumption. The enterprising managers have within the last month made Chattanooga a sort of head-center for sending out in the secular press wonderful cures which are pure fabrications. Not a particle of proof can be furnished that a case of tubercular consumption has been cured, or benefited by the so-called treatment. Has Cincinnati sold out and moved to Chattanooga? Verily, it seems so. Speak your mind fully to me.

Sincerely yours,

JAMES E. REEVES.

Dr. Reeves is full of fight, and says he will expose the whole thing in court next October with great pleasure.

Board of Health Resign.—Four of six members of the Columbus Georgia Board of Health including the President, Dr. Ticknor, resigned because the city council refused to pass an ordinance of quarantine against Brunswick.

Dr. Frank E. Waxham of Chicago, has been elected to the chair of Laryngology and Clinical Medicine in the Gross Medical College of Denver.

The Protestant Hospital Association of Duluth, Minn., capital \$50,000 has been incorporated.

LETTERS RECEIVED.

(A) Antikamnia (Chemical Co., St. Louis, Mo.); (C) Covert, O. P., Cameron W. Va.; Corr, A. C., Carlisle, Ill.; Conkling, G., Glens Falls, N. Y.; (D) Duff, J. M., Pittsburgh, Pa.; Dunlap, W. H., Syracuse, N. Y.; (E) Eskridge, J. T., Denver, Colo.; Eggleston, J. B., Seattle, Wash.; (F) Fuller's C. H. Adv. Co., Chicago, Ill.; (G) Gibson, A. L., Washington, D. C.; (H) Heath, W. P., St. Louis, Mo.; Hobbs, J. O., Chicago; Hayes, D. J., Milwaukee (L) Luten, S. W., Cayce, Ky.; Larkin & Scheffer, St. Louis, Mo.; (M) McFall, D. M., Mattoon, Ill.; Mullen, A. J., Michigan City; Mann, E. L., Elgin, Ill.; McMurtry, L. S., Louisville; (N) Noyes, P. J., Mfg. Co., Lancaster, N. H.; (P) Postmaster, Berrien Springs, Mich.; (R) Rowan, P. J., Chicago; Reeves, Jas. E., Chattanooga, Tenn.; Ruschenberger, W. S. W., Philadelphia; Rogers, H. R., Dunkirk, N. Y.; (S) Stout, Joseph, Ottawa, Ill.; Stockwell, G. Archie, Detroit, Mich.; (T) Taylor, J. L., Wheelersburg, O.; (W) Waxham, F. E., Denver, Colo.; Wilson, W. J., Detroit.

The Journal of the American Medical Association

VOL. XXI.

CHICAGO, SEPTEMBER 16, 1893.

No. 12.

ORIGINAL ARTICLES.

REPEATED EXTRA-UTERINE PREGNANCY WITH THE REPORT OF A CASE.

Read in the Section of Obstetrics and Diseases of Women, at the Forty-fourth Annual Meeting of the American Medical Association.

BY GEORGE I. McKELWAY, M.D.

PHILADELPHIA

On the 14th of February, 1891, Mrs. M., the wife of a lawyer, consulted me, giving me the following history:

She was 30 years old, had been married the previous September, had been perfectly well and had believed herself two months pregnant, when, on the 25th of January, 1891, while staying at Atlantic City, she had a profuse hemorrhage from her uterus. A physician was called who, from her statement of probable pregnancy and hemorrhage alone, diagnosed an abortion. The patient did not remember having passed any mass, or having at that time had any severe pain or colic.

This physician saw her only once more in the ten days that followed. On the tenth day she sat up and for one week thereafter the hemorrhage continued. She said that the physician made no examination at any time and gave her no treatment except to order her to keep her bed for ten days. When she called on me she was still losing some blood, not amounting to hemorrhage and as her trunks were packed to return to Philadelphia, where she expected to come within three days, I made no examination supposing the condition simply an incomplete abortion, but told her to complete her preparations for her return home, where I would see her and treat her as the case required. I expected to empty the uterus.

She returned to Atlantic City. Two days later, while still absent, she was suddenly seized with the most intense pain in the lower abdomen, fell to the floor and fainted. Dr. E. A. Reiley, living near by, (who had not seen her before) was sent for and had charge of her until the third of May, when she was able to be moved in a rolling chair to the train, was brought to Philadelphia, and came under my care. Dr. Reiley courteously furnishes the following history:

"Your letter asking for information concerning the case of Mrs. M. is at hand. I am away from home and cannot give dates with accuracy, not having access to my books, notes, etc.

"Some time in February of 1891, I first saw the patient at Atlantic City. I was called hurriedly, and on arriving at the house, found her on the floor where she had suddenly fallen while exerting herself in arranging to move to her home in Philadelphia. She was lying on her back, with the knees drawn up, and complained of intense pain in the lower part of the abdomen.

"The lips and face generally were white, ashy and drawn, the nose presenting a pinched appearance and the whole look of the woman was as that of one dying. She was bathed in a cold perspiration and had no radial pulse, but

was perfectly conscious and the pain seemed to be agonizing. As soon as possible after starting the use of the proper remedies, I attempted to make a vaginal examination, principally with the idea of finding signs of a miscarriage, or of a pregnancy. The os was closed and small, hard and resisting as in health, and there were no signs of hemorrhage flowing externally. On account of the great pain it occasioned I did not persist further in the examination at that time. In about an hour the radial pulse became perceptible. She was removed to a bed and in a few hours was apparently out of immediate danger. The pain persisted with diminished intensity for a week or ten days, and it was fully that time before a satisfactory examination could be made as I did not deem it necessary to use ether. During this time there was a slight yellowish discharge per vaginam. Upon examination I found a slightly fluctuating mass on the right side of, and in front of the fundus of the uterus. I should judge it to have been about the size of a small orange. From that time on it decreased in size and Mrs. M., though subject to some pain and soreness at times, made a continuous, though slow recovery.

"On the 14th of March I was taken ill myself and Dr. Kaemmerer took charge of the case for me but its slow progress was, I believe, without incident. I think she said at the time of the accident that she had not menstruated for two periods, but my memory is not clear as to what she told me about the time.

"I am sure the effusion was on the right side, although at this distance of time, with a long and severe illness of my own between, my 'quite sure' may possibly be wrong; but I think not as my memory of events connected with the case which came under my personal observation is very clear. I think I have stated everything that can bear on the case.

"On her return I made a careful examination and found just the condition that Dr. Reiley described. The uterus was normal in size and position and quite freely movable. There was no uterine hemorrhage and the right side presented a mass, at this time about as large as a lemon. This, from the history, was evidently being absorbed, and she seemed perfectly well, excepting anemia, so I did nothing more than to advise against over-exertion, give iron, etc., and look after her general health. In July there was no longer any tumor to be found. She was then seemingly in perfect health and I did not see her for five months.

"On the 2d of December, 1891, I received an urgent call to see her as she had suddenly been taken violently ill. I saw her at 5 p.m. I found her in bed propped up by pillows, face pinched and drawn, body wet with cold perspiration, and absolutely blanched by what proved to be an internal hemorrhage, radial pulse imperceptible, heart beating 168 times in a minute, respiration sighing; semi-conscious, and suffering excruciating pain in the lower part of her abdomen. The story was that her last menstruation had occurred seven weeks before and that she had supposed herself pregnant. The night before at 3 a.m. she had been awakened from sleep by violent pain. She cried out, awaking her husband; immediately lost consciousness and became very much blanched. Her husband called in the nearest physician, (a homeopath) who diagnosed a retroversion of the uterus as the cause of her condition. Assisted by her hus-

band he put the nearly dead woman in the knee-chest posture, stuffed her vagina full of cotton, and left her with the assurance that she would soon be better. She did not improve under this treatment and he was called again in an hour, removed the cotton and gave her a hypodermic injection of half a grain of morphine. These hypodermics were repeated at intervals until, when informed that I was coming, he left word that he had given her five of a half grain each.

I found the vagina bulging forward, the uterus pushed up against the pubic bone and somewhat enlarged, but presenting no evidence of hemorrhage. Her abdomen was very much distended and dull in both flanks. The head was lowered, the foot of the bed raised and hot water bottles placed about her. Hypodermic injections of digitalis and whisky, and rectal enemata of milk and whisky were given. A ruptured tubal pregnancy with very great hemorrhage was suspected and her husband informed that her only hope was through the prompt performance of an operation, to which he consented. Dr. William Goodell was asked to see her with me and assist in an operation if he deemed one advisable. On our return we found the patient almost unconscious. Dr. Goodell quickly examined her, agreed with me in my diagnosis and with very little preparation the operation was begun. Dr. Goodell kindly etherized her, but during the operation the ether was turned over to a nurse.

Her condition was so desperate that time was an element of the greatest importance and we were obliged to do some things which under other conditions would not have been done. Although instructions had been left on my first visit to provide an abundance of hot water, this, in their panic, had been neglected and we were obliged to use water from the spigots in the bathroom for our instruments and for irrigation. The cleansing of the abdomen also was very hurriedly and imperfectly done.

The abdomen was opened in the median line. There was no blood from the incision and the tissues were perfectly blanched. On nicking the peritoneum black blood spouted up through the opening. From the history of her former attack I believed the cause for trouble would be found on the left side. I passed two fingers through masses of clotted blood, and brought out, ligated and incised, the ovary and ruptured tube. The tube was enlarged to the size of a large lead pencil and ruptured in the middle third. The other ovary and tube were found adherent to the fundus of the uterus, and, whereas the ovary on the left side, on which this last rupture had occurred, was apparently healthy, this ovary and tube were disorganized; the ovary was enlarged and as soft as cheese, so that it was removed in fragments from its adhesions. After its removal the abdomen was freed from clots and fluid blood. A pint vegetable dish, the only receptacle at hand, was filled four times, and in addition a pint of fluid blood was removed by sponges. Her abdominal cavity was then irrigated with several pitcherfuls of water. (The water from the hot water spigot was too hot and had to be cooled from the cold water spigot.) The abdominal and peritoneal incision was closed without drainage and the patient removed to bed. Her condition was better than before the operation, though the radial pulse was still imperceptible and the thermometer

showed an axillary temperature of 96 degrees, but respirations were deeper and the pulse beat 140.

I remained all night and kept hot water bottles continuously about her, administered enemata of milk and whisky, and hypodermic injections of digitalis, whisky and strychnin, with I believe, one of atropin. For a few days the foot of the bed was kept elevated and she was denied a pillow. Rectal enemata of animal broths, beef juice, etc., with stimulants, were continued for three days. They were absorbed apparently without difficulty, due, I believe, to their frequent administration in small quantities. Thereafter she was fed as she could take food and the enemata were discontinued. She made an uneventful recovery and is now entirely well.

No products of conception were found, nor were they carefully looked for, as owing to the scarcity of vessels, the blood clots were emptied into the bathroom water closet close by as frequently as the vessels containing them were filled. The condition of the patient seemed so desperate and hopeless that there was neither time nor inclination for such a search.

The history undoubtedly indicates that she suffered a tubal pregnancy with rupture on the right side at Atlantic City in February, 1891, and in December, 1891, the left tube was ruptured because of a pregnancy in it. Each time she had symptoms of pregnancy—suppression of menstruation, morning nausea, pricking breasts, with symptoms and sequelæ of rupture. It is to be regretted that the fetus was not found and that the specimens were not examined microscopically.

Despite much speculation, the causes that lead to tubal pregnancy are not definitely or positively known. That *severe* salpingitis is not one, is evidenced by the fact that it leads to occlusion of the tube. Whether mild salpingitis, noticed upon microscopic examination of specimens from cases of tubal pregnancy is cause or consequence, remains undetermined. It seems fair to suppose—but it is only a supposition—that whatever the primary cause, the immediate causes of tubal pregnancy are an abnormal patency of the proximate end of the tube, or a stenosis of it elsewhere; with possibly a destruction of or loss of effective function of the ciliated epithelium lining it.

In view of this and other cases, which I shall subsequently recite, the question arises whether the existence of tubal pregnancy upon one side is an indication that the individual is prone to its occurrence upon the other, and whether this liability is so great, supposing operation necessary for an impregnated or ruptured tube, as to require the removal of the apparently sound tube and ovary.

My study of this and other cases leads me to the conclusion that both tubes and ovaries should invariably be removed in every case of ectopic gestation. The conditions which affect one cornu of the uterus, or one tube, are equally liable to affect the other. From the usual position of the uterus, with one cornu lower than the other, the most dependent tube may, from retention of decomposed discharges, be more prone to this accident; but any theory of immunity in one tube based upon a trifling difference of position will not justify leaving in the woman's pelvis that which may be an occasion of sudden and irremedial calamity to her.

The mere fact that women have suffered opera-

tion for a ruptured tube on one side, and have subsequently borne children without complication, is no argument in favor of such a procedure. It is fair to say that they have escaped a repetition of the calamity, *despite the fact* that all the elements for its occurrence were permitted to remain. The well-known case of Lawson Tait, quoted later, shows the danger of such a procedure, and the possibility that a normal pregnancy following an extra-uterine foetation is fairly to be considered more as an accidental occurrence than is a future pregnancy in the other tube and its possible fatal consequences.

Had the serious condition which occurred after the second rupture, followed the first one and operation been delayed, my patient would certainly have perished, and it is evident that she would have been spared the serious danger to her life through which she afterward passed, had she been subjected to operation at the time of the first rupture and the appendages of both sides removed.

That the danger of ectopic gestation in the second tube is not exaggerated is proven by the literature on the subject.

Parry (Extra-uterine Pregnancy—Its Causes, etc.) quotes cases as follows. He says:

"Campbell quotes from the *Journal de Médecine, Chirurgie, Pharmacie*, etc., 1785, the history of a woman whose eighteenth conception was erratic. She recovered and retained the child thirty-three years, and died at the age of 75 years. At her autopsy it was found that the abdomen contained an ovoid mass weighing five and a half pounds, composed of perfectly dry cartilaginous structures, inclosing a mature male fetus, with its funis and placenta. After the removal of this last, another body the size of a hen's egg, also cartilaginous, containing a fetus the size of one of two months, was found to the left side of the uterus."

This may have been a twin conception. Varnier and Mangin (Moreau, Des Grossesses Extra-utérines, 12mo., Paris, 1853, p. 115) in the *Journal de Médecine*, 1786, state that they made a postmortem examination of a woman who died aged 74 years, and they found what they believed to be a double ventral pregnancy.

M. Galiay (*Gazette Médicale de Paris*, July 29, 1737) has known a woman to conceive two extra-uterine children. In the interval between the two pregnancies, the product of the first was evacuated through the rectum, after which she enjoyed good health for five or six years, when she conceived again. This child also was located out of the womb, and like the first, was finally discharged through the bowel, after which the woman regained her health.

In 1850, Dr. F. Brown reported (*St. Louis Med. and Surg. Jour.*, May, 1850, p. 205) that he had the care of a woman who, after having aborted a number of times, finally carried a child to term, but it proved to be extra-uterine. Two years later she conceived again. At the end of the sixth month symptoms of labor came on, after which the cyst opened through the abdominal walls. The orifice was enlarged and the bones extracted.

In 1853, M. Oulmont had under his care, in the Hôpital de le Salpêtrière (Moreau, loc. citat., p. 110) a woman aged 31 years, who had never borne any children, and who died of rupture of the cyst when she was three months gone. At the autopsy

the product of the recent conception was found in the pavilion of the tube on the right side. A second tumor was found at the extremity of the left tube. It was smaller than the one on the right side, and contained a small anencephalous fetus, which, after an attentive examination, M. Oulmont concluded was the result of a conception some years before.

Parry also quotes in long detail a case from The Transactions of the London Obstetrical Society, 1863, an abstract of which is as follows: A woman died of rupture of a tubal gestation sac. There was a history of a previous probable ruptured tubal pregnancy four or five years before this later one. Dr. J. Tyler Smith and Dr. Braxton Hicks were deputed by the Society to examine the specimens and they reported: "That at some time previous the patient had conceived extra-uterine, and that the fetus died at about the second month, and that at some time after this pregnancy she again conceived extra-uterine and that the rupture of this second sac caused her death. This report was based on the condition of the tubes, uterus and ovaries and also upon the finding of two fetuses in conditions justifying these conclusions."

Dr. W. Gill Wylie (Trans. New York Obstetrical Society, Dec. 16, 1890) reports a right tubal pregnancy which occurred after the removal of the left tube and ovary. He is quoted as believing that the first ovary, tube and debris removed "may have been" a degenerated tubal pregnancy.

Lawson Tait, in the *British Medical Journal* of May 12, 1888, reports a case in which he removed a three months' fetus and ruptured right tube from a "belly full of blood clots and bloody serum." This on May 11, 1885. Eighteen months later the patient was delivered of a child at full term. Fifteen months after this delivery she became pregnant again and went to the fourth month. On a certain day at 1 o'clock p.m., she had the symptoms of rupture of a tubal pregnancy and died at 5 p.m. without operation. A postmortem disclosed a ruptured tubal pregnancy of the left side. In reference to this case, Tait makes the extraordinary statement: "In this case we have the almost incredibly strange instance of a woman suffering from tubal pregnancy twice, with the still stranger fact of her having a normal pregnancy between the two occurrences."

G. Earnest Hermann, in the *British Medical Journal* of 1888, Vol. 1, p. 1152, reports: "A Case of Extra-uterine Gestation cured by Abdominal Section two and a half hours after Rupture," as follows: He operated—removed a right ruptured tube and a four months' fetus. He says nothing of the left tube or of its condition, but the woman had been treated three years before by rest, etc., in the same hospital, for what had been diagnosed as a ruptured tubal pregnancy of the left side and had presented all the symptoms thereof—amenorrhœa, followed by a discharge of blood, etc., pain, shock, a tumor which subsided and disappeared. The uterus was enlarged to three and a quarter inches in depth and the temperature was 100° F. He says: "If the diagnosis of the first illness be correct the case is an instance of two successive extra-uterine pregnancies in the same individual—first in one tube, and then in the other. There may have an identical morbid condition of the right and left tubes which occasioned the failure of the ovum to reach the uterus."

Hermann also reports, in the *British Medical Journal*,

September 27, 1890: "A case in which second Tubal Pregnancy in one Patient was Diagnosed and Removed before Rupture," as follows:

"In January, 1887, right tube removed for a ruptured tubal pregnancy of that side. May 13, 1890, an unruptured tube containing a fetus was removed from the left side. He says in reference to this case, and probably with the thought of the case previously quoted in his mind: "Tubal pregnancy is so often bi-lateral that I think it probable that similar cases may hereafter be found to be commoner than appears to be at present supposed."

In the *British Medical Journal*, 1892, Vol. 2, p. 732, there is reported a case upon which Galabin operated and the specimen from which Bland Sutton examined. It was reported under the title: "A Case of Tubal Gestation in which both Tubes were Gravid—Operation and Recovery." Upon examination of the specimens Sutton writes: "In this case we have to do with pregnancy in each tube, but the pregnancy in the left tube is much more advanced than that in the right tube;" and, after quoting three other cases in which he believed that concurrent pregnancy in each tube existed, but in which the proof was not absolute, he again states: "In this case the existence of impregnated ovum in each tube is beyond all doubt."

Mackenrodt, in the *Zeitsch. für G. und G.* (Band 23, left 1) reports a case as follows: "In May, the patient had symptoms of tubal pregnancy and of rupture of the sac, but refused operation. In October, 1891, she again had same symptoms and operation revealed a left-sided gestation sac the size of a goose egg, and on the right side a sac, bound in by adhesions and inherent intestines, containing fetal bones."

Olshausen, (*Deutsch. Med. Woch.*, 1890, No. 9, p. 174) reports that on Nov. 1, 1888, he removed a living fetus from the right tube. One year later patient came again with all the symptoms of a ruptured tubal pregnancy. He now removed the left tube in which was decidua tissue.

Dr. Theodore Mayer of Copenhagen, is reported in the *Annals of Gynecology*, 1890, Vol. 3, p. 501, as having removed the tube and ovary of a ruptured tubal pregnancy from the left side on January 19, 1888. On September 6 the patient had a hemorrhage and fainted, and a soft mass was found on the right side the size of a large walnut. Two days after, patient fainted again and was in a collapsed condition for some time. On October 25 she had a hemorrhage of dark blood from her uterus, pain in the abdomen, vomiting, etc. On October 29 she "passed a membrane which had all the characteristics of a true decidua pregnancy." On November 13 "a big, soft swelling" was found to the right of and behind the uterus which grew harder and harder, and gradually disappeared.

In the *British Medical Journal* of June, 1892, Thomas Savage reports a case in which upon operation he found the right tube ruptured in the center and "an apple-pie form mole" escaped; on the left side, a tumor—"a black clot as large as the closed fist" was found adherent to omentum and intestines. The ampulla on that side was found dilated.

Bon-leau (*Lech. d'Obstet. et Gyn.*, May, 1892) gives the history of a case in which seven weeks after operation for ruptured tubal pregnancy, of which no particulars are given, operation for the same condi-

tion was again demanded. He states that microscopic examination of the specimens from both sides prove both to be tubal pregnancies.

Kletzsch, in the *American Journal of Obstetrics* of May, 1888, p. 520, details the case of a woman from whom Dr. Thomas removed an extra-uterine pregnancy (side not stated) in June, 1884, and who, in October, 1887, after cessation of previously regular menstruation for two months, had then and thereafter all the symptoms of ruptured tubal pregnancy; but who slowly recovered without operation. He states that Dr. H. C. Coe concurred in the diagnosis.

Albert Peuch (*Gaz. Obstet.*, Paris, 1879) reports two cases as follows:

Case 1.—A woman aged 30, having had seven labors, the last resulting in twins, became pregnant for the eighth time. At term she became ill and the movements of the fetus ceased. On recovery her menses were re-established and she finally became pregnant for the ninth time. The ninth pregnancy progressed to the eighth month when she developed an abscess in the abdominal wall, and was at the point of perishing. The abscess opened and a piece of bone was discharged. She applied to a surgeon for relief. He introduced a stylet into the cavity of the abscess and enlarged the opening with knife and forceps, removing a fetus, bone by bone. A tumor, referred to the left side, which was the product of her last pregnancy, was allowed to remain, owing to her feebleness during operation. Subsequently gastrotomy was performed and the product of her remaining pregnancy was removed, member by member. Contrary to all hope the patient recovered.

Case 2.—A domestic. Died twenty-four hours after a rupture of a tubal pregnancy, apparently four or five months advanced. At the autopsy all the organs were found normal except the uterus and its adnexa. The uterus measured four inches in length. The right ovary and tube were distended into a sac having a globular form and a diameter of three and a half inches. It contained a fetus at about the third month. Upon the side of the sac was a solid, irregular tumor the size of a nut, hanging by its membranous adhesion, like a polyp. Upon examination it was found to contain an embryo enveloped in the membranes proper. Six months before her death she had had intercourse a number of times with the man who had impregnated her the last time.

Bröse (*Zeitschrift für Geburtshilfe und Gynäkologie*, 17, '89, p. 335) demonstrated a tubal pregnancy on the left side with hemato-salpinx of the right tube, which he had removed by laparotomy. Patient was a 2-para. Three months after the cessation of her menses the decidua came away, preceded by hemorrhage on the day before. At the laparotomy a right-sided hemato-salpinx was found with brown fluid blood in the peritoneal cavity. The left-sided tubal pregnancy was not ruptured.

Veit (*Zeitschrift für Geburtshilfe und Gynäkologie*, Vol. 17, p. 335) exhibited a tube filled with blood coagula which he found by microscopical examination to have been the result of pregnancy. The tube he had removed by laparotomy from a patient upon whom he operated for a similar condition on the other side. He reported also two other cases in which he had operated and removed tubal pregnancies, and in each of which all the symptoms had returned at a later period, but the patients recovered without operation. Questioned as to the possibility of making a diagnosis, Veit replied that the menses were absent, the patients came under observation suffering severe pain; after entrance to the hospital they had slight hemorrhage, in which no parts of the ovum could be recognized. There was a hard tumor of the tube from which the pain radiated.

Von Heukelom (*Centralblatt für Gynäkologie*, No. 3,

1887) refers to a case, described by Dr. Nölampin (*Nordl. Tijdschr. v. Geneeskunde*, 1885), dying of internal hemorrhage from the rupture of a tubal pregnancy. On autopsy the uterus was found reaching to the upper level of the symphysis, with thickened walls of soft consistency. The right tube about four centimeters from the uterus, has been distended, forming a cyst about the size of a walnut, which had ruptured. In Douglas' pouch was found a large mass of soft fresh coagula containing an embryo, upon which the eyes and ears could be recognized. Upon the left tube about four centimeters from the uterus was a fissure two centimeters long. At this position were found a number of flakes of connective tissue and membranes resembling torn tissue. Upon the posterior surface of the ligamentum latum were seen a number of flakes of circumscribed yellowish brown coagula lying in little pockets. The left ovary contained the remainder of an old corpus luteum. The right ovary showed on section a corpus luteum the size of an almond. He believed that very probably three or four months previously conception had taken place and the ovula had found attachment in the left tube, developed and, six or eight weeks before the woman's death, the sac had burst, giving rise to a small hemorrhage which had soon become encapsulated. This was explained by the yellowish brown coagula and the fissure in the left tube. Soon after, an impregnated ovule had become attached in the right tube, developed and ruptured; causing the woman's death.

Lopes (*Revista de Medicina y Cirurgia Practica*, 1880) refers to a case described by Silva. The woman died suddenly with signs of an acute inflammation. On autopsy a tumor was found containing five liters of sero-sanguineous fluid, which was demonstrated to contain the products of conception. The placenta was situated in the right iliac fossa. In the superior part of the epigastrium another sac was found from which a female fetus was removed.

Dr. John W. Taylor, in the *British Gynecological Journal*, August, 1892, p. 168, reports a case as follows. He says:

"On December 22, 1889, after nearly six months' amenorrhea, during which she believed pregnancy had begun, the patient was attacked with symptoms of peritonitis. Coincident with this, a tumor—evidently a hematocele—developed on the left side of the uterus. I diagnosed the condition as probably due to the rupture of a tubal pregnancy, but the hemorrhage was not severe and was evidently circumscribed by local inflammatory action. In twelve hours all the more acute symptoms had subsided. When I next saw the patient a well developed hematocele of considerable size remained in the pelvis. The patient was kept in bed six weeks, by which time the hematocele had become absorbed and the parts, on examination, had returned to a fairly normal standard."

Two years after, Dr. Taylor operated on this same patient for a ruptured tubal pregnancy and removed, from an abdomen full of blood, the left tube and gestation sac. He found a recent rupture (he doesn't say exactly where) in the tube, but states that near the end of the tube there was an old rupture which he believes to have been occasioned by the previous attack. He states that the other ovary and tube were apparently healthy and normal and he left them in.

This case is an exceedingly rare one as his belief is that this woman suffered two ruptured tubal pregnancies in the same tube. In the fact that the same tube was involved each time it differs from the other cases I have quoted.

Frommel, in *Monat. H. b.*, 1890, No. 23, p. 494, describes a case as follows:

"In 1883 he operated upon a woman, 33 years old, eight days after the rupture of a tubal pregnancy and extracted the fetus, etc. This pregnancy was in the right tube. Four years after, in May, 1887, the patient's menses ceased for eight weeks; she was suddenly seized with pain in her abdomen on the left side, with vomiting; she fell in the street, became suddenly pale and no pulse was to be found. The next day she expelled membranes which a microscopic examination showed to be decidua."

"On vaginal examination a tumor elastic, filling the pelvis and pushing the uterus forward and upward, was found. The patient recovered from this acute attack and four weeks after again had all the symptoms of internal hemorrhage. The tumor increased in size and there remained thereafter a hematocele. This slowly diminished and the patient made a slow recovery."

Dr. W. A. N. Dorland of this city has kindly furnished me particulars of the following case, which was operated on successively by Dr. B. F. Baer and Dr. Dorland:

"On the 11th of October, 1890, E. L. called, at the dispensary of the Polyclinic hospital. She was then 28 years old, had had four children—the eldest six years and the youngest fifteen months old. She said that she had missed her menses for three weeks and believed herself pregnant, but that after two weeks her menses came on although not so freely as formerly and the discharge was much lighter in color. When menses returned they were associated with cramp-like pains—"a bearing down not unlike labor pains." She was having repeated rigors followed by fever; was anemic and very much prostrated and the abdomen was quite enlarged. The cervix was found on the floor of the pelvis, the os was patulous, and the body of the uterus was enlarged to the size of the second month of gestation. To the left was found a circumscribed mass, apparently attached to the uterus, fluctuating, about the size of an orange, and tender on pressure. Operation was done by Prof. Baer on the 20th of October, 1890 and a ruptured tube of that side with fetus in situ, blood clot, etc., found and removed. She made a good recovery."

"On the 19th of July, 1892, the patient returned saying that she had the same symptoms as before, excepting that this time the right side seemed involved, and she thought she was pregnant again in the same way. Examination showed a slight increase in the size of the uterus and a small tender mass on the right side. Dr. Dorland says: On August 10 I was sent for at 1:30 p.m. Found her pale and anxious, she had had a severe attack of pain on the night of the 6th of August; on the 7th, a discharge of blood from the womb; on the 8th five fainting spells. Examination showed womb considerably enlarged and tumor to the right much increased in size and perceptible through abdominal wall; a boggy mass in Douglas' pouch; operation same day; tubal pregnancy, fetus in situ in tube, abdominal cavity full of blood, good recovery."

Since this paper was practically finished Carl Beck of New York, records in the *American Journal of Obstetrics* for April, 1893, under the title "Ectopic Pregnancy twice in the same Patient" a case as follows:

"Dr. C. A. L. Reed of Cincinnati, had operated upon the patient on the 20th of March, 1891, and in a letter to Dr. Beck states that, 'I was called to see Mrs. M., by Dr. J. A. Johnson, who informed me that she presented the evidences of ectopic pregnancy. I made a section and found the abdomen full of blood. We took out a large number of laminated sacs from the cul-de-sac and removed the appendages from that side. There was a rent in the tube. There was nothing in particular about the operation beyond that which is peculiar to ectopic pregnancy. I did not find the fetus for the evident reason that the rupture had obviously occurred some time before and the fetus had disappeared by maceration.'"

"The woman was so thoroughly exsanguinated by the operation and by the loss of blood—that I had operated on the heels of a recent hemorrhage—for I made no search whatever for the appendage on the other side, which I believe ought always to be removed when practicable, and when not contra-indicated by an exsanguineous condition of patient whenever an operation is done for an ectopic pregnancy."

This woman came under the care of Dr. Beck on the 23d of August, 1892. She had missed two periods and believed herself again pregnant. On that morning she had a sharp pain in her abdomen and felt that she was going to miscarry. Her symptoms, which it is not necessary here to relate, led Dr. Beck to operate three days later.

He says: "A large tumor of fleshy appearance presented itself embedded in adhesions from all sides. It seemed to be the pregnant uterus, though the walls were very thin at the apex and fluctuating so markedly that I was not sure whether it was not the cyst of an extra-uterine pregnancy.

"On the right side a short tube about one-half of the normal length was seen ending suddenly in the large tumor. The ovary was normal. He incised the tumor and extracted the fetus and membranes of a pregnancy of over three months.

"When the fetus was removed the walls were easily seen to be hypertrophic and muscular, contracting and getting thicker, and by introducing my finger into the cavity I could distinctly feel the difference between the uterus and tube. The placental portion of the membranes had been attached to the tubal portions. An extirpation of the sac was, on account of the indistinct termination of the same, not possible without extirpation of the entire uterus. I therefore closed the incision by deep and peritoneal stitches."

In the discussion which followed Dr. Beck's paper (it was read before the Gynecological Society of Chicago) Dr. Fred Byron Robinson said that he believed that Dr. Beck's case "is a case of pregnancy in the horn of the uterus and not in the tube," and in this judgment I concur, although I have thought it wise to quote the case among those collected by me.

I am aware that not all of these cases are entirely proven. Yet observers, probably as capable of making a diagnosis as are those who will criticize them, and with the advantage of personally seeing the patients and the specimens, believed them to be cases of repeated extra-uterine fetation. But if even a very few cases were proven, the fact and the expectation and probability of like morbid or abnormal conditions prevailing in each of two symmetrical and identical organs excites the careful consideration of the initial question of this paper.

Now, if, in addition, we remember that Lawson Tait, Bland Sutton and others claim and apparently prove that many cases heretofore called "hematoma of the broad ligament" and "pelvic hematocele" are really ruptured tubal pregnancies, differing only in that rupture has occurred into different structures, and, further, that most cases of hemato-salpinx are the same conditions unruptured; and that a very large number of cases have been reported, in which, upon operation or autopsy after tubal pregnancy of one side, one of these conditions was found existing on the other side, we will see how frequent repeated tubal pregnancies are, and the facts will, I believe, justify me in the position I take and which I again state, that, in all cases in which, upon operation, a tubal pregnancy is found, the ovaries and tubes of both sides should invariably be removed.

Dr. H. J. Bowdler of New York City, related a case to impress the case which he held in opposition to the essayist, that, if the opposite tube and ovary were healthy, they should be removed to remain. Where, however, they were diseased, they should be removed in the class of cases under

discussion, just as during an operation for pyosalpinx or other condition.

DR. JOSEPH EASTMAN of Indianapolis, objected to operating on healthy appendages, because on one side there might be tubal pregnancy, and the danger of having to submit to a second operation was more than offset by the enhanced danger of the double procedure at the same sitting.

DR. HOWARD A. KELLY of Baltimore, thought especial attention should be given the pathological condition. The studies of his assistant pointed to crypts or diverticula in the mucous membrane of the tubes, sometimes observable under the microscope, as the cause of tubal pregnancy, the ovum becoming lodged in one and unable to pass to the uterus. But we could not say that this condition existed, making tubal pregnancy probable in a tube which appeared to be normal, simply because tubal pregnancy had occurred on the other side.

DR. HORACE T. HANKS of New York City; DR. C. R. REED, of Middleport, Ohio; DR. CHARLES P. NOBLE of Philadelphia; DR. J. HENRY CARSTENS of Detroit, and DR. A. McLAREN of St. Paul, favored removal of the appendages on the opposite side when they were diseased, but objected to the procedure when there were no indications of disease.

DR. O. B. WILL of Peoria, Illinois, had for several years been investigating the matter of catheterization of the Fallopian tubes, and had been able to demonstrate its possibility in a number of instances. He reported two cases in which the tubes were easily dilated, which he thought had a possible bearing on the etiology of extra-uterine or tubal pregnancy.

DR. McKELWAY, in closing, said the danger of removing a perfectly healthy tube and ovary, when an operation is being done for a ruptured tubal pregnancy had been exaggerated. It was not a difficult thing usually to remove a tube and ovary that were perfectly healthy.

EXTRA-UTERINE PREGNANCY.

Read in the Section of Obstetrics and Diseases of Women, at the Forty-fourth Annual Meeting of the American Medical Association.

BY A. H. CORDIER, M.D.

KANSAS CITY, MO.

GYNECOLOGIST TO ALL SAINTS HOSPITAL; LECTURER ON CLINICAL GYNECOLOGY, KANSAS CITY MEDICAL COLLEGE.

A few years ago the report of a case of extra-uterine pregnancy was a rare event. They are frequent at this time; in fact, one can scarcely glance over a medical journal without seeing one or more cases reported. These cases are being recognized and reported with such frequency that one feels like apologizing to the members of a national organization for offering an addition to the list. However, it has been through the rehashing (so to speak) of this topic that this familiarity of the subject has been attained and the tabulation of these good results made possible. I shall dwell upon the pathology of ectopic gestation only so far as is necessary to sustain the position I hold, relative to the mooted location of the fetus in some instances, i. e. intra-ligamentous.

While my experience in extra-uterine pregnancy has not been an extensive one, it has been characterized by a multiplicity in number considering the length of time since I saw my first case.

In two years in my own practice and in that of others in which I assisted at the operation, I have had an experience of sixteen cases. The duration of pregnancy has extended over as wide a range as the location of the fetus has in variety; from six months to two years—from a soft gelatinous embryo to a

well formed nine pound child; from a columnar size embryo in the tube to a full grown child in the broad ligament. It is only in the tube ectopic gestation takes place and all other varieties are only made so by rupture of the tube as the fetus develops. Tubal abortion (?) being the exception, this may be excluded from the list with safety.

It is evident that all cases of tubal pregnancy rupture at some period, unless the growth of the fetus is stopped by some means, but the methods advocated to check the growth of the embryo are so uncertain in their results, so unsurgical and so dangerous to the mother, and the diagnosis so doubtful prior to rupture, that they are to be practically excluded from the management of these cases.

Intra-peritoneal is to extra-peritoneal rupture in the proportion of three to one. When rupture takes place between the layers of the broad ligament, the hemorrhage is limited by the resistance offered by the surrounding structures, death rarely occurring to the patient from this first rupture. The fetus may in this situation ("and in fact it is the only one in which it does," Taft) survive the accident and either continue to grow to the full period of gestation, or rupture secondarily into the peritoneal cavity, and cause speedy death of the mother from hemorrhage. Jesop's and Hoffman's cases of abdominal pregnancy were cases where the mother survived even this secondary rupture. The fetus dies, as a rule, after the primary rupture or at a later period before the ninth month, giving rise to suppuration in the leaflets of the broad ligament, leading to pelvic abscess, which may at any time burst into the peritoneal cavity, producing a rapid septic peritonitis and death, or it may open externally, by one or more fistulous tracts through the vagina, rectum, bladder or intestines. With rare exceptions the dead embryo becomes encysted and remains for years, placing the life of the woman in constant jeopardy. Cases terminating by suppuration are within the range of surgical interference.

When rupture of the tube has occurred it does not necessarily follow that all maternal and fetal structures be entirely and instantly separated and the embryo dislodged. This process when the rupture takes place into the ligament is as a rule a gradual one; some of the chorionis will remain attached to the tubal mucous membrane until the embryonic structures have established an independent existence, the child then continuing to grow; if this process of expulsion is a rapid one, then the fetus dies and an apoplectic ovum is the result, the hemorrhage is small and imprisoned or the bleeding may be profuse, killing the woman in a few hours. In the apoplectic as in the uterine abortion the hemorrhage is liable to occur at any time as long as the ovum is not removed. There is an authentic report (Taft) of a primary peritoneal pregnancy. The case is reported as such, where the child became viable. I believe were originally tubal, then intra-ligamentous, secondary rupture taking place converting it into an abdominal. In these cases the placenta will be found to occupy a position below the fetus usually in the bottom of the pelvis. When the tube ruptures into the peritoneal cavity the hemorrhage is always of the most profuse character, killing in many cases within a few hours after rupture, unless saved by timely and good surgery. In rare instances where rupture takes place and even where there has been

profound shock from the traumatic shock of the blood, the patient may rally and recover. The peritoneum is a wonderful resisting power, septic invasion of the poisonous material is against its outer surface. This minimal can be dilated and stretched considerably if only that process of gradual stretching. This is exactly what takes place during the slow growth of an intra-ligamentous pregnancy, where the pressure on the injury from the opening at the site of the tubal rupture has not been an abrupt process attended by a large hemorrhage. In intra-peritoneal rupture the first bleeding may not prove fatal, after giving rise to the most alarming symptoms; at any moment the hemorrhage may recur and kill the woman before the surgeon arrives.

A hemorrhage occurring in the peritoneal cavity differs from a bleeding occurring in any other part of the body; owing to the presence of more or less lymph in air-tight cavity the blood does not coagulate quickly and the clots that are formed are soft and friable and not of that character to firmly occlude the open mouths of the ruptured blood vessels and thereby permanently control the bleeding. They are easily washed away by the blood current with the increased force of the heart's action after the subject has temporarily rallied from the immediate depressing effects of the first hemorrhage. The treatment of this intra-peritoneal rupture may be summed in a few words: stop the bleeding promptly, remove the ruptured tube, wash out the cavity with hot sterilized water, and drain. The restorative agents and tonics should constitute the after treatment of these cases.

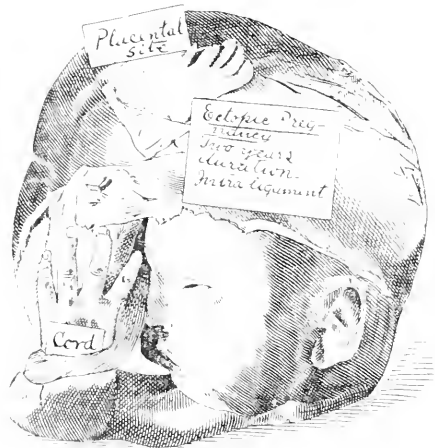
The diagnosis of ectopic pregnancy prior to rupture is attended with great difficulty and is rarely made; the symptoms are such after this accident has occurred that one can form an opinion warranting an exploratory incision down to the peritoneum. I say to the peritoneum, because if you are in doubt as to whether a serious hemorrhage has occurred or is going on, when you reach this serous membrane the correctness or error of your diagnosis is at once established and the proper course for you to pursue in the investigation or management of the case is at once mapped out. If this membrane is darkened or almost black and bulges through the incision you may at once know that a hemorrhage has taken place or is going on, or that there is some abnormal condition giving rise to the presence of a dark fluid, and the justifiability of carrying the investigation farther will be at once settled beyond a doubt. In many of these cases there is a history of some menstrual irregularity or deviation from the accustomed course in the case under investigation, such as the missing of one or two periods or an irregular intermenstrual period or flow occurring in a woman previously regular, culminating in an attack of acute suffering in the region of either uterine appendage accompanied by shock and symptoms of loss of blood.

Ectopic Gestation, Case.—Intra-ligamentous. Full-grown child retained nearly two years. Operation by Drs. Griffith and Cordier. Recovery.

Mrs. S., age 24. April 20, 1893, date of operation. April 15 I saw this lady for the first time. Says she has never given birth to a living child or had a miscarriage. Present health good. In August, 1890, she missed a period, having been regular prior to that time. In October no appearance of menses but in November flowed for three weeks, during which time she had pains in region of uterus of a paroxysmal character. Later in November she had "fainting spells."

and was semi-conscious for a few hours, but warm applications and brandy revived her. Never had any sickness at stomach. Breast became enlarged in December, 1891, with a darkening of the areole followed later by a secondary dark ring. Decidual shreds passed in November, 1891. She felt fetal movements in December, 1891, which continued up to April, 1892, or nine months after the date of conception. During March and April she had false labor pains with a steady flow of a watery looking fluid, with occasional small gushes; during this time she diminished some in size. Says enlargement was more on her left side in the beginning but soon became central. She did not have a regular menstrual period from August, 1891, to December, 1892. From November 1891 to April 1892 she had at times a "rusty discharge." She menstruated in December 1892 and was regular up to March 16, 1893. Since then (this is June 1) she has not seen her flow and the indications are that she is now pregnant. The pregnancy antedating the period of operation by four weeks.

This lady's mother consulted me in June 1892 relative to her daughter, stating that she had a "tumor of fifteen months' duration" and that she desired me to see the case. A few weeks later I asked the mother why the daughter had not been to see me; she stated that a physician had told the daughter that her "tumor" was a pregnant uterus. Said they were delighted to know that they were mistaken about its being a tumor. From this time the case dropped out of



my sight, but I thought of the case often as the history given me by the mother was a suspicious one and led me to believe at that time that it was an extra-uterine pregnancy. She returned with the daughter April 15, 1893 and I was called to see her with Dr. Griffith. At the time I saw her with Dr. Griffith she presented the appearance of a woman in the seventh month of pregnancy, fairly well nourished, good spirits and fairly good general health.

On examination we found a firm unyielding tumor extending two inches above the umbilicus centrally located, slightly movable, not painful to the touch or on handling. Dull on percussion, no fluctuation, no fetal or placental sounds. Digital examination located the uterus, a little enlarged, rather high under the growth to the front with the cervix pointing backwards. The tumor being posterior and to either side was under firm pressure slightly movable, giving the same resistance to pressure as was noticed on abdominal palpation. The diagnosis at this time was doubtful; the pregnancy gestation was the most acceptable one. When the incision was made down to the tumor, it was found that the knife cut down upon the growth at the point of the incision, no peritoneum existing at this point. The growth extending the cut upwards a peritoneal sac containing the growth was discernible and on opening this the contents were seen lying loose above the growth. The growth was removed and we found it was extra-peritoneal, as we termed it, in the depths of the broad ligament.

Now the difficult part of the operation began; the tying off and separating the omental adhesion was a slight task as it was adherent only in one place, but the entire capsule had to be tied in sections in order to remove the sac from its imbedded position in the pelvis. This could be done only by pushing a hemostat under a small section of this vascular membrane and tying it in sections by pulling a ligature (silk) through the opening made by the forcep, and tying it tightly. This tying and cutting process had to be carried around the middle of the tumor. On the upper and posterior aspect of the growth an intestine was found attached to the tumor for a distance of nine inches; this was brought about by the mass, as it had ascended out of the pelvis; stripping the peritoneum from the posterior wall of this cavity and separating the layers of the mesentery up to the gut by the same gradual process that had early in the pregnancy pulled apart the two layers of the broad ligament.

After making a complete circuit of the growth, the tumor was easily lifted from the bottom of the pelvis; this locality did not require a single ligature. During the



Mrs. S., four weeks after operation for extra-uterine pregnancy.

operation at one place on the tumor at the side next to the uterus (which was located as we had diagnosed) some very large vessels (arteries) were noticed, and at this same locality muscular tissue (Fallopian tube) was discernible. The tube at this location was evidently spread out and lost in the walls of the growth. Some remains of the organ of Rosenmüller could be plainly seen at this same location. At the left side of the uterus near the tubo-uterine junction the peritoneum was so firmly attached to the uterus that the organ was cut into and gave rise to considerable hemorrhage; this was controlled by a stitch or two and the membrane divided at a greater distance from the uterus. After the growth was removed the uterus was examined and found to be a little large with a sound tube and ovary on the left side, with the remains of a ligatured tube on the right side. The bottom and sides of the pelvis on the right side were stripped of peritoneum. The ureter and uterine artery could be distinctly felt immediately under the finger on that side. The bleeding from the surfaces was quite profuse but not alarming and was easily controlled by hot water. Irrigation and drainage used. The operation was a

long one but the patient left the table in good condition and two hours later had a pulse of 80. On examining the mass after its removal a full formed eight pound child was found in its interior. The sac surrounding the child had compressed it until the anatomical landmarks used in diagnosing pregnancy by palpation were completely obliterated—every nook and corner of the sac was filled with baby and placenta. The placental site was at the top of the sac, the cord down over the left eye of the child. The face of the child was turned to the mother's right side, the left shoulder and side of the face were the pelvic presenting parts. The body was strongly flexed, the feet being above the head, the breech pointing to the mother's right side.

The child had a complete envelope of its own and was beyond doubt primarily a tubal pregnancy which had ruptured into the broad ligament and in this location the child had continued to grow up to full term. The child then or soon after dying, remained encysted up to the time of operation.

The child was as well preserved as though it had been in a specimen jar of a well kept pathological museum. The liquor amnii had been absorbed; a small amount of meconium was found in the sac. No lime salts had been deposited in the child or its envelopes.

These cases are rare; a record of a case in the museum of the College of Surgeons of London says the child was retained for fifty-two years and was found to be as fresh and unaltered as a newborn child. In this case the specimen was removed postmortem.

I report this case in full because of its interest from a diagnostic and pathological standpoint. The steps of the operation and the results make it a unique case (barring the case referred to by Thornton, *Trans. Obst. Soc.*, Vol. xxiv, p. 81).

The sac, placenta and child were removed without opening the envelopes. The cases (except the one referred to by Thornton) heretofore, as far as I have been able to find out, have been treated by opening the sac, stitching it into the abdominal incision after removing the contents either in part or in whole.

This was originally beyond doubt a tubal pregnancy, and the manner in which the child reached its new location and continued to thrive and develop is certainly understood by any one acquainted with the anatomy of the mesosalpinx and its relation to the Fallopian tube. The rupture, which must have been a gradual one, took place early in the development of the embryo and on the under side of the tube, the fetus being gradually extruded or growing in the direction of least resistance descended between the leaflets, until it reached the floor of the pelvis.

She evidently had a hemorrhage about the tenth week; this bleeding was controlled by the pressure exerted by the broad ligament. The front and back layers becoming more and more distended by the growth of the child until on the right side the pelvis was robbed of its peritoneum, the bladder and part of the rectum also being denuded of this membrane. The remains of the tube were spread out over the sac thus assisting the broad ligament in roofing over the fetal membranes and their contents. The tubal mucous membrane plays a very trifling part in the forming of the placenta in ectopic gestation. The placenta in these cases is derived almost entirely from the fetal structures.

The villi are developed early on the outer side of the ovum and receive the blood from the allantois. These villi insinuate themselves into the folds of the tubal mucous membrane. With the growth of the ovum these villi increase in number and size, the mucous membrane becoming thinner as the tube dilates and less and less of this structure in any one locality enters into the make up of the fetal

attachments, so that ultimately the placenta when formed is, strictly speaking, made up only of fetal structures. In the case just referred to the placenta was situated at the upper side of the child and was pushed well up into the abdomen. This locality presents the most unfavorable site for the placenta to grow and nourish the child. Hemorrhages are more likely to occur in the latter months if the placenta is located above the child. This is due to the constant stretching of the peritoneum, producing a partial separation of the placenta the same as takes place in placenta previa. At the time of operating more danger is encountered from hemorrhage and wounding intestines if the placenta is situated above the child.

ECTOPIC PREGNANCY: ITS COMPARATIVE SYMPTOMATOLOGY AND TREATMENT.

Read before the Section of Obstetrics and Diseases of Women, at the Forty-fourth Annual Meeting of the American Medical Association.

BY JOSEPH HOFFMAN, M.D.,
PHILADELPHIA, PA.

Amid the conflicting claims as to the positive or presumptive symptomatology of ectopic gestation, the candid inquirer may very justly pause to join with another who long ago exclaimed: What is truth? In these days when hastily written reports are hurried into press, not to increase the general fund of information on a given question, but to call attention to the existence of the writer, too great care can not be taken to discriminate between opinions that come of experience, either practical or critical, and those that arise from accidental contact with cases of a certain class, not before met by the reporter, who consequently hastens to record his unique diagnosis and procedure, taking it for granted that his case is typical, and that his knowledge of the matter is therefore all-embracing and positive.

Nowhere is this aspect of affairs more urgent than in the advanced abdominal surgery of to-day. Opinions are held, stands are taken, contradictions are given to experience and logically adapted procedures, by those who have neither experience, nor the judicial mind to weigh the value of differences, failing in which their claims are ridiculous to those who know them, and terribly misleading to those confiding in them. Surgical results are not to be expected from neophytes or pretenders; neither from the results or claims of these are deductions to be made, except to mark their disastrous work as the shoals upon which life is lost and real surgery wrecked. At the beginning of our inquiry we are met with many difficulties arising, in addition to such as those cited above, from the fact that men in whom by name and reputation we are led to rely upon, are so widely at variance in reference to their expressed views relative to the diagnosis of ectopic gestation. So far as diagnosis is concerned, the term may be almost used synonymously with symptomatology, for upon the latter the former must depend, so that when we find a writer holding that there is a positive chain of symptoms, or a set of symptoms, in connection with which a physical examination will or will not point to the presence of ectopic pregnancy, we will find that he will also claim his ability to diagnose the existence of the condition. Winckel for instance, whose experience up to the writing of

his late book on obstetrics records an experience of thirteen cases, claims that the diagnosis is not so difficult, and substantiates his claim by the assertion that he had proved his diagnosis, either by the elimination of fetal parts or by autopsy. It may be here premised that a diagnosis that is made either by postmortem or by after-discharge of fetal bones, is scarcely to the purpose, and while valuable as pathological records, have no value from a surgical point of view, except to condemn and repudiate the reasoning that allows such procrastination with its unfavorable and unfortunate results. The misfortune is that those who most widely argue the possibility of exact diagnosis, have had the least, and in many cases the most meager, abdominal experience. They believe that it is possible to say positively that this or that swelling is the result of an ectopic gestation, because they do not understand the various train of pathological conditions that have their manifestation in pelvic fullness, tenderness, throbbing and the like. Failing to appreciate the multiplicity of such disorders, they naturally lay especial stress upon that which they are looking for, and accordingly find what they are seeking, not on account of their superior knowledge, but because of their greater inexperience. If it be true, as is generally conceded, that most of us make a diagnosis by exclusion, it stands out clearly that the less we have to exclude, the sooner to us is a diagnosis possible, or clear; hence we find that men who claim a positive symptomatology in this condition, are constantly making extreme errors, of which we only hear by accident, and when discovered, are explained away by the assertion that such errors were made by the unusual complications existing, when it is plain to the more experienced gynecologist, that this apparent exception only proves the rule, for in ectopic pregnancy the unexpected is always happening, and is at the bottom of all the discrepancies of opinion concerning it, where any experience has width sufficient for latitude of expression. If any one of us sets out with the idea that, given a certain train of symptoms, pointing in the main to an ectopic pregnancy, this is infallibly present, of course the diagnosis is always made; when it is missed the case is not reported. It will thus be readily understood that the impression of exact and uniform diagnosis is a totally unfair one, and that it is not at all to be relied upon. The trouble is, therefore, in the experience of the diagnostician as an operator. Theoretically the distinction between pregnancy natural, and pregnancy ectopic is so wide that only a fool could be deceived. Practically we know that often a most careful examination in the simplest cases can not decide the matter. Now when this is true of uncomplicated conditions, the difficulty at once increases in a geometrical ratio in complicated ones. We must remember that pregnancy, whether intra- or extra-uterine, is not the only condition that causes enlargement, swelling and softening of the uterus. All these conditions are simulated by totally variant causes, having nothing at all to do with gestation in any form. If now we go on to the other recognized symptoms, such as suppression of the menses, irregular periods, nausea, swelling of the breasts, we shall find that all of these are simulated in miliary disease of the ovaries, and that in addition there is here an ectopic swelling, lateral or retro-uterine, with tenderness and throbbing totally misleading except in the unmarried,

while in other cases, only the probability is diminished, and the diagnosis is not certain. In these cases, too, another misleading feature is the uterine discharge, for this is so irregular that it will be impossible for the most careful observer to decide positively whether the decidua has been expelled or not. To cap all, the temperature is misleading. Nor is this the only perplexity, for the size, softness, and appearance of the uterine structure, all suggest pregnancy. Running parallel with these symptoms, are those of the stomach, than which nothing can be more capricious, and taken together with the frequent abdominal tenderness, often amounting to well developed attacks of peritonitis, the symptomatology of ectopic gestation is so near complete, that nothing farther in the majority of cases would suggest itself. Probably the most misleading cases of all, are those in which there is ectopic, complicated by pelvic tumor of another sort, or where there is true pregnancy, with pelvic inflammation, tubal or other, or where both intra- and extra-uterine pregnancy are associated. The operator who has met these conditions, can always be relied upon to confute the vaunted easy diagnosis. As I have before noted, theoretically the diagnosis is easy to differentiate, while practically, it is most perplexing. A case of my own may be here cited with profit. A woman thirty years old, one child eight years old, never after pregnant. Menstruation not missed, was taken with violent abdominal pains, with some discharge. Examination revealed a uterus slightly enlarged, so far as could be distinguished, through thick abdominal walls. The lateral tenderness was especially marked on the right side, and the whole abdomen was tender and swollen. The bowels were freely opened, but in spite of this, the pain, swelling and rise of temperature continued. The odor of the discharge was distinctly placental. Operation was decided upon, with diagnosis of ectopic pregnancy. The condition revealed was double sided pyosalpinx, and peritonitis, combined with pregnancy, which indeed was so obscure as to be questioned by my assistant, who being present will no doubt refer to the case. The appendages were angrily inflamed, and nothing was to be done except to remove them. The woman made a good recovery, in spite of her miscarriage four days after operation. There will no doubt suggest themselves other steps, to have confirmed or negated the diagnosis, but these may be noticed in the discussion. The diagnosis of ectopic pregnancy in the presence of fibroid tumors of the uterus, is an exceedingly interesting topic. Strahan makes the exceedingly naïve criticism that it is hard to understand how with bi-manual examination, and a little common sense and prudence, a mistake could be made between the early stages of extra-uterine gestation and a small fibroid of the uterus. But the matter can not be thus lightly dismissed. The poet has it, that

"Experience joined with common sense
To mortals is a Providence."

The common sense may be of the best, but if the providence be not present in the shape of experience, alas for diagnosis. Not only may an intra-mural fibroid simulate an interstitial pregnancy, without pregnancy, but it may produce abortion in natural gestation; and afterward, the tumor still persisting, may simulate an interstitial ectopic pregnancy. The simulation is all the more complete, because mam-

mary symptoms, hemorrhage, and uterine spasm, all combine to mislead the physician. Pregnancy in a fibroid tumor, which, after conception, has taken on a rapid growth, when the portion of the uterus containing the fetus is posterior or lateral, or after the fetus has died, may puzzle the most skilful diagnostician. Not only are the cases in which true pregnancy exists thus found to be difficult of diagnosis, but a second class of cases arises, in which there is no pregnancy at all, but ectopic is speciously simulated—to wit, in dermoid and ovarian cysts. Ovarian cysts have again and again been diagnosed as ectopic pregnancies, while dermoid tumors even after removal in postmortem examination have been recorded as such, as is instanced in Campbell's "Memoir on Ectopic Gestation." A case of ectopic gestation on one side with a dermoid tumor on the other side of the pelvis has come under my own notice for operation, and it will be readily understood how a more misleading state of affairs could hardly exist. If the dermoid contain fetal bones, and other debris, digital examination may do little more than perplex. In these cases miscarriage after miscarriage is apt to supervene, and the tumor persisting, after the discharge of placental debris, as is a common occurrence in ectopic gestation, the diagnosis is easily reached of ectopic pregnancy. One such case has come under my care, in which the diagnosis of pelvic tumor was made, but from my present knowledge of the subject I could hardly escape the suspicion of ectopic gestation, and suspicion in these cases often is the sum total of diagnosis. In any pelvic tumor, where suspicion points to ectopic pregnancy, I take it that operation should settle the diagnosis in competent hands. Where the growth has been rapid, it does not necessarily follow that the case is one of ectopic pregnancy, for fibroids may take on an almost mushroom celerity of growth, and the same is true of cancerous disease. In the latter condition, however, cachexia is an almost unfailing symptom which should be a great aid in differentiating it from ectopic pregnancy.

Diagnosis.—We have now reached a position where an opinion as to the merits of positive diagnosis may be reached. We may say, then, that here we have a disease in which the probability of its presence can often be safely affirmed, after certain periods: first after rupture; second, after the fetus has become viable; third, in the presence of discharging fetal remains either through bladder, rectum, or umbilicus. It is almost ridiculous to consider the last condition under the head of diagnosis. As to the diagnosis previous to rupture, since a majority of cases are called to our attention subsequent to rupture, and since it is the rupture that attracts attention to these cases, it follows that if a diagnosis is made, it must be in the minority of cases. The simple fact that of all ectopic pregnancies so few come under observation for treatment or examination, unless we except the so-called electrical cures, must of itself stand a challenge that there are any symptoms which are so peculiar as to excite the attention of the women in which the accident occurs. When even rupture occurs, most women consider that they have an attack of colic and when the decidua is passed, they regard it as a miscarriage. That itself may be a most misleading symptom to the physician. The diagnosis therefore of the remaining cases, is best considered from the standpoint of the symptomatology, to which

we have already devoted considerable attention. To repeat, the diagnosis must be after the conclusion that a pregnancy exists. First in these cases, we must say that the symptoms are those of ectopic gestation, for be it remembered, normal pregnancy must be excluded.

Winckel's assertion that ectopic gestation is more readily diagnosed than the normal condition is one that is safely left with himself. It is hardly worth while to dispute it. The misfortune is that this German author claims a position which I, for one, hesitate to assign him. His abdominal experience does not justify his sweeping statements in diagnosis. If from the date of a supposed conception, of sexual congress, in cases whose exact pelvic condition was previously known, we could have our patients constantly under observation, there is no dispute that pregnancy if it occurred, whether ectopic or normal could be diagnosed. But this status of affairs is for the most part impossible and can not enter into our calculations. In the cases therefore that come under our hands for diagnosis, previous to rupture of the ectopic cyst, all the contradictions and variations in the symptomatology noted above, must be accounted for, and the greatest latitude allowed for irregularity in symptomatic expression. In a patient of my own, suffering with frequent miscarriages, I found the following condition: Taken with a sudden attack of pain she resorted to ordinary remedies. I saw her a few hours after the attack. She had complained of anteceding pain on the right side. Her catamenia had failed for two months. When I saw her there was a slight show of blood, and she was in collapse. She had done a large washing during the day upon the evening of which I was called to her.

Treatment.—After the futile resort to mere experiment in dealing with this dread disease—delay, puncture by electricity, electricity without puncture, and puncture with injections of morphia, still with their advocates—I can do no better, nor pay a more fitting tribute to our Stephen Rogers, who rising above, before the recognition of the possibilities of abdominal surgery, and cleaving with an inspiration of surgical good sense, the superstition of the accepted fatality of this disastrous accident, enunciated his belief in these words:

"The peritoneal cavity must be opened; the bleeding vessels must be ligated. He, indeed, must be a madman who under such circumstances would neglect anything in his power to secure the chances such an operation would afford of saving the life of his patient."

THE ELECTRICAL HORSEWHIP.—It seems doubtful whether objection can be brought against the latest form of horsewhip, which is constructed so as to give a slight electrical shock to the animal. The handle, which is made of celluloid, contains a small induction coil and battery, the circuit being closed by means of a spring push. The extremity of the whip consists of two small copper plates insulated from each other, each of which is provided with a tiny point. The plates are connected with the induction coil by means of a couple of fine insulated wires. As a means of surprising a sluggish animal into doing his best work without the infliction of physical pain the electrical horsewhip will by many be hailed with gladness.—*Hertford Times.*

METHODS OF REMOVING THE UTERUS FOR UTERINE FIBROIDS, WITH REPORT OF CASES.

Read in the Section of Obstetrics and Diseases of Women, at the Forty-fourth Annual Meeting of the American Medical Association.

BY J. N. MARTIN, PH.D., M.D.

PROFESSOR OF OBSTETRICS AND DISEASES OF WOMEN, UNIVERSITY OF MICHIGAN, ANN ARBOR, MICH.

Notwithstanding the free use of drugs, such as ergot, cannalis indica, etc., in various ways, and notwithstanding the persistent use of electricity with all of the modern appliances, there are many uterine fibroids that are but slowly or slightly altered for the better; and a large number continue to grow with increasing deleterious results, despite the use of these agents.

This leaves a large and, as I have found from experience, a difficult field for surgical work.

This short paper is devoted exclusively to the practical surgical side of some methods of removing the uterus to get rid of these perplexing growths.

These methods in their different phases I will illustrate briefly with cases, that I may show more clearly why we adopt different lines of procedure in operating upon this class of patients, and also to demonstrate that it is difficult or impossible to formulate a definite plan of action in some until the operation is already begun and we can see the intra-abdominal relations of the tumor.

I believe that a tumor causing sufficient trouble to warrant a laparotomy is so far incorporated with the uterine walls, as a rule, as to necessitate the removal of the uterus.

Rarely, we find a simple case—a sub-peritoneal tumor with loose attachment that can be easily removed. It has not been my good fortune to meet many such easy cases.

In many cases it is best or necessary to remove the uterus with the tumor. This is the great and difficult field for surgical work in dealing with uterine fibroids. It includes the large ones, the multiple ones, the fibro-cystic ones, the complicated ones and nearly all of those that are death-dealing to our suffering patients—if they are not removed by surgical means.

It requires more nerve and more skill to deal with them properly than is required in almost any other field of surgery. The operation in the beginning may be comparatively easy, and before completion be prolonged into hours of the most careful, skillful, difficult and nerve wearing work imaginable. One who has entered this field realizes this fully, and one who contemplates crossing its threshold should be prepared to meet all the complexities that the worst case presents; for such he may find his first case to be, before his operation is successfully completed.

Some of the most troublesome fibroids to deal with are the intra-ligamentous ones that unfold the broad ligaments, displace organs, and are prone to form numerous and large adhesions. My experience with these teaches me that they are very vascular from original attachment and from vascular adhesions; for they grow more rapidly and cause more pain.

In some cases the difficulties in treating these surgically are almost insurmountable. I begin the operation with a sub-peritoneal incision by incising the peritoneum over the tumor from side to side, and then strip

it down anteriorly and posteriorly with my hands and turn the tumor out slowly, ligating and cutting adhesions; being sure to ligate the ovarian and uterine vessels and then sever as much of the broad ligament as is necessary to liberate the tumor and tumor side of the uterus. After the tumor is liberated, except the uterine attachment, pull it up and toward the side on which it developed; then proceed to ligate the ovarian vessels on the opposite side and cut the ligament under the tube and ovary, preventing reflux with long forceps, à la Baer.

Afterwards ligate the uterine vessels, then strip down the peritoneum in front and behind the uterus, being sure to incise it across, a little above the bladder (an inch or so); about the same or little lower behind. The next step will depend upon the condition of the patient, the relation of the tumor to the lower zone of the uterus and the cervix, and how certain I feel concerning the control of the hemorrhage. If I feel sure there is no danger of hemorrhage, I cut away the uterus and tumor without the elastic ligature or *serre neud*, provided the tumor is high enough for a pedicle below it. If I fear hemorrhage, I apply the *serre neud* and test the condition. If there is some oozing, tighten the *serre neud* slightly, trim the stump with wedge-shaped cavity, leaving two flaps which are coapted with deep interrupted catgut sutures and the peritoneal edges with superficial catgut sutures, and then remove the *serre neud*.

Before coapting the flaps, I cauterize the cervical canal and fill it with iodoform. In the last case I passed iodoform gauze through the cervical canal, and left the end loose in the vagina.

If there is still oozing after flaps are united by sutures, pass deep ligatures around the outer fourths of the stump and tie. Then drop the pedicle back and unite the anterior and posterior folds of peritoneum with catgut sutures to insure against the intestines dropping into the fresh wound.

If there is oozing, and the patient's condition requires speedy termination of the operation, apply the *serre neud* and fix the stump in the lower abdominal wound if the pedicle is long enough. If it is not long enough, ligate the outer fourths with strong silk, or the whole pedicle, and cauterize the end of the stump thoroughly according to Dr. C. T. Parkes, and with a few stitches unite the peritoneal folds.

The following cases will illustrate these points:

1. Operated upon Jan. 6, 1892. Married twenty-two years and sterile. Upon examination a hard tumor was found filling the pelvis and extending two inches above the umbilicus. After abdominal incision, I incised the peritoneum laterally from side to side, separated the tumor and uterus from the bladder and rectum, tied off the adhesions, applied the *serre neud* and removed the tumor, uterus and its appendages. At this time the patient developed unfavorable symptoms and I hastened the completion of the operation by fixing the stump in the abdominal wound. The shock proved to be of short duration; the patient made an excellent recovery and is now well and happy.

The next case was operated upon the last of February, 1892. Upon examination a uterine fibroid was found that filled the pelvis and extended to the sternum. The patient was greatly emaciated, pale and very weak. On account of the many adhesions, the operation required two and a half hours of hard work. She stood the operation fairly well, consider-

ing her weak condition, until near the close, when all but the cervical attachments were severed, and then she showed marked signs of collapse. I applied the *serre-neud* quickly, cut away the tumor and uterus and fixed the stump in the abdominal wound. The tumor weighed forty-two pounds and had one cyst that contained twenty-eight and one-half pounds of pus, as Prof. Gibbs' examination showed. The patient made a rapid recovery, and went home well six weeks after the operation. I believe both of these cases would have been lost by prolonging the operations after these alarming symptoms arose.

When the tumor is not intra-ligamentous and the relations and conditions are such as not to demand total extirpation of the uterus, but the cervix may be left, I remove the tubes and ovaries with the uterus as previously described.

Ligate the ovarian and uterine vessels, cut across the uterus anteriorly and posteriorly, strip down the peritoneum and separate the vesical fold and bladder, also the rectal fold; then ligate bleeding vessels and cut away the uterus and tumor, remove wedge-shaped piece, cauterize the cervical canal, dress with iodoform, coapt the flaps of the pedicle and the peritoneum, unite the peritoneum over the wound; all to be done after the same manner and with the same precautions as previously described. In all such cases, drain from the posterior cul-de-sac into the vagina with a glass drainage tube for from four to seven days.

The six cases in which the stumps were treated intra-peritoneally were operated upon May 28, Oct. 19 and Nov. 26, 1892; Feb. 18, March 11 and April 26, 1893.

The one operated upon Feb. 18, 1893, died from cerebral cause and is reported later in this paper. In the one operated upon March 11, 1893, the drainage tube came out the second day after the operation during an attack of coughing and was not replaced. This resulted in rapid closing of the opening, retention of the secretions and elevation of the temperature to 102 degrees. The tissues were separated and a rubber drainage tube was inserted and kept in four days. Seven hours after its introduction and irrigation with a sat. sol. of boracic acid the temperature was 99 degrees, and the patient made a good recovery.

The other four cases made uninterrupted recoveries.

Sometimes the fibroid forebodes malignancy or is incorporated with the uterine walls so low down as to necessitate total extirpation of the uterus. Four of my cases were such that total extirpation of the uterus was the only procedure left me.

In one case operated upon May 2, 1893, the cervix was spread over the tumor and enlarged uterus so that it did not project a half inch from the surface of the hard mass. Upon vaginal examination a round, hard mass the size of an infant's head at birth could be felt filling the pelvis, and it extended up to the umbilicus.

Three other cases under this head which were operated upon more than a year since, Dec. 30, 1891, Feb. 17, 1892, May 19, 1892, had tumors ranging in weight from eight to over twenty-six pounds. They involved not only the body of the uterus, but the cervix as well. These were all intra-ligamentous, and were long and exceedingly difficult operations.

When total extirpation, or Eastman's method, is decided upon, I draw up the tubes and ovaries and clamp below them with long forceps to prevent reflux,

tie off the broad ligaments in sections as close to the uterus as possible, being sure to ligate the large ovarian and uterine vessels with strong silk, leaving one end of each ligature long, so all of them can be brought into the vagina, and by traction on them the stumps can be turned down into the vaginal opening. Some object to this method of leaving the sutures, and I question it sometimes; but the results are good. I use long forceps along the sides of the uterus to prevent reflux from the uterus during the operation.

Before ligating and cutting the lower segments of the broad ligaments, I incise the peritoneum across the uterus in front and behind, strip down the peritoneum with my hands and blunt instrument and separate the bladder and bowel. Then perforate the vagina with forceps and incise the vault of the vagina anteriorly and posteriorly with blunt pointed bistoury or scissors, with the fingers of the left hand in the vagina to guide them, and then tie all bleeding points.

Finally, ligate the lower segments of the broad ligaments with strong braided silk (avoiding the ureters), and cut them and remove the uterus and the tumor.

In two cases I was obliged to apply the *serre-neud* temporarily and to cut away most of the tumor and uterus before I could remove the cervixes, as the tumors were so large.

After the uterus and tumor are removed, wash out thoroughly with sterilized water, draw the ligatures down and invert the stumps; dress with iodoform gauze. Unite the peritoneal flaps in the wound with interrupted catgut sutures.

If the patient's condition is bad, the operation may be shortened considerably by clamping the lower segments of the broad ligaments with forceps per vaginam and leave the forceps on a few days. Remove the ligatures when they separate, in from six to fourteen days.

Dr. Byford's method of treating the stump by vaginal fixation is no doubt good, as his results show, but I have not practiced it, and, as it has been described so often I will not repeat it here.

In all cases, the abdominal wound is to be closed and treated as in any laparotomy, and the patient is to be prepared the same for the operation, except the vaginal cleansing must be more nearly perfect.

Of thirteen hysterectomies for fibroids, two died. Of the two that died, one had a tumor that filled the pelvis and abdomen and extended up to the sternum. The abdomen was as large as a large full term pregnancy; her circumference at the umbilicus was forty-six inches. In order to deliver the tumor, it was necessary to make an incision from a little above the pubis to the ensiform cartilage and laterally through one rectus muscle. There were numerous and large adhesions binding the tumor to everything within its reach. The uterine cavity was seven inches long.

It was a long and difficult operation on account of the many adhesions, difficulty in delivering the tumor and the numerous bleeding points.

The patient died of shock the following day. This was a total extirpation.

The other patient died eight days after the operation. Everything progressed favorably for seven days, when she suddenly became paralyzed on one side, and the next day she died. Evidently a cerebral cause. The other cases have made good recoveries.

In my work in this line of surgery I endeavor to be aseptic, and to combine what seems to me the best points gleaned from observing the work of eminent American and European gynecologists who are abreast of the times.

I do not believe in any "new method," so-called, for removing the uterus for fibroids, unless it specifies the special conditions and cases to which it is adapted, for then only is it of value.

I believe there is no one method, new or old, adapted to all, when we consider present relations and ultimate results.

I approve that method with conditions favorable which leaves the cervix and its stump treated intra-peritoneally and the lower segment of the broad ligament, for the following reasons, viz:

1. It leaves a stronger floor for the pelvis, and it leaves the vagina in a better condition than when the cervix is also removed.

2. It is better than fixing the stump in the abdominal wound, as it permits of free dilatation of the bladder and there is no traction. The recovery is more rapid, as there is no sloughing mass left to separate and interfere with the healing of the abdominal incision. The operation can be completed with a shorter pedicle.

3. The vagina is left in a better condition than with Byford's method. By his method, the cervix and tissues about are twisted out of shape and a mass is left to separate. However, if this method is to be adopted it is necessary to be sure of the control of the hemorrhage, exercise perfect aseptic methods in the operation and toilet, and to be certain, drain from the posterior cul-de-sac.

Appendix.—Since writing the above, I did my fourteenth hysterectomy, May 23. There were seven fibroids attached to the uterus, ranging in size from a hen's egg to an infant's head. The entire mass was wedged tightly into the pelvis. The patient is making an excellent recovery.

PORRO-CESARIAN SECTION.

Read in the Section of Obstetrics and Diseases of Women, at the Forty-fourth Annual Meeting of the American Medical Association.

BY J. H. CARSTENS, M.D.

PROFESSOR OF OBSTETRICS, DETROIT (MICH.) COLLEGE OF MEDICINE;
GYNÆCOLOGIST TO HARPER HOSPITAL, ETC.

Having had the pleasure of reporting a successful Porro-Cesarian section in the *American Journal of Obstetrics* last year, it is peculiar that I should be able to report another case within six months. The second case is as follows:

Mrs. S. is 23 years old; her mother died of pneumonia at the age of 55; her father is living and healthy; she has two brothers and three sisters living; one of the latter had six children, the other had five. They were always delivered by a midwife. Mrs. S. is of German parentage, but was born in this country. In the fall of 1891, I was called upon by Dr. W. J. Brand to help him deliver her. She had been under the care of a midwife for twenty-four hours when he was called, and failed to deliver her with forceps. As the child was dead the only thing to do was to perform craniotomy. Even after craniotomy it was quite difficult to deliver on account of the narrowness of the pelvis. When this was finally accomplished I took careful internal measurement with the pelvimeter and found an antero-posterior diameter of less than three inches. She made a slow but

good recovery. We told her that if she ever became pregnant again that it would be necessary to bring on a premature labor. She was very anxious to have a child and did not think that a seven months child would live, although told of the danger and need of Cesarian section if she went to full term. She kept very quiet when she again became pregnant and only told Dr. Brand two weeks before her expected time. It was then too late and we made all preparations to take her to the hospital as soon as labor should set in.

September 24, 1892, she was taken with labor pains, so we took her to Harper hospital in the ambulance at 8 p.m. I wanted to wait with the operation until in the morning, but found that the cord was presenting and being afraid that compression might kill the child before morning I decided to operate immediately. She was prepared as for any abdominal section and I operated at 9 p.m. in the presence of many physicians of this city. The bag of waters was first ruptured and then the usual incision was made. The uterus was rolled out à la Müller, an elastic ligature applied, then the uterus quickly opened and the child weighing 8 pounds removed. I was undecided to do a Porro- or a so-called classic Cesarian section. All the physicians present were unanimous for the Porro, hence I applied a clamp. I removed the uterus, tubes and ovaries. The after treatment was like any other coeliotomy and her recovery smooth, as the Germans would say. She nursed her child from the first and left the hospital twenty-five days after the operation. To-day she is the picture of health, as well as her child.

The only question in my mind is, whether we should do a Porro or preserve the uterus? If the child had been dead I would have done a so-called classic Cesarian section. Still the life of one child always hangs on a thread and her future chances for motherhood are destroyed in my patient. What shall we do? If we preserve the generative organs, the woman will again and again become pregnant and she must be repeatedly subjected to the most critical operations of surgery. Is this right? Is it desirable to propagate the hereditary tendency? The moral questions involved are still in doubt in my mind, hence I wish a thorough discussion by the able members present.

You will, of course, see that I am inclined to the Porro because: 1, it can be quickly performed. 2, it is less dangerous. 3, the woman's future is free from such dangerous operations.

THE CAUSATION OF THE DISEASES OF WOMEN.

Read in the Section of Obstetrics and Diseases of Women, at the Forty-fourth Annual Meeting of the American Medical Association.

BY CHARLES P. NOBLE, M.D.
PHILADELPHIA.

Within recent years activity among gynecologists has taken the form of improvement in the technique of operations; and as an outgrowth of the large number of operations which have been performed, the pathology of diseases of women has likewise been improved. Comparatively little has been written concerning the causation of the diseases of women, although the subject is one of great importance, in view of its bearing upon preventive medicine. Only as the causes of disease are made known to the profession at large, is it possible to take measures for their prevention. And in gynecology, especially, prevention is far better than cure.

The principal causes of the diseases of women are:

1. Imperfect development of the sexual organs.
2. Gonorrhea.
3. Septic inflammation following child-birth.

4. Lacerations due to child-birth.

5. Miscellaneous causes, including constipation, erroneous habits of life, and errors of dress.

1.—*Imperfect Development of the Sexual Organs.*—

The influence of imperfect development of the sexual organs as a cause of diseases of women, cannot well be over-estimated. At the present time not so much is said of the influence of this factor in producing disease, because it has been more or less lost sight of since tubal and ovarian pathology has so much occupied the attention of gynecologists. The experience of every observant practitioner demonstrates the prevalence of imperfect development, and also its influence in producing various diseases of women. As a rule, when the development of the sexual organs is arrested, the development of the body, as a whole, is also interfered with. Such women, almost without exception, belong to the class of neurotics, and they are especially liable to all manner of neuroses, including, especially, chorea, headache and neuralgia. The most striking signs of this condition are the late development of puberty, the imperfect and painful character of menstruation, and the fact that the history of semi-invalidism, almost without exception, can be obtained. Puberty is often delayed even as long as the eighteenth or nineteenth year or longer. Menstruation is always painful. The pain belongs to the type of so-called ovarian dysmenorrhea; that is to say, it begins one or several days, or even a week, before the menstrual flow, and is felt especially in the ovarian regions. Reflex neuroses are common accompaniments, especially headache, disordered digestion, or even sick headache. Uterine dysmenorrhea, due to the undeveloped condition of the uterus (especially of the cervix) which is in general sharply anteflexed, is frequently present. This is indicated by its paroxysmal character, and by the fact that, as a rule, it is much less marked after the flow has become fully established.

The reason why the development of the sexual organs of girls becomes arrested is not absolutely demonstrated. The influence of modern education as a cause has been much dwelt upon, and the evidence in support of this theory is very strong. The effect of the crowded courses and frequent examinations in our schools in developing the nervous system at the expense of the rest of the body, and later in breaking down the tone of the nervous system through over-work, has been abundantly proved. The emotional side of the female character likewise is stimulated. As a result of these conditions the digestion of growing girls is apt to become deranged, and their sleep likewise to be disturbed. As a further consequence anemia and depraved nutrition follow, aggravating the neurotic conditions already engendered and thus completing the vicious circle. When such girls arrive at the age of puberty, especially if at the time they are being crowded with a multiplicity of studies to enable them to enter a fashionable finishing school, the demands upon the nervous system to enable them to accomplish their tasks are such that the processes which are necessary to bring about the proper development of the sexual organs are not brought into play—enough vital force is not left over to accomplish this result. The testimony of urban practitioners is unanimous upon this point, hence it must be considered as established that too great mental occupation directly hinders the development of the sexual organs. And not only

that, but at the same time breaks down the tone of the general nervous system.

Other causes, however, must be considered. Some of the most marked cases of arrested development of the sexual organs which have come under my notice have been among the poor. These girls not only had not been forced at school, but in not a few cases they had never been to school. In some of them it seemed to me that the cause was too early and too laborious work, especially in mills. I have had numerous patients among mill operatives who had gone to work as children in mills, and who had worked full time during the years when the greatest development takes place. In these girls it was probably a lack of fresh air, of out-of-door exercise and of an abundance of nutritious food, together with too much work that was at the bottom of the difficulty. A curious class of cases but little understood is that in which extreme corpulence is present. I have seen numerous cases in which menstruation was tardily established, never perfectly performed, and which ceased or became scanty and irregular between the twentieth and thirtieth years. Whether the imperfect character and early cessation of menstruation was due to obesity, or whether the obesity was due to the absence of menstruation I have never been able to satisfy myself. However, my own experience fully confirms the current opinion that obesity bears a certain relation to scanty and imperfect menstruation. The development of the sexual system in women is one of the mysteries of nature and the exact forces which bring it about will probably never be perfectly known, but it is rational to believe that the existence of good health about the time of puberty has much to do with its proper development. The care of growing girls, particularly between the age of nine and sixteen years, is a subject of the utmost importance, and the profession has no more urgent duty than to instruct mothers concerning the importance of the proper care of girls during that period. Girls who are inclined to be neurotic, and whose digestion and nutrition are at fault should not be treated in the same way as their stronger and more phlegmatic sisters. Their duties at school should be lightened, they should be more in the open air, and any functional disease which may exist should be cured. In this way some surplus vital force may be stored up to be called upon when necessary in the development of the sexual system. Also, when menstruation fails to appear at its accustomed time special care is necessary. It is at this time that therapeutics has the best opportunity to influence the patient. The health of all such girls should be carefully inquired into and all indications for treatment should be met. In particular, the administration of iron, arsenic and strychnia, and out-of-door exercise are to be commended. Such cases should not be lost sight of until menstruation is fully and perfectly established. I feel confident that if this plan be carried out, there will be fewer cases of dysmenorrhea and sterility upon the one hand, and of laceration of the cervix and perineum upon the other, and also fewer cases of chronic ovaritis and ovarian cystomata. I have purposely not made mention of the higher grades of imperfect development, and of the cases in which one or more of the sexual organs are entirely absent. These cases belong to a different category, from the standpoint of practical medicine.

2. *Gonorrhea.*—The fact that gonorrhea is a dis-

ease of women has, of course, been known for centuries, but a full knowledge of the course and results of the disease is a matter of the immediate present. Bernutz was the first author who had a proper conception of the disease, (about 1850). His knowledge was acquired as most of the exact knowledge of medicine has been acquired, by the postmortem study of cases. As physician to the Lourcine hospital, where he had a large venereal service, he had ample opportunity to study the disease. In his analysis of the ninety-nine cases of pelvic-peritonitis, upon which he bases his exposition of the subject, he gives as a cause of the condition, gonorrhea in twenty-eight cases.

Forty-three are considered to be puerperal, twenty menstrual and eight traumatic. Of the remaining twenty-eight non-*puerperal* cases there can be no question, when reading his report in the light of modern knowledge that almost all of them were gonorrheal. Bernutz, who was a very careful and accurate observer, cautions his readers against drawing the conclusion that so large a proportion of cases of pelvi-peritonitis (inflamed tubes and ovaries with secondary peritonitis) are gonorrheal in origin. He states that in his opinion the reason why this proportion existed in his cases was owing to the character of the hospital in which they were observed. Bernutz fully recognized the fact that gonorrhea not only involves the vulva, urethra, vagina and womb, but also the Fallopian tubes, the ovaries and the peritoneum. He reports numerous cases amply demonstrating these facts and treats the entire subject in a most intelligent manner. His observations, however, failed to make much impression upon the profession and it was not until Noeggerath, in 1873, published his paper on "Latent Gonorrhea in the Female Sex" that attention was called to the very serious ravages of gonorrhea in women. Prior to that time gonorrhea was looked upon as a mere trifling vulvo-vaginitis, of importance principally because of the fact that the disease might be communicated to men. The views of Noeggerath encountered much opposition and their spirit was not fully accepted until their truth was demonstrated by the work of the modern abdominal surgeons. It is now fully established that gonorrhea is one of the most important causes of uterine, tubal, ovarian and peritoneal inflammation. Exactly what percentage of cases of inflammation of the uterine appendages is due to gonorrhea has not been determined, although unquestionably the percentage is not inconsiderable. The opinions and experience of surgeons differ widely with reference to this question; and there is good reason to believe that the percentage depends upon the character of the community in which the surgeon resides. Urban communities containing large numbers of the poor and the vicious, and of the rich and immoral, undoubtedly have a higher percentage of cases due to gonorrhea than rural communities having a more decent population.

3. *Septic Infection following Child-birth.*—The results of septic infection in child-bed have been so abundantly dwelt upon since the days of Oliver Wendell Holmes and Semmelweis that one can not, at this time, hope to offer any new ideas upon the subject. Increasing experience only serves to demonstrate the serious results of this accident. It is necessary to refer here to fatal puerperal septicemia. We shall concern ourselves only with those

cases which have not had a rapidly fatal termination, and which concern the gynecologist as much or more than the obstetrician. Septic vaginitis, endometritis and metritis are well-known forms of puerperal inflammation. They frequently persist and require treatment after the puerperal period. Aside from the rapidly fatal cases, the most serious result of septic infection during labor is the spread of the septic inflammation to the uterine appendages, giving rise to salpingitis, ovaritis and peritonitis. This condition probably at times ends in perfect recovery. More usually it results, either in chronic inflammation of the appendages with the formation of adhesions to the neighboring structures, or in collections of fluid—serum, blood or pus—in the tubes or in the ovaries. The relative frequency of puerperal septic inflammation and of gonorrhea as the cause of inflammation in the uterine appendages is a mooted point. Most surgeons believe that the puerperal inflammation is by far the more frequent cause; others hold that gonorrhea is the more frequent cause, and they point out that inflammation of the uterine appendages following labor need not necessarily be puerperal in origin, because the puerperal inflammation itself may have been set up by a preëxisting gonorrhea. That this last claim is to a certain extent a valid one my own experience tends to show; but many accurate observations must yet be made before it can be determined with what frequency existing gonorrhea is the cause of inflammation in child-bed.

Another, but far less frequent result of puerperal infection, is acute inflammation or abscess of the broad ligaments—acute puerperal cellulitis and true pelvic abscess. Inflammation of the connective tissue of the broad ligaments formerly was believed to be the common form of puerperal inflammation outside of the womb; but when abdominal surgeons proved that what had been called *chronic cellulitis* in the non-*puerperal* state was in reality diseased uterine appendages, the tendency was to take extreme ground and to deny the existence of *acute puerperal cellulitis* and true pelvic abscess.

In addition to the varieties of puerperal inflammation described we have cases of phlebitis, and its associated condition, *phlegmasia alba dolens*.

As already remarked, it is not positively known what percentage of cases of tubo-ovarian inflammation is due to puerperal septic inflammation; but it is known that the percentage is a high one. Gonorrhea and puerperal sepsis together cause 95 per cent. of all cases of tubo-ovarian inflammation. The importance of this fact from the standpoint of preventive medicine can not be over-estimated. And the same is true of the curative treatment of gonorrhea and puerperal septicemia. If both these conditions were treated early and vigorously, and if the treatment were continued for a long time, until the gonorrhea was cured, and the results of the puerperal sepsis removed so far as possible, there would be far fewer cases of chronic pelvic inflammation. Under the present methods of practice it is the disease which the gynecologist is called upon most frequently to treat.

4. *Lacerations due to Child-birth.*—Lacerations due to child-birth constitute an important class of the diseases of women. The relations of lacerations of the cervix uteri to sub-involution of the pelvic organs, especially of the womb, and to endometritis, has

been made known through the labors of American gynecologists, especially Dr. Emmet. For a time after the observations of Dr. Emmet were made public there was a tendency to magnify the importance of lacerations of the cervix, and succeeding that, a reactionary tendency to make light of the importance of this lesion, but the conclusion of the entire profession, based upon experience and common sense, practically supports Dr. Emmet in his original teachings concerning this lesion. It is not my purpose here to discuss the causes of lacerations of the cervix further than to say that my own experience is in accord with those who believe that many cases of lacerations of the cervix are directly due to the fact that the pregnancy has taken place in an imperfectly developed womb—the imperfect development being most marked in the cervix. Such a womb and cervix are not fitted to pass through the ordeal of labor unscarred. The cervix has to bear the brunt of the battle, and as a result of its imperfect development lacerates instead of dilating. This fact emphasizes the great importance of securing a full development of the womb.

Lacerations of the pelvic floor are of even more importance than lacerations of the cervix uteri. The giving way of the pelvic floor (the laceration of the levator ani and the pelvic fascia) is the foundation of almost every form of prolapse of the pelvic viscera. Cystocele, rectocele and prolapsus uteri are due almost without exception to lacerations of the pelvic floor.

5. *Miscellaneous Causes.*—Constipation plays an important rôle in the causation of some of the diseases of women. The fact that women very frequently suffer from constipation is well known. This is as true of young women as it is of their older sisters. Probably the principal reason for this is the in-door, rather inactive life which women lead; but an important factor is the habit which so many women form of having no regular time to have the bowels move. In this way the rectum is taught to tolerate the presence of feces which accumulate until the occurrence of headache, loss of appetite, malaise (symptoms of fecal absorption), force the patient to secure a stool, either by the use of an enema or by taking a purge. This over-filling of the rectum interferes with the pelvic circulation and in this way promotes congestion of the pelvic viscera. This habit predisposes to the development of hemorrhoids, also to uterine and ovarian congestion. It is usually assigned as one of the causes of retroversion of the womb, and of prolapse of the ovaries. I believe that it does predispose to both of these conditions. The full rectum can displace the cervix forward, and straining at stool, especially if the bladder chance to be full, can topple the womb over backward. Relaxation and loss of tone of the pelvic tissues, due to congestion, also predispose to retro-displacement of the womb and to prolapse of the ovaries.

Constipation aggravates the symptoms due to every variety of pelvic disease. This is brought about, partly by inducing pelvic congestion, and partly through the deterioration of the general health produced by fecal absorption and the contamination of the blood, and by the loss of appetite and disordered digestion.

ERRONEOUS HABITS OF LIVING.

Erroneous habits of living favor the development

of pelvic disease just as they favor the development of disease in other parts of the body. Pelvic disease may be produced, either by habits of indolence inducing a sluggish circulation and an atonic condition of the tissues, especially of the muscular system; or by habits of luxury, which usually involve the preceding, with the addition of irregular hours, more or less dissipation and the over-loading of the stomach with rich foods and wines; or on the other hand by too laborious and continuous work, over-taxing the strength of the individual, and by greatly increasing the intra-abdominal pressure, tending to displace downward the pelvic viscera—and in this way, at times, even in little girls, producing complete prolapse of the womb.

ERRORS IN DRESS.

Errors in dress is a subject of large importance, but it is only possible here to touch upon it. The principal error in woman's dress, as arranged at present, is, that by it the waist is unduly constricted. As this is brought about by means of the corset, which not only constricts the waist, but which also constitutes a brace confining the lower part of the chest, and also the abdomen, several results are induced. The first and perhaps the most important is the interference with respiration. It has been conclusively shown that the type of breathing of the female, normally, is the same as that of the male—diaphragmatic or abdominal, but owing to the pressure of the corset the excursions of the diaphragm are limited, and the same is true of the lower ribs and of the abdominal wall. The result is that the use of the corset has changed the type of woman's breathing to the costal, or really the upper costal. The principle of accommodation doubtless largely diminishes the interference with the normal circulation which this alteration in the normal type of breathing would otherwise produce. The second result of this method of dress is to make continuous pressure upon the abdominal vessels, and thus to interfere with the return circulation from the lower half of the body—promoting congestion in this region, which includes the pelvis. The third result is the displacement downward of the abdominal viscera, causing a protrusion of the lower anterior abdominal wall, and forcing the intestines down upon the pelvic viscera. In this way the displacement of the pelvic viscera is favored. The effect of the pressure of the corset upon the muscles of the middle portion of the trunk, and the support which the corset gives in holding the trunk upright (thus doing away with the necessity for muscular action in supporting the trunk), is to bring about the partial atrophy (or at least an atonic condition) of these muscles. The loss of normal tone in the abdominal muscles changes entirely the normal condition of intra-abdominal pressure, (favoring the displacement of the abdominal viscera), and takes away from the return circulation of blood in the abdomen one factor which normally is of great assistance in forcing the blood onward toward the heart.

Another error in the present mode of woman's dress is the manner in which the skirts are fastened to the body. This is by means of bands fastened about the waist. The effect of this method is that the entire weight of the skirts hangs upon the abdomen and hips. In women having a somewhat protuberant abdomen, practically the entire weight of

the skirts is supported by the abdomen. This adds to the intra-abdominal pressure and tends to force the contents of the abdomen into the pelvis. A further bad effect is that the waist band of the skirts compresses the trunk at the smallest part of the waist and adds to the ill effects of the pressure of the corset itself.

It has not been our purpose here to discuss the subject of practical methods of dress reform, but merely to point out the ill consequences of the present mode. The principles which underlie dress reform are: 1, that the waist shall not be unduly constricted so that the circulation and respiration shall not be impeded, 2, that the trunk shall not be encased in a brace, but that the muscles of the trunk shall be called upon to perform their normal function, which includes the sustaining of the trunk upon the pelvis and legs, and their proper part in the work of respiration, and in assisting in the return circulation of the blood, 3, that the weight of the clothing shall be supported upon the shoulders. These principles are unquestionably sound, and happily, methods of dress based upon them have been so perfected that at the present time women can dress in accordance therewith and not sacrifice either taste or beauty.

Practical Conclusions.—My object in presenting this paper is not to offer anything new, but to cover in a systematic way the causes of the diseases of women in order to show their limited character, and that these causes are principally of a preventable character. If I have succeeded in doing this, it follows that if proper attention were paid by the profession to the prevention of the causes which produce the diseases of women that these diseases could be very greatly restricted.

If proper attention were given to growing girls, especially about the time of puberty, and a more normal development of the sexual organs secured, if gonorrhea were more vigorously treated, and if the subjects of that disease were kept under observation until all abnormal discharges were arrested, and proper instruction concerning the abstinence from sexual intercourse were given; if antiseptic midwifery were faithfully and efficiently practiced; if lacerations of the cervix and perineum were early repaired, and if full instructions concerning the ill effects of constipation, improper dress and erroneous habits of living were given, the prevalence of the diseases peculiar to women would be very greatly restricted. I believe that this is to be the next great advance in diseases of women. Gynecologists must bring home to the general practitioner the fact that the diseases of women are largely preventable and make him feel his responsibilities, both as to their production after present methods of practice, and as to the possibilities of their prevention after improved methods. When the family physician realizes that it lies within his power very largely to prevent disease among the women of the families committed to his care, his sense of moral obligation will spur him on to do his full duty in this matter. When that day comes, the universal prevalence of disease among women will cease to be a reproach to preventive medicine.

Dr. HOWARD A. KELLY of Baltimore, congratulated Dr. Noble in bringing such an important subject before the Section in a new way. He had given the subject of preventive disease in women much thought, and believed a

book could well be written upon it. In many instances the cause of imperfect development of the genitals and of the general system was to be traced back of the child to the poorly nourished and ill condition of the mother before and after conception. Gonorrhea in children was not an uncommon first cause of disease in women. Tuberculosis had been found as the cause in one out of five of his operative cases of pelvic inflammation. We can not attribute too much importance to the accidents of labor.

Dr. HENRY P. NEWMAN of Chicago, said that prophylaxis should have its day, and he believed it would. When we consider such a paper as has been read, we can see how easy it is to institute prophylaxis and thus prevent a very large per cent. of prevalent diseases among women.

Dr. E. P. DAVIS of Philadelphia, said among the most intractable diseases of women was that of neuralgia—neuralgias not only dependent upon mal-nutrition or anemia, but especially those of the pelvic viscera as seen by the obstetrician and gynecologist. Methods of dress reform, the avoidance of constipation during the pregnant condition, as mentioned in the paper, would prevent a certain number of cases of severe pelvic neuralgia, notably those of the sciatic type.

Dr. JOSEPH PRICE of Philadelphia, had found vaginitis in infancy not an uncommon cause. Gonorrhea was now a frequent source of pelvic inflammation. In alluding to menstrual disorders, he was satisfied many of them began in infancy. The general attention of the profession to vulvular and vaginal discharges of infancy was neglected. Referring to the favorable statistics of some lying-in institutions regarding the mortality from puerperal sepsis, he said they did include the mortality from other causes. In an institution with which he was connected, not a child had been lost among 1,300 births.

Dr. C. R. REED of Middleport, Ohio, thought that an infantile uterus was probably one of the most important causes of illness and feebleness in the women of our country; that deranged or vicious menstruation grew out of imperfectly developed sexual organs. The most difficult cases he had to manage and which gave him the least satisfaction and benefit to the patient, were in those young women who had undeveloped uteri and ovaries. The doctor made a mistake in telling the mother it would be all right after marriage; for unless measures were taken for better development, the marriage would be sterile—the patient would suffer.

Dr. J. HENRY CARSTENS of Detroit, Mich., did not believe that gonorrhea was so common a cause of pelvic inflammation as some practitioners. He thought a more frequent cause for the troubles in some women was the vicious habit of producing abortion, resulting in chronic inflammation of the uterus, and was a cause of more pelvic inflammation than all of the other causes put together. The profession should endeavor to prevent the vicious habit of women producing abortion with dirty darning needles, etc.

Dr. J. W. HOFF of Pomeroy, Ohio, desired to enter his protest against the statement of so many girls having had gonorrhea. He had practiced for forty-seven years, and had not seen half a dozen cases in daughters. Perhaps it was not so common as it had been represented in Philadelphia.

Dr. JOSEPH HOFFMAN of Philadelphia, directed attention to affections of the bladder incidental to parturition and to the puerperal state, brought on by constipation and dislocation of the uterus, etc. Of all the troubles women were heir to, chronic cystitis was the one with which they are most frequently affected. He thought that many of the troubles with which women are afflicted, such as displacements, retroflexions, subinvolution, etc., could be avoided by insisting that the patient remain in bed for two weeks

after child-bearing. As to the occurrence of gonorrhea in children, he had rarely seen it. He had often found tuberculosis in the pelvis, and he believed it frequently followed pus collections, if it was not caused thereby.

Dr. E. H. N. SELL of New York city, had seen gonorrhea in children, and even in a minister's family from a supposed moral country district. He would not mention the State. In one case the disease extended so as to involve both bladder and kidney.

Dr. LEWIS S. McMURTRY of Louisville, Ky., said it had been demonstrated by modern pelvic surgeons beyond question, that the physician in his efforts to relieve functional disorders of the pelvic organs in women very often unnecessarily inflicts upon them a disease of far more gravity than the one to which his treatment is directed. To illustrate: There is not an operator present who has not seen intra-pelvic inflammation result from forcible dilatation of the cervix. He is also perfectly satisfied that serious tubercular diseases are the result of the routine use of caustics upon the cervix—a practice still in vogue by some practitioners.

Dr. NOBLE, in closing, said he felt satisfied he had met with tuberculosis in several of his cases, as mentioned by the preceding speakers, although no microscopical examinations had been made. With reference to the relation of imperfect development of the uterus to the accidents of labor, he does not wish to be understood as saying that all lacerations of the cervix are due to this condition. In many cases they are due to bad obstetrics. The cause of a good deal of mischief is a very large baby coming through a small pelvis.

A FEW POINTS OF INTEREST TO THE FAMILY PHYSICIAN.

Read in the Section of Obstetrics and Diseases of Women, at the Forty-fourth Annual Meeting of the American Medical Association.

BY JOSEPH EASTMAN, M.D., LL.D.
INDIANAPOLIS, IND.

It is more or less presumptuous for a specialist to attempt to teach the general practitioner for two reasons: First, a large per cent. of general practitioners are capable of furnishing more pointers to the specialist than he could use in his business than the specialist could furnish to the general practitioner. Secondly, so many epistles have come from gynecological apostles in the past few years intended for the edification and education of the general practitioner that the man who makes his living by doing family practice is beginning to seriously reflect upon what relation he bears to the specialist.

Had I not for fifteen years been actively engaged in general surgery and medicine, nothing could have induced me to place my foot in this field which is actually suffering from intense cultivation, but now that specialists in gynecic surgery are starting up in almost every county seat I think it might be well to "tap the wheels" and elicit, if possible, the ring of solid metal or perchance the dull sound which indicates a crack in the wheel of our rapidly moving train.

Those of us who have opened the abdominal cavity many hundred times and tested our asepsis in the great lymph sac have picked up many little points pertaining to aseptic and antiseptic precautions of much value to the general practitioner. He has, however, often been led to believe that there are two separate and distinct factions; the one contending for and the other against antiseptics. There are no differences. "All are but parts of one stupen-

dous whole." Therefore he has the right to throw the blame on the eclecticism for his having committed a sin of omission, not using enough soap and water; or a sin of commission, having depended too exclusively on his bichloride solution and failed to scrub (sterilize) his hands, and even poisoned his patient with the deadly drug. The greater our experience and the more marked our success, the keener we should feel the weight of responsibility resting on us for what we teach. Reckless expressions as to methods of operating, treatment of cases, or results obtained are most reprehensible, even criminal, for in this way lives are sacrificed.

The student of human nature and the earnest seeker after truth can see the motives of those who insist that any kind of water is as good in surgical cleanliness as that which has been sterilized, or teach in their published statements and attempt to prove by their success that private hospitals are useless; that the same success can be obtained in the fifth hovels of the city; that nurses who have had a large experience in supplementing the efforts of the abdominal surgeon with their wisdom obtained by observation are no better than such nurses as one can pick up. What is the difference, if in the use of chemical agents which destroy microorganisms, we advance a step farther and say prevention is better than cure; or that the prevention of fermentation—"sterilization," "asepsis," "clean surgery" are better than allowing fermentation and putrefaction to swarm with microbes, and then seek to kill them with chemic agents?

There is no difference in the ultimate aim of those contending for antiseptic surgery, and those who claim to be content with clean surgery, for the reason that cleanliness can not be secured and maintained without the aid of chemic agents of some kind. No wonder some of our surgical friends get blinded in the technique of antiseptic surgery. While wandering in their blindness they forget the principles enunciated by the great masters like Lister and Keith. These men proved by scientific research that all fermentation is molecular life. What use would there be in the sterilization of every instrument used in the pelvic abscess if we forget that pus cavities, after being exposed to the air, become a hot-bed for the production of germ life through fermentation and putrefaction? Of what use would all the antiseptic dressing over an abscess be, as compared with perfect drainage—that precious safeguard against absorption? Our apostles of clean surgery are exceeding careful as to who clean their sponges; do not allow any decaying organic substance in their private hospitals, knowing that no sooner does one decaying substance die than it begins to live again in molecular germ life, the prolific offspring of fermentation and putrefaction. Clean surgery is what we want. How shall we obtain it? By water? No; it can not be thus secured. Suppose one of these gentlemen drops blood, pus or serum on his clothing, or gravy on the lapel of his coat. Will water remove it? No; try soap, ammonia, ether, benzine. Ah, it takes chemicals to secure cleanliness. The difference between those favoring and those opposed to antiseptics is largely imaginary, a play on words. We can get it but not without the aid of chemicals. By this, I do not mean such agents as are usually considered germicides. I doubt the propriety of killing germs lest we irritate the tissues. These

pretended differences between sepsis and antiseptics can but confuse the average general practitioner or the beginner in surgery. For example: My friend who had located in the far west and had been doing some surgery, returned to make his friends a visit; found his way up to my operating room and was noticing our preparations for work. As I had once been his teacher I began answering his questions by explaining to him that the hands were the most frequent source of conveying septic material into the peritoneal cavity, and that for the past ten years I had been studying how to clean my hands; that now I had a soap made by a chemist, with olive oil and caustic potash, practically the green soap of the pharmacopeia. I showed him my scrub brush for the hands which is boiled every time after being used and then kept in alcohol and ready for use again.

I explained how it takes repeated rinsings to get rid of the soap suds from the pores of the skin before we place the hands within the abdomen. He answered me, "I have no use for all your details. I simply put my hands in the solution of bichloride of mercury and then I know that I am safe." I attempted to reason with him, stating that if I used a germicide for the hands it would be aqua ammonia, which would not only bring tears to the eyes commensurate to the solemnity of the occasion, but would penetrate deeply into the pores of the skin chasing the microbe home, and by its extreme alkalinity, if not killing him outright, weakening him until he would be comparatively harmless. Whereas, his bichloride of mercury by its astringency, would close the pores of the skin, thereby shutting the door after the microbe which it had frightened into its den. This doctor believed that there were two factions and had chosen the chemist side of the question.

I read in a medical journal an article by one evidently willing to teach the average doctor. In this article he describes the bleaching method much used in the Johns Hopkins hospital and other places. He says: "Making the hands brown in a solution of permanganate of potash, then immersing them in a solution of oxalic acid until the color of the potash is removed; the hands will be of a pink color." Here it is that "a little knowledge is a dangerous thing." The pink color is evidence that the acid is retained deeply in the pores of the skin of the hands, even after repeated rinsings under a stream of running water. Such hands put into the peritoneal cavity would be dangerous. Aqua ammonia applied freely will prove the presence of acid by making as much lather as could be made with a good article of soap. This repeated a few times the pink color is gone and the hands are anemic. This alternate flushing and shrinkage of the capillaries, making the pink color, no doubt helps to sterilize the hands. It could be as well done by alternately immersing the hands in cold and hot water.

Another friend asks me to meet him in consultation, his patient having been confined a few weeks before. He fears peritonitis and yet thinks it not possible, as the temperature has not been above 101, though the pulse is 140, wiry and feeble. The abdomen is badly distended. The pulse, the tongue and the countenance all point to septic peritonitis and death. Following the doctor I made a careful examination of the case. I asked for some soap and water to wash my hands. They furnished a piece of soap

which had probably been selected, not because of its known composition, but because of its recommendation in the newspapers, including a certificate from a Brooklyn minister. The water given me was hard, containing much lime, magnesia, etc. I whispered to my friend that I could not remove septic germs from my hands with such material. He immediately brought his satchel, and after handling nearly everything in it gave me some tablets of bichloride of mercury to put in the water, and thereby to increase the chemical composition of the water and render it more worthless in cleansing hands.

After handling everything in his satchel he washed his hands in a solution of bichloride. Now, had he carried a hand brush boiled every time it had been in doubtful use, a vial of aqua ammonia to soften the water and a piece of soap made of olive oil and caustic potash, imitating the time honored soft soap of his grandmother, his armamentarium for sterilizing hands would have been nearer to my notion. There is something in soap. I ask the man in the alley back of my stable what he is going to do with the putrefactive, maggoty carcass of a dead dog he has laid in his cart. His answer was that he hauled them to the soap factory. I repeat there is something in soap. I insist there was a good deal in that soap. The nearer we stick to the religion and soap of our grandmothers the nearer we will approach moral and physical cleanliness of body and mind.

This good doctor was deceived as to the disease by too implicit reliance in his thermometer. I have many times seen a patient with septic peritonitis lie down and die, while I have never known a pulse to deceive me. We had in the profession more good pulse feelers before we had so many thermometers.

I get into my friend's buggy to ride home. He buttons up two coats, strokes down his long full beard, with hands and sleeves teeming, as I believe, with germs of septic peritonitis, then puts on a heavy pair of warm driving gloves which had done him service two winters, surely nothing but fire could ever sterilize them. Five days later my good friend rushed into my operating room as we were getting ready for an abdominal section waving these same driving gloves in his hands. I asked him to retire. He did so, but remarked that he had changed his clothes.

This doctor's antiseptic precautions were faulty because of too implicit reliance in germicides which led him to overlook the fact that any microbe, having a particle of self-respect, would not attempt to stay where soft water, clean scrub brushes, plenty of elbow grease and repeated changes of clothing were customary.

The doctor's change of clothes was not satisfactory to me, so long as the gloves were used into which he had placed his hands after examining the case of puerperal septicemia. It requires the utmost painstaking to have our chain of antiseptic precautions strong in its entirety. "No chain is stronger than its weakest link." In studying septic precautions and applying the principles in our practice we often strain at a gnat and swallow a camel. This being true of those who are specially engaged in intra-peritoneal work so that the least deviation from the strictest asepsis will be detected in the results obtained, how much more likely is he who is engaged

in general work to overlook some important detail in the change of clothing, and especially in what he is handling with his hands, including the gloves.

It was taught in former years that the obstetrician should stop practice after attending a case of epidemic child-bed fever.

These cases we now believe to have been puerperal septicemia, and despite my unbounded confidence in soft water, soft soap, scrub brush, ammonia, turpentine and alcohol, I am of opinion that no man is warranted in opening the abdominal cavity or attending an obstetric case within five days after his hands have been in contact with a case of septic peritonitis, if that peritonitis is at all in any possibility during its acute stage; and not even after the expiration of five days unless in this space of time there shall have been repeated changes of clothing, daily scrubbing of the hands and arms with soft soap, soft water, with ammonia poured into the brush and the hands immersed in turpentine afterwards. In this purification the hair and beard should receive due attention.

This statement may be challenged by those who make abdominal sections in cases of pus tubes, but I must draw the line between cases of sub-acute and acute septic peritonitis whether the same be puerperal or not. In a recent conversation with Dudley of Chicago, I find that this conscientious man has been thinking in the same line and arrived at the same conclusions as myself in this regard. Have we not erred in publishing to the general practitioner what numerous lives we could save by abdominal surgery? Would it not be better to give him the benefit of our experience and some of the details of our aseptic precautions, and thereby enable him to avert the probability of carrying the death warrant of his patients in the hair follicles on his hands, under the finger nails and in the gloves? Is it not time that we quit contending that there are two factions in antiseptic surgery, one depending on water, the other on chemicals? Inasmuch as chemicals are useless without water and water without chemicals, even a soap of known chemical composition, the systematic combination of the two in the proper way of their use upon the hands is what the average physician needs to know. The man who is daily dealing with the peritoneal cavity has a store of knowledge of great utility to the general practitioner. And yet we must forget self and publish only that which we have proven to be right and safe, like Dr. Kelley who discarded the *American Journal of Obstetrics* when he found that his bleaching solution of potash would not kill bacteria in a skein of silk.

I meet my friend in consultation. He had told me to bring all kinds of probes to get entrance into the cervical canal as he had failed to find an entrance into the uterus, notwithstanding he had used the speculum many times. I found the uterus crowded up behind the pubes by an ovarian cyst as large as a water bucket which the doctor had not detected; secured the consent of the patient and set the day to remove the cyst. As we were about to leave, the doctor asked if I had not better use the speculum to see if we could not pass a sound. I replied that fingers were made before forks, speculums or sounds and that conjoined manipulation gave so much information that sounds were going out of use. A very large majority of practitioners I meet are capable diagnosticians. A few are sadly

deficient in physical diagnosis of abdominal disease. It is often a lack of persistence in abdominal palpation and determination to master the subject. They have not the art of moving the fingers over the viscera carrying the skin with fingers. And sometimes they do not even obtain a knowledge as to whether the tumor grew from above downwards or from below upwards. If from above downwards, can it be manipulated back, as in floating kidney, or moved from side to side, not upward, as in distended gall bladder. They do not understand that palpation of an ovarian cyst should give signs of fluctuation, and a fibroid of a solid; that in both there would be dullness on percussion. Whereas, in ascites there would be resonance. I mention these points because there is some danger of inspection, palpation, auscultation and percussion becoming a lost art. There are so many anxious to make exploratory abdominal section.

One of the ablest practitioners of my State calls me in consultation. His telegram suggests that I come prepared to make an abdominal section. The case is a boy and he has been suffering three days from inflammation with excruciating pain in the region of the vermiform appendix. The doctor has made post-mortem examination, finding a gangrenous vermiform appendix, and from his knowledge gained by this post-mortem and by his reading the current literature of the day, especially the teaching of Morris of New York, that all cases of appendicitis should be operated upon, believed that success would follow and life be saved if we only operated early enough. I, having seen a few operations followed by death because the inflammation was yet in an acute stage, that is to say while the circumscribed septic peritonitis, which sometimes accompanies cecitis and appendicitis was acute not sub-acute, believed that an operation would surely be followed by death, and that if by opiates we could arrest the progress of inflammation and seize the opportunity in the interval of the attack, operative interference might do some good. Knowing also that some of these cases make fairly good recoveries without operation I declined to operate. Neither the doctor nor myself were satisfied with the result in this case, and this subject is of such vital interest to the general practitioner that I quote from a recent article by Dr. Schaefer as being in point: "It has been asserted by McBurney of New York, that 90 per cent. of all cases called perityphlitis are really cases of appendicitis, and this statement seems to have been almost universally accepted by the profession of our country, for the term perityphlitis has been almost entirely dropped from the textbooks and the writings of most surgeons, and appendicitis adopted as a substitute. This change of terms has been accepted with too great haste in our judgment and is in all probability one of the chief causes which lead to the great differences of opinion relative to the question of operating; for we shall find upon searching the literature of this subject that various conditions may be and in all probability are described under the term 'appendicitis.' I am led to believe through my experience that a larger percentage of cases of so-called appendicitis than we are aware of are inaccurately diagnosed. This, of course, will be difficult to prove, but when we look at the facts produced by practical experience, enough presumptive evidence can be brought forward to indicate that the assertion

is not without foundation. How do we arrive at the facts concerning the statistics of appendicitis? 1, by noting operation. 2, by recording results of autopsies. But is it not reasonable to suppose that the greatest source for statistics for lesser diseases of the caput coli is lost in the fact that they recover (it is claimed by Treves that 90 per cent. of all cases get well spontaneously) so that no autopsies are made? I feel convinced that a simple catarrhal enteritis with an accumulation of fecal matter, is mistaken for appendicitis much more frequently than is generally conjectured, having had at least five cases of this kind recently myself which recovered. In each, after the acute symptoms were subdued, repeated colonic flushing brought away large quantities of dry, lumpy, fecal matter and the tumor vanished. In considering this subject we are at once confronted by two problems: 1, diagnosis. 2, the question of operation. In perusing the literature of perityphlitis and appendicitis which during the past few years has become extraordinarily voluminous, one is struck with the fact that most writers and operators take a radical stand for or against operative procedure, and those who favor operating are again divided upon the issue of 'early or late' operations. It seems strange to the casual reader that minds experienced in the same line of work should differ to so great an extent in considering questions of so practical a nature. There is an old axiom, 'whenever pus is discovered let it out if possible.' That the indications for the evacuation of pus in this instance are of greater import than in any other conditions or locations no one will dispute. What, then, causes the hesitation? 1, the difficulty lies in finding the pus. 2, the great danger to the peritoneum and its sequelae. The first difficulty the surgeon will always be confronted with in a proportion of the cases. The second difficulty will be more and ignored as we become more familiar with the work, and more perfect in antiseptic surgery."

Here is common ground where a wise general practitioner with large experience and much reading meets the specialist, both determined to do the very best thing for the patient, and yet they can not see alike.

Between the general practitioner and the specialist; the one looks at the thing in a general way and the other in a special way. They are both instructed by association together over a given case. The ideas of the specialist are widened. The ideas of the general practitioner are narrowed to a closer study as to the particular stage of the disease suitable for operative interference; and ultimately we shall, as I believe, unite in a mutual faith that when to operate is a vital question requiring much skill and surgical wisdom to answer, and even then we will sometimes find that our best judgment and conscientious actions have failed to save a life. I believe that the specialist should concede much to the experience and judgment of the general practitioner. What success I have had is in a measure due to association with successful, intelligent, general practitioners. I believe the specialist should be as a hand maid to the family physician, by no means supplanting her mistress nor yet usurping her rights but always assisting her to maintain them.

Blank applications for membership in the Association, at the JOURNAL office.

THE RIGID OS AS A COMPLICATION IN LABOR.

Read before the Section of Obstetrics and Diseases of Women, at the Forty-fourth Annual Meeting of the American Medical Association.

BY E. H. KING, M.D.
MUSCATINE, IOWA.

One of the most frequent complications which occurs to annoy the obstetrician, protract labor and exhaust the patience and endurance of the parturient, is a rigid and unyielding os.

This term is applied in a general way to a variety of conditions, materially differing from each other; but possessing this feature in common—the cervical tissues are unyielding, and the os undilatable.

This may depend upon non-development in the early primipara; upon fibrous degeneration in the old; upon cicatricial induration, consequent to previous lacerations, and upon pathological change, incident to carcinomatous disease.

But we frequently find a persistent rigidity where none of these conditions are present; wherein the lower uterine segment is apparently fully developed, and normal in character, thin and soft when quiescent, but upon the advent of each uterine contraction the encircling tissues spasmodically contract and become rigid and unyielding. More or less sensitiveness and irritability of the cervical tissues are present, and occasionally we find an acute hyperæsthetic sensitiveness of the whole vagina, sometimes accompanied by local heat and dryness. The patient is restless, nervous, irritable and depressed, is annoyed by examinations, suffers severely at each recurrence of uterine effort, and persistently demands relief from the attendant.

Again, we may find the encircling tissues to be a thick muscular band, insensitive and rigid.

The patient may be in good health; presentation, position, the relative size of the child to the maternal pelvis, uterine contractions and personal effort may be all that could be desired, yet, whenever these rigid conditions persist labor will be correspondingly protracted, the patient subjected to increased and unnecessary pain and distress and liable to suffer from injurious sequelae.

The most serious, but fortunately the least frequent result to be apprehended is rupture of the body of the uterus, allowing its contents to escape into the abdominal cavity. More frequently has there been a complete separation of the cervical rim, and quite frequently, or rather perhaps, the usual result is more or less laceration of the cervix, giving rise to hemorrhage and laying the foundation for future pathological and gynecological conditions, which afford a fertile field for the specialist to cultivate, often to his own financial rather than to his patient's physical improvement. Unaided, after long continued and vigorous efforts, the minor tissues around the os may tire out and give way to slow dilatation; but more frequently the sudden rupture or laceration, previously noted, may occur, and labor be advanced towards completion. Then, too, long continued pressure against the cervical rim, especially in the absence of the protecting bag of waters, is liable to cause confusion with subsequent necrosis, which will add another factor towards future pathological complications, and trouble and ill health for the patient.

In cases wherein structural change has occurred from carcinomatous deposit, surgical interference is beyond doubt the proper method of relief; making lateral or bi-lateral incisions through the diseased tissues and keeping the patient sufficiently anesthetized to prevent undue suffering until delivery is accomplished. Incision is also proper in cases of non-development, and in fibroid degeneration after failure to obtain dilatation by milder means.

In cases of irritable, spasmodic or of muscular rigidity, various methods and remedies have been employed. Blood letting to faintness is an old remedy and often effective; but bleeding is not fashionable at the present day, and the average practitioner does not possess the necessary moral courage to revive the practice. The relaxing effect of the hot bath, recumbent or sitz, has been used with benefit, but is often inconvenient or impossible to give in general practice. Ipecac, tartar emetic, lobelia, tobacco and other emetics have been given ad nauseum with more or less effect, but more often to the doctor's disappointment, and the patient's disgust.

Digital and instrumental dilatation has its advocates, but is objected to by those who live in mortal dread of any such interference, on the score of the danger from septic infection. Chloral hydrate is often used but is perhaps of more value to relieve the excessive irritability and procure rest than to effect immediate dilatation, and the same may be said of opiates in their various forms.

Undoubtedly the most popular remedy of recent times is anesthesia pushed to a degree of complete relaxation. It is often efficient, and as it relieves the patient from the agony, it is hailed with delight by the sufferer and ever after held as a boon of inestimable value. But anesthesia will sometimes fail and organic disease or personal prejudice may preclude its use.

I have the pleasure to offer another remedy, not to my knowledge generally used by the profession for this purpose, viz., atropia used hypodermatically. So far as I am aware, it was first used for this purpose by the late Dr. A. Ady of West Liberty, Iowa. Although belladonna extract and ointment has been applied to the cervix for this purpose from time immemorial, Dr. Ady has used atropia for many years in his practice, and he states "that it will as certainly dilate the os, as it will the iris," and in the cases wherein I have used it, I can fully concur in the statement. I believe it to be the most prompt and efficient remedy we possess to inhibit the contractility of the circular fibers of the cervix, thereby favoring prompt dilatation and thus accelerating labor. 1-100 gr. will generally be sufficient. Its effects will be manifest in from fifteen to twenty minutes. Rarely will a second dose be necessary.

The only unpleasant symptom attending its use is the dryness of the mouth and fauces and dilatation of the pupils. Neither in Dr. Ady's experience or in my own has it seemed to favor hemorrhage or interfered with postpartum contractility of the uterus or with lactation.

Possibly, delirious excitement may be caused by it in persons peculiarly susceptible to such an effect of the drug, but such cases must be extremely rare.

I therefore briefly present this remedy to the profession that it may be given a thorough and satisfactory trial, and its true value be determined.

EPITHELIOMA OF THE TONGUE, AND ITS TREATMENT.

[Abstract of a paper read before the Society of the American Medical Association, at its annual meeting, 1892.]

BY L. C. LANE, A.M., M.D., BERKELEY, CALIF.,
PROF. IN THE COLLEGE OF MEDICAL SURGERY, SAN FRANCISCO, CALIF.

The author of this paper accepts the view of these observers who assert that epithelioma is the only form of malignant neoplasm which attacks the tongue, except such as may have reached that organ after primary invasion of contiguous structures.

Epithelioma has its origin deep in the epithelial elements and, according to its site, may be divided into two classes—the excrecent, and the internal or interstitial. Each form may arise from a papilla, wart, naevus or limited abrasion. In the excrecent variety the growth is outward, tuberculated or wart-like prominences being isolated or forced into an uplifted plateau. The penetrating species commences usually on the side of the tongue, the newly formed elements crowding upon and destroying as they invade, the deeper structures, finally reaching and opening blood vessels of more or less magnitude. These metastatic processes are continued until the affection has no definite bounds.

The causation of epithelial cancer of the tongue is unknown, but certain agencies might be cited as promoting its evolution, such as calcareous incrustations on the inner side of the teeth, sharp points or edges of the teeth which continue to wound the borders of the tongue, and the habit of thrusting the tongue into an interstice between the teeth. The use of tobacco is probably a causal agency, the disease being far more frequent in men than in women. Epithelioma of the tongue seldom appears before the fortieth year of age. When allowed to run its course lingual cancer completes its fatal work within fourteen months. Operative interference does not offer encouraging prospects because so frequently undertaken late in the progress of the growth. Probably as high as 75 per cent. of the cases might be saved if the disease were seen in the primary stage and treated upon surgical bases, but meddlesome ignorance too often monopolizes the precious time during which the patient might be saved. The absence of metastatic glandular infection may be regarded as the only test of safety. When intelligent management has stepped in and prolonged life, two years is usually the limit of time, before death ensues.

The author's paper considers at length the gross pathology, diagnosis and surgical treatment of lingual epitheliomatous growths and contains ample bibliographical research with citation of cases.

MUSCLE BUILDING AS ILLUSTRATED BY THE MODERN SAMSON, SANDOW.

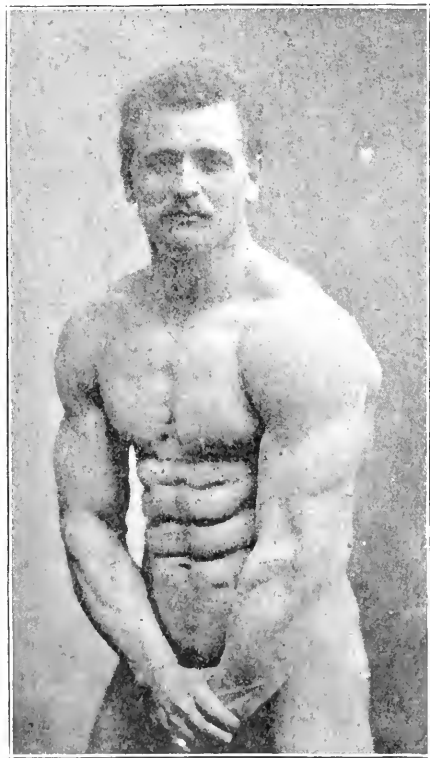
BY G. FRANK LYDSTON, M.D.

PROFESSOR OF THE SURGICAL DISEASES OF THE GENITOURINARY ORGANS AND SYPHILOLOGY, CHICAGO COLLEGE OF PHYSICIANS AND SURGEONS, ATTENDING SURGEON, COOK COUNTY HOSPITAL.

It has frequently been remarked that men of the present day are not so strong as those of times past, and there are many reasons for this assertion. An inspection of ancient armor is sufficient to convince one of the truth of this statement. In looking at specimens of ancient armor, we are at once impressed with their great weight and comparatively small size,

It would distress John L. Sullivan, I have no doubt, to force himself into one of the largest suits of armor that have thus far been exhibited. Once he had succeeded in arraying himself in the suit, he would doubtless feel more like reposing peacefully upon the ground than vaulting into a saddle and running a tilt in a tourney. One thing is certain, viz: that the soldier of ancient times although by no means a Sullivan in physique, could put the average modern athlete to the blush in point of strength and physical endurance. It is obvious that the men of former days must have made up in the quality of their muscular fiber what they lacked in bulk.

Of all the living modern examples of muscular possibilities Sandow is probably the finest specimen.



axilla and over the shoulder, 21 inches. The maximum chest expansion is said to be 14 inches.

I have not had the opportunity of verifying these measurements and am inclined to believe that they are somewhat exaggerated. Especially am I inclined to doubt the chest expansion, which although simply wonderful would, I think, show somewhat differently from the published estimates.

To the student of anatomy Sandow is an object lesson worthy of study; a more beautiful demonstration of the superficial and more important muscles than this man presents could hardly be imagined. This demonstration is made possible by the perfect control which Sandow possesses over even those muscles which, however excellent the natural development of the individual, are never under very perfect volitional control in the average subject. In an experience and observation of physical training and its results, extending over a period of twenty years, the writer has never seen an athlete who has attained a degree of perfection in this respect which could be compared with that attained by Sandow. A glance at the pictures which have been reproduced from the photographs which Mr. Sandow kindly presented me, will well illustrate some of the points in his development which are most noteworthy. It has often been said by scientific iconoclasts, that ancient painting and sculpture is very unreliable in anatomical details. Especial stress has been laid upon the "checkerboard" appearance of the abdomen seen in various heroic works of art by the old masters, as an illustration of this defect. If the reader will glance at the front view of Sandow, he will observe a division of the abdomen into rectangular areas of muscular eminences which are more prominent than those of any painting or statue with which I am familiar. This extraordinary development of the recti is, however, by no means disproportionate to the development of the other muscles of this remarkable man. On inspecting the back, as seen in the cut, a clear, distinct outline of the various muscles is observed. Attention is especially directed to the scapular muscles and the trapezii. The muscles of the limbs are equally well developed. The pectorals and that usually poorly developed muscle, the *serratus magnus*, are of phenomenal development.

When at rest, Sandow's muscles and skin are soft and pliable, but when the muscles are contracted from voluntary effort, it is wellnigh impossible to pinch up the superlying tissues.

It is a striking fact that Sandow belongs to a family no other member of which was ever noted for great strength; or, even a taste for athletics. Sandow himself, until he was 18 years of age, was of rather frail build. At that age he began a systematic course of training by a method peculiarly his own. His system consisted essentially in the acquirement of perfect voluntary control over the various groups of muscles, and where possible of single muscles. By thus specializing he was enabled to localize his muscle building where it appeared to him to be most needed. Having acquired a fair degree of development and control of the group selected, he then devoted his attention to another, and so on until he had succeeded in acquiring the foundation of the remarkable general development which he now presents. According to Sandow, the only apparatus used in his preliminary training was a pair of five pound dumb bells. It was not until he had attained

This man shows in a very marked degree the wonderful results which can be obtained by a systematic and philosophical method of muscle building. Sandow is by no means a large man, being but 5 feet 8½ inches in height. To see him arrayed in evening dress, the uninitiated would hardly believe the tales of physical prowess which can be told of Sandow, and he was born in Prussia, and is now 26 years of age. He weighs—stripped to the buff—186 pounds. The measurements which he claims are: Chest, 46 inches; waist, 29 inches; biceps, 19½ inches; thigh, 21 inches; forearm, 19 inches; calf, 17½ inches; under axilla and over deltoid, 17 inches; under

an approximately perfect general development that he began those wonderful feats of strength which are now his daily avocation. To those who have not seen him at work, Sandow's exploits sound like a fairy tale. He plays with fifty-six pound dumb bells as though they were marbles, and with eyes blind-folded, his feet tied together and one of these heavy bells in each hand, turns a back somers-aunt as gracefully as could any empty-handed gymnast. After this preliminary warming up, a huge dumb bell, each end of which is formed by a hollow globe containing a man, is brought in, and our modern Hercules gracefully lifts it from the floor and pushes it straight up with one hand at full arm's length above his head



with apparent ease, letting his burden down again without shaking up his living dumb bell to any great extent. The weight of this bell and its contents is 305 pounds.

A still more wonderful feat is his exhibition on the Roman column. Strapping his feet to an iron upright at some distance above the floor, he supports his weight by a couple of straps attached to his knees. Leaning down backward from his horizontally extended position he then picks up two men, one after the other, and places them upon his knees. The strain upon the back, thighs and arms in this feat can be readily imagined. As a climax for his

exhibition Sandow next supports a platform upon his chest and knees while resting upon his feet and hands, and upon this platform three trained horses are balanced. The combined weight of the platform and horses is about 2,800 pounds.

Much curiosity has been exhibited regarding Sandow's system of training, especially as regards his diet and mode of life. It is not worthy that he eat, drink and smokes about as he pleases, the old fashioned idea of dietetic restriction for athletes evidently having very little weight with him. It is astonishing that he is not compelled to be more abstemious, but he is apparently quite as capable of immense muscular effort after a course dinner and a liberal supply of wine, followed by one or more cigars, as at any other time. After his performance is ended Sandow takes a cold sponge bath and a rub, as does every well informed athlete.

According to Sandow, ten minutes exercise with five pound bells night and morning is all that is necessary to attain a superb muscular development. In proof of this, he exhibits a pupil in whom three months training has produced marvelous results.

Irrespective of my own opinion regarding the disastrous effects of such severe strains as those imposed by Sandow upon himself, I am compelled to confess that I have rarely examined so perfect a type of good health as this man presents.

A heart perfectly normal in size and action, and lungs free from emphysema, are hardly to be expected in one whose daily work comprises such a series of severe muscular strains as those to which Sandow subjects himself, yet these organs are apparently sound. The heart is not disproportionately developed and its action is perfectly normal. Even under severe strain the respiration and heart's action are but little disturbed. I found that the respiratory movements numbered 20 per minute and the pulse 80 before our subject went upon the stage. On examination about half an hour after the regular performance—during which time Sandow occupied himself in displaying his muscular development to a select audience in his dressing room,—the pulse was 90 and the respiration 20. It is worthy of remark that he had partaken of a hearty meal with a liberal supply of champagne shortly before the performance and had been smoking freely during the evening. The average athlete would hardly dare to go through such preliminaries even when ordinary feats were to be attempted. By far the most interesting feature in Sandow's work is his method of muscle building. He begins as already remarked, by cultivating volitional control over the several muscular groups. This is especially interesting to me as it is precisely the same system that I have advocated in several articles upon physical training, and is essentially the same as that which I put in practice in gymnastic classes some years ago. The principle involved in proper muscular training is exemplified by those individuals who by practice are enabled to acquire great volitional control over such muscles as the articular and occipito frontalis. As is well known, the platysma myoides is poorly developed in the human subject, being but a remnant of the panniculus carnosus. It will be found that it is possible to acquire a marked degree of development and control of this thin and unimportant sheet of muscular fibers. If this can be accomplished in such muscles as those mentioned, it is certainly reasonable to suppose that more per-

fect results can be accomplished in the case of the more important muscular groups. By systematic practice in this direction one is enabled to get sufficient exercise without any apparatus whatever. It is the relative degree of control which the individual acquires over his various muscles, rather than their bulk, that determines their strength. Such enormous development as that of Sandow, is by no means necessary nor even advisable. Feats of strength do not constitute the aim of ideal athletics, i.e., athletics for health. Given a bulky muscle, and we usually have a slow muscle. The ideal muscle is not always the one which stands out in such bold relief as do those of Sandow. The average big muscled man is muscle bound, and perhaps shoulder bound, and while Sandow is apparently an exception to the rule, he himself in all probability displays to less advantage in feats requiring a combination of skill, strength and agility. The question is often asked of Sandow, "what could you accomplish in pugilism?" Sandow replies and quite justifiably that he would not dare strike a man; that he can break a four inch plank with a blow of his fist, etc., but the ability to kill a man with a blow of the fist is not pugilism, and striking a plank is vastly different from striking an active skilful boxer, who is not in duty bound to stand still and be struck. Very few boxers are ever able to exercise their utmost strength in striking a blow. To put a blow accurately and quickly in upon an object in motion, is vastly different from striking a sandbag. Especially is this true when the danger to one's self is proportionate to the violence of the attempt made in striking an opponent in case a counter blow is received. Experience has shown that bulky muscled men are, on the average, failures as pugilists and wrestlers. Corbett is an ideal athlete, yet his muscles are smooth, well laid and not bulky. It is to be hoped that Sandow's exhibitions may not have a pernicious effect upon aspiring youths who imagine that ideal training implies great feats of strength, and muscles which stand out in bold relief like an anatomical demonstration.

A point worthy of consideration is the fact that Sandow is of a very phlegmatic temperament. Persons of a more sensitive organization, and brain workers, would soon pass the danger line if they attempted to emulate Sandow. The personal equation must be remembered in athletics as well as elsewhere. A word of caution is also necessary in respect to diet and drink. While a restricted regimen is a relic of the past in athletics, more care is necessary than Sandow imposes upon himself—the personal equation again. Wine, tobacco and athletics mix but poorly.

The question now arises: what damage if any, does such work as Sandow's produce upon the individual? From what has been said of Sandow's present condition one might be led to infer that such feats of strength are harmless, but such is not the fact. Sandow is confronted by two dangers. 1st. Death at an early period after complete suspension of his athletic strain. 2nd. Death at middle age or soon thereafter, from a continuance of his work.

In the first instance we will suppose that our subject ceases his work—voluntarily or otherwise. In this event he is confronted by a serious problem. He has solved the problem of developing his heart and lungs *pari passu* with the development of his general muscular system, but how is he going to

bring about involution of his lungs and heart *pari passu* with the general muscular involution which must follow rest? To do this is impossible and the result is a relative disease of his enormous heart and lungs. Disuse means decay; degeneracy of cardiac fiber and lung tissue results; degeneracy offers a constant invitation to disease of various kinds. The most powerful pugilist America ever produced, quit the "squared circle" and entered a counting room, only to die of consumption within a year. The athlete had need of large lungs, but large lungs without their accustomed exercise were a misfit in a sedentary occupation.

We must not forget in considering the immediate effects of muscular strain, the possibility of chronic myocarditis. Many a powerful man has paid the penalty of over exertion by the development of so-called heart failure during some acute disease. I recall the case of a professional friend who used to boast that he could eat more, drink more and lift heavier dumb bells than most men, yet this man died of a comparatively slight ailment. Heart failure in this case meant simply a myocarditis from gout and over strain. Some of my readers may recall the "white spot" in the soldier's heart which was recognized as a result of over exertion years before we knew aught of myocarditis.

The probable disastrous effects of a continuance of his work involves degeneracy of the blood vessels. It has been said that "a man is just as old as his arteries." Many a strong man has verified the truth of this to his cost. At 45, Sandow will be in the prime of his strength; his arteries and heart, however, will not be in the prime of their elasticity. Readjustment after strain will be no longer possible. Degeneracy of arterial walls and cardiac fiber will occur; dilatation of the heart and trouble with the coronary and minute cerebral arteries is likely to develop. Apoplexy and aneurism are possibilities. The lungs will lose their elasticity and emphysema will supervene. Verily the athlete's lot will then be by no means a happy one.

Sandow is a wonderful man, but his example is pernicious. His system of muscle building is superb; its application may be dangerous.

In looking at Sandow's enormous muscles I was reminded of a remark made by my old teacher many years ago. Pointing to a cast of an enormously muscular arm upon the wall he said: "Boys, remember that such a biceps is possible, but only at the expense of life; the man from whom that cast was taken died in its acquirement." Truly, a man is not a horse and may not do the work of a horse and live. Athletics for health, should be the motto of the man who trains. Athletics for big muscles and competitive feats of strength and endurance are pernicious, illogical and dangerous. Let the man of spare muscle remember the personal equation and not try to make a Samson of himself. One may not gather figs of thistles. The average man had better content himself with perfect control and excellent nutrition of muscles of even mediocre development than to emulate Sandow. From personal experience I am also inclined to advise against getting into so-called perfect training. Especially would I advise against attempts to become expert general athletes on the part of men who lead sedentary lives or who are brain workers.

The best exercises are those involving more or less skill and active attention; the more like play the better.

A man may use dumb bells and think of the price of wheat; if, however, he is engaged in boxing, wrestling, fencing, base ball, hand ball or tennis, he is apt to pay strict attention to the subject in hand.

Cheerful companionship is essential. When patients ask me what they had best do in the gymnasium, I usually advise them to play boy for an hour and follow the play hour by a bath and a good rub down.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, IN CLIPPING POSTAGE:
PER ANNUM, IN ADVANCE \$5.00
SINGLE COPIES 10 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 68 WABASH AVE., CHICAGO, ILLINOIS.

All members of the Association should send their Annual Dues to the
Treasurer, RICHARD J. DUNGLISON, M.D., Lock Box 1274, Philadelphia, Pa.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION

This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Dunglison, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues and subscription for THE JOURNAL. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

SATURDAY, SEPTEMBER 16, 1893.

THE FUTURE GREAT UNIVERSITY.

The meeting of the Pan-American Medical Congress was attended by few, if any, of the unfortunate misunderstandings that so frequently leave unpleasant memories.

No congress, medical or secular, has ever had deeper motives of patriotism for its mainspring. The medical profession of the Western hemisphere were anxious to take the initiative steps in the formation of this new medical union, which means the emancipation of the profession of medicine of this part of the globe from European control.

This great change can not be immediate, but it is sure. The future medical students of Pan-America will attend the universities of the United States, Mexico and South America. Berlin and Paris schools will attract them no more than the older institutions of Padua and Leyden.

The progress of civilization is ever westward. Athens and Alexandria were succeeded by Salernum and Cordova; they in turn by Paris and Edinburgh.

Boston and Baltimore now claim a share in the leadership, closely followed by Philadelphia, New York, Chicago and others.

The medical schools of the cities of the United States have done very much in this Columbian year to place them in the front rank, but the history of the evolution of human intelligence shows that these efforts are only bringing into view the eternal principle mentioned by BISHOP BERKELEY:

"Westward the course of Empire takes its way."

It is in no spirit of self-glorification that we write this article; but no man can conscientiously compare the technique of the methods of the MASSACHUSETTS GENERAL HOSPITAL, the PENNSYLVANIA HOSPITAL or the JOHNS HOPKINS HOSPITAL, without knowing them to be superior to those of the HOTEL DIEU, the MOABIT or the ALLEGEMEINE KRANKENHAUS. As for the London hospitals, there are none to be mentioned in

the same class, except possibly St. THOMAS, and that is so cramped in its operation and hampered by traditional customs as to resemble more the institutions of the dawn of the century than those of its close.

In the new world, then, we may expect the great university of the next quadri-centennial; and the present status of American medical education as shown in the late Pan-American Medical Congress in its Section on Pedagogy, is such as to warrant the hope that not only will the United States in its turn, for its due season, be the seat of the world's great medical school, but that the time is near at hand.

One may not sufficiently lift the veil obscuring the future to show what American city may have this great honor, but it certainly will not be established in any city where the profession are self-sufficient, where they are already finished to an extent that prevents them from taking part in the professional exercises of Pan-American conventions, or the entertainment of their invited guests. When the profession of a city become so wrapped up in their own affairs as to become oblivious to what is going on about them, the outside world will certainly allow them that peace and quiet which betoken decay and dissolution.

THE ARMY MEDICAL EXHIBIT AT THE WORLD'S FAIR.

The exhibits of the Medical Department of the United States Army are in charge of Captain LOUIS A. LA GARDE, Assistant Surgeon, U. S. Army. They are contained in a regulation post hospital, of eighteen beds, and in a field hospital adjoining.

The Regulation Hospital.—This structure is built of frame and staff. It is divided into a ward and the administration part. The latter has two stories, having four rooms upstairs and five downstairs. In the original plan, the latter furnish rooms for kitchen, dining-room, store-room, dispensary and post surgeon's office. The ward is a large room, 56x24, leading from the main hall of the administration building.

As the exhibition of one or two beds would illustrate the pattern of bed and bedding used in army hospitals, it was not considered advisable to have more than a sample or two of beds in the ward, and the rest of the valuable space in this part of the building is devoted to the display of specimens from the Army Medical Museum and some of the supplies furnished the medical department at every army post. 1. we find the surgical instruments among which we have noticed some aseptic cases from the finest makers; 2. the pouches and first aid dressings carried by the Hospital Corps men in times of war; 3. the chemical and bacteriological sets for the analysis of air and water and soil; an elaborate out-

lay for the use of those officers practiced in matters of theoretical and practical hygiene. 4, a collection of wet and dry preparations illustrating different pathological lesions; 5, models to show the evolution in hospital construction, and transportation of the wounded in war; 6, 300 bromid enlargements and transparencies, illustrating pathological and histological lesions of various kinds; 7, a series of eighty consecutive sections of bone illustrating the form and structure of the osseous tissues; 8, ten series of consecutive sections of human embryos illustrating the anatomy of the various portions of the body; 9, a collection of microscopes showing the evolution of the instrument; 10, a collection of deformed bullets, and lesions of bone, recent and remote, from gunshot injuries, gathered from cases during the war of the rebellion.

These specimens form a great contrast with a collection of sixty specimens of bone in the opposite corner of the room which illustrate the effects on bone of the German silver mantled projectile of 30 caliber. Each specimen here is mounted, with the bullet which inflicted the injury beside it, and the slight deformation of the projectiles and their tendency to perforate the spongy ends of bone—circumstances which add so much to the so-called humane phase of the rifles of small caliber now forming the armament of all foreign nations,—are among the more striking pictures of this important collection. The specimens show the difference in destructive effects between the old leaden bullet of 45 caliber, which our army has used since 1874, and the 30 caliber projectile which we are about to adopt with the Krag-Jorgensen gun. The specimens were prepared by Dr. LA GARDE, U. S. Army, at Frankfort arsenal last winter for the exposition. The cadavers were consumed in testing the effects of the projectiles at all the distances between the 100 and 2,000 yard ranges. Those who would wish to see the ravages of the past and future wars on bone should not fail to examine this collection.

The rooms downstairs contain supplies and the records kept by the medical department. Two of the rooms upstairs are thrown into one large room, by sliding doors, which is used as a clinical laboratory for the inspection of practitioners of medicine only. The object of this laboratory is to show a clinical laboratory to a general hospital in time of war. In appointment it was largely patterned after the clinical laboratory of the Johns Hopkins hospital. There are eleven microscopes displayed, by the aid of which pathological, histological and bacteriological specimens are shown. There are a number of thermostats in operation, and the collection of cultures on various media is all that could be desired for the study of bacteriology from the general practitioner's standpoint. Dr. E. H. WILSON of the Mary-

land laboratory is the bacteriologist, and there are two medical officers and subordinates constantly at work.

The Field Hospital.—This part of the display is under canvas. It is probably the most elaborate attempt ever made by an army medical department to show the resources of surgery and first aid on the field of battle. It consists: 1, of a wall tent for the medical officer which contains a field desk, folding cot, tables and chairs; 2, a hospital tent in which sick call is held, and where the records and dispensary supplies are kept; 3, two hospital tents pitched end to end to be used as a ward. These contain twelve cots neatly made up with the field linen, bed-sacks of straw, blankets, etc. The field furniture for the ward is limited to folding chairs and tables; 4, a hospital tent, called the squad tent for the detachment of the hospital corps on duty, eight in all. These men are drilled twice per week in the methods of rendering first aid and transferring wounded and sick soldiers from litters to ambulances, etc.; 5, shows a wall tent to be used for cooking, the Buzicot oven and other cooking utensils; 6, a hospital tent to be used as a dining-room in which is shown the folding chairs and folding field dining tables, a food and mess chest; and 7, a common wall tent containing a bed pan and earth closet. The present field furniture of the medical department has been only recently adopted and it shows the display of much ingenuity and forethought for the care of the sick.

BIOLOGICAL PROBLEMS OF DEATH.

In some of the recent German reviews this topic has been discussed at some length. Death is called a definite arrest and change of life. This can only occur among multicellular beings, and is not found among unicellular organisms. These latter increase by fusion, growing to a certain stage, then dividing into two parts alike in size and structure. These organisms may be called immortal, because if protected from violent death live on indefinitely. The individuals of these unicellular species on the earth to-day are far older than mankind, and as old as life itself.

In the multicellular organisms, reproduction comes from certain germ cells in which the whole body participate. In the higher organisms of this class two forms of cells exists. One the somatic, the other the reproductive; the former suffer death and change, the latter continue. Death is simply adaptation to new conditions. Death does not necessarily follow reproduction, although the purposes of the organism are fulfilled in part by this act.

Life goes on continuously; the forms change by death and adaptation to circumstances, but one unbroken line of march exists from the first.

Reproduction is the point of change, when the

forces of the old organism pass into a new state for the continuance of life under more favorable conditions. In a large class of organisms death follows this act. Death in old age is simply the limitation and end of the power of cell production. Life in the body is a continuous death and reproduction of cells. After a time the equilibrium is broken up, a certain class of cells become exhausted and die, and are not replaced or eliminated, and interfere with the functions and economy of the body. The division of labor in the cell organism is broken up, and some particular cell function is arrested. The dead and worn out cells are not replaced, and become an obstacle for the destruction and obstruction of other cells. The work which these cells fail to do must be done by others, whose normal activity will be taxed to its utmost, followed by early exhaustion and death. Both the cells and the reproductive cell function reach the limit of their existence; this is death. This cell life and renewal is finite, and death is simply the limit of existence. This may occur from shock in which this point is precipitated, and a sudden arrest of all these cell processes follows.

The utility of this process of change called death is a part of natural selection which further increases the preservation and distribution of new structures. It also enables the germ cell to enter into new forms of life, and escape from limitations which have bound it down. Artificial death may appear at any stage of the organism, and the vital forces be overwhelmed and unable to continue cell life, and both somatic and germ cells perish.

The duration of cell life is governed by fixed conditions within itself, and the surroundings and their influence over it. The germ life goes beyond this, and is only limited by conditions essential for its perpetual existence. Death is inherent for cell life; an eternal prolongation of these cells would impede and be injurious to the organism. In the higher animals this prolongation of cell life takes place long after reproduction has occurred, obviously to assist and protect the new organism. Also the period of reproduction is greatly extended in the higher species, to provide against all possible danger of extinction.

The theory of the possible continuance of cell life in the organism, by some form of drugs that would suspend activity, is an impossibility. Each cell has a separate existence of its own, which comes to an end and is replaced by others, uninfluenced by conditions only to a limited extent. The natural duration of life is only the measure of this existence in the cell colonies of the organism.

The germ cells continue a cycle that approaches nearer to immortality than anything we know of in nature. The molecular structure of somatic cells becomes worn out and dies, but the same structure

of germ cells goes on repeating itself, beginning again anew as long as favorable conditions continue.

Like the circulation of water on the earth, it is evaporated, condensed into clouds, falls to the earth as rain, and continues the never-ending cycle. Interruptions may occur at different points, and its circulation vary. So the ceaseless round of protoplasm may halt and change for a moment, only to go on again in the same course. The mortal cells have their cycles and are replaced by others, and this continues until the larger cycle of cell colonies is completed and what we call death follows, and the form or organism disappears.

This is the grand process of evolution in which life and death are inseparable, essential, and parts of the race progress.

MENTAL CAPACITY SUFFICIENT TO SUSTAIN MARRIAGE IN LAW.

Every valid contract requires the concurrence of two or more persons, each of sufficient mental capacity to give an intelligent consent thereto. This requisite applies as well to matrimonial, as to commercial and property contracts. The old doctrine that the mind, though it has different faculties, is one and indivisible, and that, if any of its parts are disordered, or if it is in any way diseased, or its healthy operation in any function disturbed, it is an unsoundness of mind which affects the whole organ, and renders the person legally of unsound mind, and incapable of entering into a civil contract, is no longer recognized. The question under the present state of the law is not whether the mind of the party was in any way affected or impaired, but whether, such being the case, the impairment or defect of the mind operated upon or inspired the act which is the subject-matter of consideration: for, admitting that the party was subject to some delusion, or that his mind was in some faculty impaired, if the act challenged is not traceable to, and has not probably been influenced by the defect of intellect, but is the result of the action of the unimpaired faculties of his mind, it will not be disturbed. These statements are made by the court of chancery of New Jersey in the recently decided case of *KERN v. KERN* (26 Atlantic Reporter 837) brought for the annulment of a marriage as void for want of mental capacity in one of the contracting parties. The court in a very lengthy and carefully prepared opinion, wherein it reviewed many authorities on the subject, further says, among other things, that the test in the case of ordinary contracts is, did the person whose act is brought in judgment possess sufficient ability at the time he did the act to understand, in a reasonable manner, the nature and effect of his act, or the business he was transacting? If he did, his act is valid. He may have been old or enfeebled by disease, or

irrational upon some subject, yet, if he had sufficient ability to comprehend in a reasonable manner what he was doing, his act will bind him. This is the rule in the absence of fraud. And the weight of the authorities is that no greater, if as much, mental capacity is requisite to make binding matrimonial, than is required to make ordinary business contracts, or a valid testamentary disposition of one's estate. There seems to be less difficulty in bringing to a test the acts of a person whose mind in its normal condition had been sound, but which has subsequently become affected, and subject to some delusion, than to establish any test with reference to the acts of one whose mind is weak or undeveloped; for in the first class the characteristics of the mania or delusion will probably make themselves apparent in the act, while as to the other, the border line between mental capacity and imbecility is so dim and indefinite that it is often difficult to determine whether the act has been guided by the light of reason, or done within the shadow of a darkened intellect. The abstract opinions of medical experts as to a person's mental condition may be entirely satisfactory in the consideration of the subject from a medical standpoint, but, in the solution of questions involved in judicial investigation, they must be tested and qualified with reference to the facts on which such opinions are based. A man may be mentally unsound in a medical point of view, from certain conditions which exist, which would not in a legal sense relieve him from responsibility. He may be subject to mania, and medically of unsound mind; yet, if the peculiar phase of mania had no influence upon the act brought in question, such act is not in the law invalidated. He may be an imbecile, and medically of unsound mind, but, if he has sufficient mind to reasonably understand the act, which is brought in question, he is legally competent. Each case must be decided on its own circumstances, and the ability of the party to understand can in no more satisfactory way be ascertained than by referring to his conduct in other transactions. Without attempting to formulate a rule to be adopted as the test of mental development of a person afflicted with congenital imbecility necessary to exist so as to bind him in making a contract, recognizing that each case must be governed by its own incidents, it would seem that if a person, in a general way, had an appreciation of the conditions of the marriage state, and understood the rights and responsibilities which attach thereto, and regarded the marriage ceremony as the incident which effected a marriage between himself and a certain woman, he should be held bound by a contract which he entered into under those conditions. There was in this case, as shown by the evidence, a person of weak intellect; one who at times might not express himself coherently, but

who, until he was 35 years of age, had been permitted by his family to take care of himself and his property; one who had contracted no bad habits, and who had so taken care of his estate that it had been preserved, if not increased; whose memory was good; who, in making a bargain, manifested shrewdness and judgment; and who, in reference to the marriage in question, conducted himself without impropriety or peculiarity; a person who seemed to have had a proper conception of the ceremony which was being performed, and to understand the rights, duties and responsibilities which attach to the marital relation. While the conditions were no doubt sufficient to clear him as of unsound mind from a medical standpoint, the court did not think he could be said to be legally irresponsible, and decided that it would not be justified in annulling a marriage entered into under such circumstances, because of the alleged weakness of intellect of a contracting party.

PAN-AMERICAN EXCURSION.

[From the Philadelphia Press.]

Philadelphia, always hospitable to visitors, gave a particularly gracious reception September 9th, to the distinguished delegates to the recently adjourned Pan-American Medical Congress. In the party were nearly 100 medical men, and a few of them were accompanied by their wives. The event of yesterday which will be longest remembered by the delegates was the reception held in their honor at the University of Pennsylvania by Provost Pepper, the trustees and faculties of that institution of learning.

The grounds and buildings of the University were thrown open to the visitors for inspection when they arrived at 3:30 o'clock, and under the guidance of Dr. Pepper they visited every department, lingering longest in the medical and surgical departments whose splendid equipment they much admired. After the inspection of the buildings the members of the party were grouped about the entrance to the library building and photographed. They were then invited inside and a collation was served. When coffee was brought in and cigars were lighted, Dr. Pepper rapped on the table with the handle of his knife and the talking ceased. He stood up, and called for Dr. Chas. A. L. Reed of Cincinnati, to come forward.

A PLEASANT SURPRISE FOR DR. REED.

Nearly every one except Dr. Reed knew what was about to take place, but he up to that time had been enjoying himself unobtrusively. He approached Dr. Pepper in some embarrassment, not divining exactly what it all meant. Dr. Pepper laid his hand affectionately on the shoulder of Dr. Reed and in well chosen words praised the work of that gentleman in bringing about the convention. He gave Dr. Reed a larger share of credit for the success of the convention than any one else, and then he said: "Your fellow-delegates of this convention decided that the occasion should not pass without some expression of our gratitude to the man who has done so much of the work which made it successful, and in order that in future years he and his descendants may remember this Congress we have prepared this piece of plate (uncovering a silver salver) on which we have had inscribed these words: 'Presented to Dr. C. A. L. Reed of Cincinnati, O., secretary general, by members of the First Pan-American Medical Congress, Washington, D. C., September 4-8, 1893, to commemorate the brilliant suc-

cess—largely due to his faithful and devoted efforts in its organization—of that important occasion, when, for the first time, the representatives of the medical profession of the Western Hemisphere met in council for the advancement of science and the promotion of the public health.”

Dr. Pepper handed the salver to the surprised secretary general amid the hearty cheers of all the delegates. Dr. Reed said, in accepting it, that a salver was used for handing food and drink to those who are hungry and athirst, and he would always look upon this particular salver as being laden with the friendship of his colleagues.

Dr. A. M. Owen of Evansville, Ind., then covered Dr. Pepper with confusion by making a retaliatory speech, in which he said a number of pleasant things about the doctor, and finished by presenting him with an ivory gavel suitably inscribed. Then the speech making became general in a diversity of languages. After the reception the delegates returned to their hotel thoroughly tired, for they were sight-seeing from early morning.

They arrived at the Broad street station from Baltimore at 4:30 a. m., and remained in their sleeping car until 7 o'clock, when the Committee of Arrangements from the University, whose guests they are during their stay in Philadelphia, called for them at their coach. The committee consisted of Dr. John Marshall, chairman; Drs. James W. Holland, Ernest Laplace, Charles W. Dulles, Hobart A. Hare, E. E. Montgomery, Edward Martin, James W. Ruders and De Forrest Willard.

The party was conducted to the hotel, passing through the court of the city buildings, where a stop was made to inspect the bronze statue of William Penn. It is told of one of the Washington doctors that he pointed out the statue to the foreign gentlemen as being that of the great Dr. Benjamin Franklin. The Washington guide afterward gave as his excuse that he could not see distinctly at such an early hour of the morning.

RECEIVED BY THE MAYOR.

After breakfast at their hotel the visitors were conducted to the city hall, where Mayor Stuart welcomed them. In his speech the Mayor said:

“Gentlemen:—Philadelphia feels herself honored by the presence of such a distinguished body as the Pan-American Medical Congress, yet it seems particularly appropriate that you should so visit us, for the early—in fact, almost the entire—history of our city is closely allied to the history of medicine in this country. While we regret that your stay with us is somewhat limited, we hope that while you are here you will not only see all that pertains to the study and history of medicine, but that you will also see some of the material prosperity and industries of this great American city, and it affords me much pleasure in the name of the people of Philadelphia and on the behalf of the medical profession to extend to you a most sincere and heartfelt welcome to the City of Brotherly Love, hoping that your visit may be agreeable to you, as the remembrance of the same will always be to me.”

After going over the public buildings the visitors repaired to the mint, where they saw the several processes of coining money; then they went through the Jefferson Medical College, and Independence Hall, from the latter place going to the Walnut street wharf, where several tugs took the party to Cramps'. They were cordially received by Henry W. Cramp, who conducted them over the battle ship *Indiana*, which is the nearest finished, and then through boiler and machine shops. At noon lunch was served in the company's offices. Then they went aboard the tugs and took a trip to League Island, where they had a look at the new United States cruiser, *New York*.

From League Island the party returned to the city, and made a hasty tour of other places of interest, taking in the Medico-Chirurgical College and the Drexel Institute, and then to the University of Pennsylvania.

WILL INSPECT REEDY ISLAND.

Saturday the delegates will leave from Broad street at 9 o'clock a. m., for Newcastle, Del., where they will go aboard the revenue cutter *Hoodton*, and go down the bay to Reedy Island, where they will be received by Surgeon General Wyman, who will show them around the United States quarantine station. They will return to Philadelphia at 4:30 o'clock and will leave at midnight for New York.

The personnel of the party is as follows: Samuel S. Adams, chairman; M. C. Y. Valle and son, Rafael Lavista, E. R. Garcia, Jose Myta, Juan Zavata, Domingo Owananos, J. E. Monjaras, Francisco Marin, J. Martinez del Campo, Louis G. Munoz, A. Contreras, L. E. Ruiz, E. Liecage, R. Yeaza, Thomas Noriega, Angel Gaimo, Fernando Zarzaga, Manuel Gutierrez, Roge Macuzet and A. W. Fernandez of Mexico; Thomas Casas y Marti, Jose Clairie, Enrique Lopez and Antonio Touer of Cuba; F. A. Risquez, Rivero Saldivia and David Lobo of Venezuela; Alfredo Gares, Guillermo V. Poredes and Daniel Gutierrez of Colombia; Pedro Lagleyze and Juan Mendieta of the Argentine Republic; J. C. Philippo and R. S. Surton of Jamaica; Augusto Cemeu and V. L. Gilles of Haiti; Jitan Padilla of Guatemala; Juan L. Ulloa of Costa Rica; Juan Hernandez of Porto Rico; Bayen Rake of Trinidad; Florestan Aquilar of Spain; Dr. Wolve of Scotland; Drs. Holton of Vermont; Cushing of Boston; Rohé and McShain of Baltimore; I. N. Love of St. Louis; J. V. R. Hoff, F. S. A.; J. M. Anders, Ernest Laplace, E. E. Montgomery and S. A. Martin of Philadelphia; Drs. Cook, Kleinschmidt, Eliot, Johnson, Barker, Bowen, Waggoner, Acker, Morgan, Ober, Gutieras, Walton, Wellington, Happer, Jules Guthridge, J. Pores and R. M. Larnier of Washington, D. C.

The party is made up of many who are not only representatives of the profession, but are distinguished citizens of their respective countries. Dr. Rafael Lavista of the City of Mexico is the personal physician of President Diaz, sustaining practically the same relation to him that Dr. Bryant sustains to President Cleveland. Dr. Carmona Y. Valle is the distinguished dean of the faculty of the National University, and is perhaps the most renowned medical practitioner of the republic. Dr. Eduardo Liecage is the president of the National Council of Health of Mexico, and is possessed of extraordinary power in the enforcement of quarantine and other sanitary regulations. Dr. Juan J. Ulloa is the official representative of the government of Costa Rica. He is a graduate in medicine from New York, is highly influential in the government councils of his own country and is thoroughly American in all of his sympathies. Dr. Duenas is a prominent professor in one of the leading medical schools of the United States of Colombia. Dr. John C. Philippo is the president of the Legislative Council of Jamaica, and is concededly the most distinguished citizen of that colony. Dr. Munoz of Peru, is a prominent officer in the army medical service and stands high in governmental circles. Dr. Francisco A. Risquez of Caracas, is the practical censor of the medical profession of Venezuela, and is especially delegated by his government to participate in the hygienic deliberations of the Congress. Dr. Pedro Lagleyze, the delegate from the Argentine Republic, is a prominent editor and an eminent ophthalmologist of Buenos Ayres. Dr. Clairac is the surgeon General of the Spanish army in the West Indies.

“The significance of these facts,” said a member of the Congress, “is that in entertaining this distinguished delegation the citizens of Philadelphia are securing the friendship of people who are capable of largely controlling the course of affairs in their respective countries. Further reciprocity will be much more easily effected in the future than before the friendship of these gentlemen had been secured through the side avenues of fraternal feeling and professional interest.”

DOMESTIC CORRESPONDENCE.

Dr. Hammond Replies to His Critics.

Dear Sir:—In the last number of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION there is a communication from Dr. D. R. Brower transmitting the details of an analysis made of cerebrine and medulline, said to have been prepared by my formulas. Of course I have no assurance that the specimens examined were really what they purported to be, neither does Professor Delafontaine, who made the analysis so assert. He examined what was given him and I have no disposition to question his honesty in the matter.

I have only to say:

1. That the cerebrine as prepared by my process is a solution obtained by macerating the brain of the ox and the contained blood for from six months to a year in a mixture of equal parts of absolute alcohol, glycerin, and a saturated solution of boric acid in water, with frequent agitation and the application of strong pressure. As Professor Delafontaine does not mention either the alcohol or the solution of boric acid, but declares that the excipient of the sample he examined "was chiefly glycerin," it is quite certain that the specimen given him was not prepared by me.

2. But admitting that the sample was genuine, his discovery of a substance, either "nitroglycerin or some very closely allied product which does not preëxist in the ox brain," was partially anticipated by me several months ago, as you will perceive by the following quotation from my original paper on "Certain Organic Extracts," published in the *New York Medical Journal*, January 28, 1893:

"It may be that the mixture of boric acid, alcohol and glycerin exerts a metamorphic influence and causes the formation of a ferment having the power of restoring to the weakened brain or other viscous the lost or impaired power of assimilation."

3. It was fully anticipated in a paper entitled "A further Contribution to the Subject of Animal Extracts," published in the *New York Medical Journal*, July 1, 1893, as the following quotation shows:

"The immediate effects of the cerebrine and of most of the other extracts are those indicating vaso-motor disturbance, and are so far similar to those produced by the nitrite of amyl and trinitrin or nitroglycerin. It is of much longer duration but not so intense as that produced in the average person by a drop of a 1 per cent. solution of nitroglycerin. I have experimented largely upon myself and others with fresh extracts of the brain mixed with solutions of nitroglycerin of various strengths, and I am convinced of the great difference in the action of these mixtures and of cerebrine prepared according to my formula. It has been observed by those who have employed the extract of the thyroid gland in the treatment of myxedema that even more severe symptoms usually follow the administration. These are in the form of giddiness, headache, faintness and an apparent tendency to convulsions, and occasionally it has been found necessary to suspend the treatment on this account. Similar effects to those produced by cerebrine are generally observed from the hypodermic injection of the extract of nerve substance prepared by Dr. Gibier. I have never in a single instance—and I have used them many hundreds of times—observed the slightest alarming effect from the use of the animal extracts prepared according to my method.

"I have sometimes thought that the combination of glycerin, alcohol and the highly nitrogenous substances from which these extracts are made might result in the production of a subject analogous to nitroglycerin, and in my first communication on the subject to the *New York Medical Journal* I threw out the suggestion of a secondary product being formed. As I have said, however, the thorough chemical analysis which is now being made will, I hope, dissipate the uncertainty which necessarily exists relative to the exact composition of these extracts."

This, to some extent at least, takes away from Dr. Brower and Mr. Baker the honor of having made an original discovery relative to the physiological effects of cerebrine.

4. The fact that Professor Delafontaine detected no organic matter is sufficient to enable me to assert positively that the specimen submitted to him was not prepared according to my formula. Every analytical chemist will admit that it would be impossible for finely comminuted brain substance and blood to remain several months in contact with the menstruum I have mentioned without parting with some portion of their organic constituents.

5. Either Professor Delafontaine's analysis was very superficial and inexact, or the mixture he examined was glycerin to which nitroglycerin had been added. It certainly was not cerebrine.

6. It is impossible for Professor Delafontaine, or any other chemist, to say what would be the results of the long continued maceration of brain substance and blood in alcohol, glycerin and solution of boric acid. He may express his non-belief "in some putrefactive process, generating a nitrate, in the Hammond product," and I fully agree with him in this, for there is no putrefactive process, and consequently no ptomaines. But should he declare that no leucomaines could be generated in such a mixture, he would be exhibiting a degree of temerity which I venture to hope he is not capable of showing. He can not be unaware of Schreiner's discovery of spermine, and he doubtless himself has seen crystals of this substance, as I have for many years, on nervous tissues preserved for several months in alcohol.

7. And I thoroughly agree with him when he says: "On the other hand, a sample of cerebrine made by another firm proved to be physiologically inert, and utterly failed to give any of the color reactions described in the foregoing lines."

8. My laboratory is at all times open to the inspection of chemists and physicians, and specimens of the extracts, taken directly from the vessels in which maceration is going on, are at their disposal for such examination as they may see fit to give. Yours respectfully,

WILLIAM A. HAMMOND.

Washington, D. C., Sept. 2, 1893.

Hughes—Moyer—Hinde—A Correction.

To the Editor.—*Sir:*—In the current number of the JOURNAL appears the "Address of the President of the Section on Neurology and Psychiatry of the Pan-American Medical Congress," which I have just read with interest and profit. As a matter of fact, however, I wish to correct that which concerns myself. In referring to the work of my friend, "Moyer, the tireless," Dr. C. D. Hughes (p. 387) gives him the exclusive credit of reporting the first case of "Periodically Recurring Oculo motor Paralysis" in this country, and in parenthesis refers to the *Medical Record*, 1887. The facts of this case are as follows: The case was referred to me by my friend Dr. D. O'Shea, and recognizing it as of rare and special interest, I showed it, in my regular work, at Prof. Holmes' clinic at Rush Medical College, and later at the neurological clinic of Prof. Lyman, who also recognized the rarity of the case. It was first seen by Dr. Moyer at the latter clinic, and he asked to share with me in the report of the case, to which I unselfishly agreed. It still continued to be my case, however, as will later be evident. Together we prepared the first paper. When it was ready Dr. Moyer asked permission to read it before the Chicago Medical Society, of which I was not then a member. I agreed to this, expecting, of course, an equal division of praise or blame would be shared by both of us. Dr. Moyer, however, inadvertently left me out of the paper and the case altogether, though I was

present at the meeting as an auditor—a surprised auditor I admit.

The paper was then turned over to me and I sent it to the publication for the *Medical Record*, and it appeared in the issue of September 21, 1887, as a joint report of Dr. Moyer and myself. The case continued solely under my observation, however, and without the knowledge of Dr. Moyer. I wrote a second paper on the case that was forwarded to the *Medical Record* and published in the issue of October 22, 1887, a full account of which may there be found (pp. 526-528). Silence may be a great virtue, and hence has been longed for, but I feel that credit ought to be divided in this instance, and I request you to kindly publish this communication.

ALFRED HINDER.

ASSOCIATION NEWS.

Loyal to the American Medical Association.—An editorial in a current issue of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION takes occasion to point out that the statements published in the JOURNAL immediately after the annual meeting this year have a tendency to belittle the affairs of the JOURNAL and also of the Association.

The editor says that the reason of this is not on account of what was published, in which case there would be no need of an explanation, but that certain more or less unfriendly journals to the Association have published and given wide circulation only to parts of the editorial mentioned, and not the whole article.

Dr. Hamilton, the present editor says, that at the last meeting there was an increase in membership of 273, and in the last month, the membership by application has brought the increase up to 300.

Also, there has never been a time when the JOURNAL had so large a bona-fide mail list, and there has never been a moment when there was not money in the treasury; more than sufficient to meet any possible contingency. There have been added eight pages of reading matter, and the outlook for the publication has never been brighter than at present.

The *Omaha Clinic* should dislike exceedingly to be classed as one of the "not over-friendly publications."

This not over-friendly spirit and the spirit of indifference is not manifest in the West; if there is such it must emanate from somewhere "down East." There may be sporadic cases in the West, but their ideas have been brought with them from the other quarter.

We regard the American Medical Association as America's only truly national medical organization, and in proof thereof we adduce that it is only here that we can expect to find those questions of vital interest to the profession fearlessly discussed by representatives of all parts of this country. The fact that the American Medical Association stands in this broad manner to the profession, necessarily lays it open to the sharp attacks of individuals and more close organizations.

The *Omaha Clinic* regards it as its imperative duty to instruct societies all along the line in its influence, to lend their aid to the Association to build up the profession.

When we differ with the Association it is by virtue of an honest interest in it for that which we think is best for the profession and to be so held by its representative organization.

Never has this journal differed with intent to disparage, or to lend aid, or to further the interests of any organization to take its place.

The constitution of the AMERICAN MEDICAL ASSOCIATION is open to a change when the profession demand it by a legitimate vote, and there is no constitutional democratic government on earth in any way different from this. We truly hope that next year the ASSOCIATION will take up the issues which seem so urgently pressing—the remedy, when necessary, is in the hands of the members—and show this country, East, North, South and West by a majority vote as to what is the present will of the profession to be stamped in the year 1894 on our medical government.

To do this, according to the advice of ex-President Hunter McGuire we should like to take this occasion to point out that, if as so recommended, a fair opinion be had from all sections of our country, well represented, in changing the

constitution, and also that which Dr. Roberts of Philadelphia, declared is a part of it, namely the code, then by all means something must be done toward placing the date of meeting for San Francisco in June, and not the first week in May as the constitution of most State societies require that they meet not earlier than May and the State societies will be able each to voice its opinion on the issues, which when engrafted upon the AMERICAN MEDICAL ASSOCIATION, will certainly show to the indifferent East and the interested North, South and West, whether the ASSOCIATION is America's representative body and represents the views of the American profession.—*Omaha Clinic*.

SOCIETY NEWS.

The American Medical Editors.—The American Medical Editors' Association met in Washington, in the large banquet hall of the Arlington hotel on Monday, September 4. The President, Dr. C. H. HIGGINS, of the *West and North-west*, read a short and pithy address of welcome to the invited guests, and the versatile vice-president of the American Medical Association, Dr. I. N. LOVE of the *Medical Mirror*, was toast master of the evening. To the toast of the "President of the United States," the Hon. J. Sterling Morton, Secretary of Agriculture, responded in a most happy manner. "The Secular Press," was responded to by Hon. Frank Hutton, editor of the *Washington Post*; "THE AMERICAN MEDICAL ASSOCIATION," by President J. F. Hibberd; "The Pan-American Medical Congress," by President Pepper; "The Medical Press," by Dr. Hobart A. Hare of Philadelphia; "The Surgeon General of the Army," by Ex-Surgeon General Hammond, General Sternberg being absent; "The Surgeon General of the Navy," by Ex-Senator John B. Henderson of Missouri, who gave an interesting account of the purposes and objects of the Pan-American Congress over which he presided last year; "The Public Health," and "THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION" by Dr. John B. Hamilton.

The volunteer speeches brought out by the skillful touch of the toast master, were many and excellent. Among the most notable of the after dinner volunteer speeches were those of Dr. Ernest Hart of the *British Medical Journal*, Dr. Phillipot of Jamaicaica, Dr. Abram Owens of Evansville, and Dr. Garcelon.

In the intervals between the speeches, Major Stoffer, the well known Washington correspondent, rendered some pleasant musical selections, and Mr. Seabrook the actor gave one of his characteristic recitations.

As the evening waned, it devolved upon some of the invited guests that American medical editors knew how to enjoy themselves, and take a few hours of recreation, as well as any other class of Pan-American citizens.

Pan-American Comments.—The Section meetings were well attended, the papers excellent, and management as good as should have been expected. There were some papers discarded, but they may easily be placed in proper position when the Transactions come to be printed. The practice of subdividing the general Sections into many independent Sections, is one the next committee on organization will do well to avoid. There were too many papers in several Sections to allow time for intelligent discussion of all of them, and at the close many excellent papers were read by title for want of time to hear them either in full or by abstract.

The American Medical Association having invited its Pan-American guests did its full duty by them. A glance at those in attendance at the Sections, showed the familiar faces of the members largely in excess of any others, and to those members the officers of this Congress confidently appealed for support; that they were not disappointed, the magnificent success of the meeting shows.

It is pleasant to note that soon after the close of the meeting the late Secretary General Reed received a graceful recognition of his untiring labors, at the hands of his associates, and that ex-President Pepper, and the other general officers of the Congress, if not furnished with a silver token, will yet have the affectionate and grateful thanks of their medical brethren, embalmed on the record pages of this now historic Congress.

Medical Congress Adjourns—End of the Pan-American Meeting.

—RESOLUTIONS ADOPTED REGARDING QUARANTINE—THE DELEGATES START ON A TOUR THROUGH THE COUNTRY.—Washington, Sept. 8.—The final meeting of the Pan-American Medical Congress was held this morning. The Rev. Dr. Byron Sunderland, of the First Presbyterian church, the oldest pastor in Washington, opened the proceedings with prayer. Addresses of thanks and congratulation on behalf of their respective countries were made by Dr. Garcias of the United States of Colombia, in Spanish, and by Dr. Ferd C. Valentine, ex-Surgeon General of the Army of Honduras, in English, and by Prof. Rafael LaVista of Mexico.

Secretary General Reed read the report of the International Executive Committee. The committee accepted the invitation of the Mexican delegates to hold their next meeting of the Congress in the City of Mexico. The date will depend upon the meeting of the International Congress in Europe. The various recommendations by the several Sections were generally adopted by the committee. The most important exception was the one advising a temporary suspension of immigration from European countries in which cholera is now prevalent. It was deemed best, the report stated, not to consider this resolution at the present time. Thanks were given to President Cleveland, the Congress of the United States, the Surgeons General of the United States Army, Navy and Marine Hospital Service, the officers of the Congress, the local Committee on Arrangements, the press and the railroads for their efforts to make the meeting of the Congress a success. The report was adopted.

Dr. Gibson presented the following resolutions, which the Section on Hygiene, on motion of Dr. Shakespeare, had adopted:

Resolved, That the thorough disinfection, without discrimination, of every piece of baggage, dunnage or article of personal effects belonging to the immigrant classes and to the crews of immigrant ships, and the exaction of scrupulous cleanliness of all vessels arriving at American ports, should be rigidly enforced at American ports, supplementing and enhancing the protective value of similar treatment at the ports of departure, especially at times when cholera exists in Europe, as a sanitary measure, second only in efficiency and importance to the temporary suspension of immigration.

Resolved, That the habitual and thorough disinfection of all personal effects liable to carry contagions of immigrants to the American hemisphere, and of dunnage of crews of vessels carrying these immigrants from any quarter of the globe, and the exaction of scrupulous cleanliness of all vessels arriving at American ports, should be enforced at all times, as the most efficient means of greatly lessening the introduction into this hemisphere of the seeds of various contagious diseases which are now and have been in the past almost constantly conveyed by the immigrant classes and distributed widely among the populations of this hemisphere.

These resolutions were referred to the International Executive Committee. Dr. Montezambert of Canada, stated that that country had already put into effect the recommendation of the resolutions regarding the disinfection of immigrants' baggage arriving at her ports.

On behalf of the visiting delegates and guests of the Congress, Dr. John C. Phillippo of Bermuda, Professor Ernest Hart of England and Dr. Rafael Lavista of Mexico, returned their thanks for the cordiality and bounteousness of their reception and entertainment while in Washington. Dr.

Phillippo paid a warm and eloquent tribute to the memory of George Washington, whom he designated as the greatest character in history, which the Congress rapturously applauded.

President Pepper then, in a few well chosen words, expressing the purpose of those connected with the Congress to stand by it, develop it and make it more useful to the members of the profession throughout the continent, declared the Congress adjourned, to meet in the City of Mexico either in 1896 or 1897.

At 1:30 o'clock this afternoon the foreign members of the Congress, with the members of their families, accompanied by the Committee on Arrangements and officers of the Congress, left Washington over the Pennsylvania road for an extended trip through the Eastern cities, and thence to the World's Fair, as the guests of the committee, under the resolution of Congress inviting the attendance of foreign delegates. The trip will include stops in Baltimore, Philadelphia, New York, Boston, Saratoga, Niagara Falls, Detroit, Cincinnati and Chicago. Upon arrival at Chicago the 19th instant the party will separate.

The Second Pan-American Medical Congress.—The affairs of the next Pan-American Medical Congress are placed in the hands of an international executive committee, one member from each country, and that committee decided that the next meeting shall be held in the City of Mexico, at a time yet undetermined. It is probable that the winter season will be selected and that the Congress will be held five years from this date, with our accomplished colleague, Prof. RAFAEL LA VISTA of the University of Mexico, as its President.

The proposed change of time to five years, it is urged, will not only give time for complete organization and results of special experimentation but will cause the holding of the next session in the year following the International Medical Congress. Others are of the opinion that the meeting should take place in 1896, but the question is one that only our Mexican confrères can decide.

The American Electro-Therapeutic Association held the opening session of its third annual meeting on the 12th at the Apollo hall, Central Music Hall block. The President, Dr. Augustin H. Goelet of New York, called the meeting to order at 9:30 A. M., and delivered the opening address, in which he spoke of the influences governing the progress of electro-therapeutics and congratulated the Association on its growth. The afternoon session opened at 2:30 P. M. Several papers were read and discussed. That which created most interest was the paper read by Prof. William J. Morton, M.D. of New York, on "The Nutritional Effects of Static Electricity Considered in Relation to High Frequency and High Currents and Permeability of Dielectrics to Such Currents." Prof. Morton stated that the currents in question are those which have recently become known through Tesla's experiments.

Other papers read were:

"Electrolysis in Tumors of the Bladder," by Dr. Robert Newman, New York; "Electro-Medical Eccentricities," from H. Newman Lawrence, M. I. E. U. of London, England; "The Action of the Continuous Current within the Living Tissues, as Distinguished from the Local Polar Action," by Prof. W. J. Herdman, M.D., Ann Arbor, Mich.; and "Metallic Electrolysis," by Margaret A. Cleaves, M.D., New York.

At the evening session, which commenced at 7:30 P. M., the following papers were read:

"Further Observations on the Treatment of Goitre," by Charles B. Dickson, M.D., Toronto; "Notes upon Some Uses of Galvanism in Surgery," by D. B. D. Weaver, M.D., of Reading, Pa.; and "Report of a Case of Ascites Cured by Galvanism," by Halford Walker, M.D., Toronto.

A reception was given at the Great Northern hotel from

9 to 11 in the evening by the Committee of Arrangements to the members of the Association and the members of their families accompanying them.

Pan-American Medical Congress.

REPORT OF THE PROCEEDINGS OF THE SECTION ON MILITARY MEDICINE AND SURGERY.

The pamphlet program of the work of this Section intimated that on the afternoon of Tuesday, September 5, an informal meeting would be held in the Army Medical Museum for the purpose of inspecting the collections contained in this Museum and the Library of the Surgeon General's office. About fifty members responded to the call and an hour and a half was spent in examining the building, its show rooms, book cases and laboratories under the guidance of the Librarian and Curator, Major John S. Billings, U. S. A. The total number of specimens now in the museum is 32,265, and this number is steadily increasing, 1,040 having been added to it during the past year. The library contains 110,650 books and 173,000 pamphlets.

At 11 A. M. of Wednesday morning, September 6, the Section was called to order by the Executive President, Surgeon General STERNBERG, U. S. A., who opened the session by expressing his gratification at seeing present so many medical officers of the regular army and National Guards, notwithstanding the fact that the Association of the Military Surgeons of the National Guard of the United States had met so recently in Chicago. He then delivered his address which we had the pleasure of submitting to our readers in our issue of September 9. After referring to the progress of antiseptic surgery and military sanitation he suggested the conditions essential to the de novo origin of hospital gangrene and erysipelas. Under certain conditions of lowered vitality, the result probably of the toxic influence of the ptomaines elaborated by putrefactive bacteria, a microörganism ordinarily of a comparatively harmless character may invade a wounded tissue and acquiring pathogenic virulence in its new environment may subsequently be capable of existing in healthy tissue, which it destroys, and of spreading the infection of disease by the permanence of its acquired properties. Antiseptic methods of treatment may be relied on in future wars to reduce the number of traumatic infections just as disinfection may be depended upon to limit the specific febrile diseases.

To judge from the hearty applause which greeted the conclusion of the address, the views of General Sternberg were received with favor by the delegates and others who were present.

SURGEON GENERAL CHARLES SUTHERLAND, U. S. A. (retired) was then introduced. He described the organization of the Hospital Corps of the Army and the methods adopted for the education of its members and the company bearers in litter bearing and giving first aid to the wounded. As an illustration of the excellent results produced by these methods he referred to the record which the Hospital Corps had made for itself during the Sioux campaign of three years ago.

SURGEON GENERAL BERGEN of the Canadian Militia stated that in some of the Canadian regiments considerable progress had been made in teaching first aid and stretcher drill.

DR. BEDFORD BROWN of Alexandria, Virginia, a representative of the medical department of the late C. S. A., referred to his knowledge of the destitute condition of the medical department on the Southern side during the civil war. Gangrenous wounds in the field did well when isolated under tent flies and treated locally with hot water dressings and strong solutions of sulphate of zinc.

DR. P. S. CONNER of Cincinnati, Ohio, then read a paper on LAPAROTOMY IN GUNSHOT WOUNDS OF THE ABDOMEN.

He cited the large death rate from penetrating wounds under expectant management. At one time such wounds were regarded as necessarily fatal. The reports from the great wars of the third quarter of our century show that from 65 to 92.5 per cent. of the cases coming under observation terminated fatally; but they formed only a minority of the whole number of such wounds, for many cases perished quickly on the field from hemorrhage. Of cases in which laparotomy was performed, Körte collected 64 with 42 deaths or 65.6 per cent.; Morton 110 with 74 deaths or 67.27 per cent.; Barrow 112 also with 74 deaths making 66 per cent.; Martin and Hare 129 with 86 deaths, 66.66 per cent.; Coley 165 with 111 deaths, 67.2 per cent.; but all these statistics are vitiated by the errors due to the suppression of unfavorable cases. In 174 cases collected by Dr. Conner and constituting all the laparotomies performed by fifty-five medical men who reported to him as having had personal experience of the operation there were 123 deaths or 70.67 per cent. Some of the published statistics indicate that the chances of a favorable termination are greater when operative procedures are not instituted; but many of the unoperated cases that are published and thus become embodied in the statistics are reported merely because their result was not that usually observed. One of the chief causes of fatality after operation is shock and this is proportioned to the duration of exposure during the operation. A certain and safe method of determining the place and number of the lesions is greatly needed. Insufflation is unreliable and sometimes injurious. Leaving out of consideration the cases in which there is profuse hemorrhage or external discharge of feces, urine or bile—cases in which operation is certainly called for,—the propriety of laparotomy must be determined according to Dr. Conner, by consideration, on the one hand, of the likelihood of the occurrence of septic infection if it is not done, and on the other of the probable amount of shock that may be expected to attend the operation, bearing in mind, meanwhile, the fact that the necessary manipulations of the laparotomy may be a determining cause of toxemia, in the breaking up of already formed protective visceral adhesions. When the wound has been made by a small ball, caliber 22 or less, especially if it is well above the level of the umbilicus, or, without regard to the size of the bullet if it is well out from the central line of the body, and it may reasonably be expected that its course has not been towards that line and if the patient's general and local conditions are good, abdominal section should not be made. When the symptoms indicate decided hemorrhage or fecal extravasation operative interference should be made at the earliest moment. When the bullet is of medium or large size and has in all probability passed through the area occupied by the small intestines or wounded the liver, spleen, kidney or bladder the operation should be performed; and even if peritonitis has developed its presence does not contra-indicate the operation though it increases the gravity of the prognosis.

DR. VANDER VEER, Albany, N. Y., spoke of the great fatality of penetrating wounds of the abdomen during the civil war and of the more humane character of the wounds by the smaller calibers of to-day. He coincided generally with the author of the paper in his conclusion as to when the operation should or should not be performed.

DR. L. A. LA GAYON, U. S. A., in speaking of abdominal wounds from small calibers, considered that wounds inflicted beyond the explosive range would seldom call for operative procedure; but that at short ranges visceral injuries would probably be as great as with the larger bullets.

DR. BERNAYS of St. Louis, Mo., referred to the empty or full condition of the stomach and intestines as bearing on the necessity for operation. In closing the discussion, Dr. Conner urged the desirability of knowing the results of all cases of laparotomy, successful or unsuccessful, and requested those who knew of any unreported cases to inform him of the details.

At 2 P. M. the Section met on the green sward in rear of the Library and Museum Building, where a field hospital had been pitched as a practical illustration of some of the points that might be broached in the discussion on first aid announced as part of the program for the afternoon. All the members of the Section were present, with many delegates from other Sections. The Secretary of War and the Major General commanding the Army were also present, as interested spectators of Major Hoff's demonstration of hospital corps drill and army methods of giving first aid on the field of battle. A clear space in front of the tents had been roped in and was under military guard to prevent the crowd of curious onlookers from interfering with the proceedings of the Section. Major Hoff's detachment consisted of only eight men and a non-commissioned officer; one litter squad of four men from his own post, Fort Columbus, N. Y., and the other borrowed for the occasion from the detachment on duty at Washington barracks, D. C. The promptness, care and intelligence shown by these men in handling the members of the guard who acted as the wounded, demonstrated fully the efficiency of the army method of educating its corps of litter bearers. Wounds were dressed, hemorrhage controlled by tourniquet, and broken limbs put up in extemporized splints in a way that called forth commendation from every one. The drill was carried out in accordance with the program published in full in our issue of September 2, and at its close the delegates inspected the field hospital, which consisted of a dispensary tent, kitchen and dining room, tents of the medical officers and men and one hospital tent as a ward of six beds. Another hospital tent was pitched by one of the litter squads to show the delegates how promptly the accommodation of the field hospital could be extended. The time occupied in pitching the tent was four and a half minutes.

The Section then adjourned to the lecture hall of the National Museum, where its sessions were held, to continue the proceedings of the afternoon by a discussion on the methods of first aid, General Sternberg in the chair. Colonel Page summed up his criticism on the hospital corps in the sentence: "Skilled labor is better than unskilled labor." Colonel Irwin spoke of the difficulty experienced in getting the company bearers out for drill and instruction, and Colonels Alden and Forwood, in referring to this, thought it would be well to have all the men of the company instructed in the elementary parts of the drill. Major Huntington described the organization of the hospital corps and considered that it now was what it was originally intended to be, the nucleus around which in time of war we can gather the hospital men of the volunteer forces. Surgeon Beyer of the Navy, expressed his admiration for the able manner in which the first aid system had been elaborated in the Army, and regretted the absence of such a system in the Navy. Captain Woodruff spoke of the difficulties attending the operations of military surgeons in the field as compared with hospital work in civil life. Prof. Conner suggested that little is required for first aid. In many cases an antiseptic pad is all that is needful for twenty-four or forty-eight hours. Major Billings stated that after having seen the drills at Aldershot and St. Thomas, he thought the exhibit of this afternoon was perfectly satisfactory as compared with them. Major Hoff closed the discussion by defending the system of company

bearers. He had found no difficulty in getting them out for instruction or in teaching them afterwards.

A paper was then read by Capt. LOUIS A. LA GARDE, U. S. A., entitled:

ARE PROJECTILES FROM PORTABLE HAND WEAPONS STERILIZED BY THE ACT OF FIRING?—CAN A SEPTIC BULLET INFECT A GUNSHOT WOUND?

Captain La Garde's experiments authorized him to conclude that the majority of cartridges in original packages are sterile, and the majority of gunshot wounds are therefore aseptic so far as the bullet is concerned; but a septic bullet can infect a gunshot wound.

At 11.15 A. M., Thursday, September 7, the Section was called to order by Surgeon General Tryon, U. S. N. The first paper of the day, read by Colonel Irwin in the absence of its author was:

THE AVOIDANCE OF INTESTINAL DISORDERS IN THE FIELD.

by Brevet Lieutenant Colonel A. A. WOODHULL, U. S. A. In this paper the principal diarrheal causes were summarized as change of diet and imperfect cooking; the drinking of unsedimented, hard or malarious waters; alternations of temperature, and exposure to the conditions under which enteric fever becomes prevalent. As preventives a competent knowledge of field cooking; the use of an abdominal protector, such as is known in India as the cummerbund or cholera belt, and the protection of the camp from excretal foulness were strongly urged. In connection with the presidential address on the causation of hospital gangrene and erysipelas the following sentence in Colonel Woodhull's paper indicates the tendency in army medical minds to regard some of the so-called specific infectious diseases as resulting from the influence of insanitary conditions on the evolution of bacterial life. "I have long believed," he says, "that in the course of many bacterial generations, which may be included in a relatively short season, an innocent bacillus by its environment may become pernicious, and I see no reason why in the interest of safety this might not be adopted as a working hypothesis."

The paper was discussed by Colonels Irwin and Alden, Dr. B. Brown and Majors Huntington and Hoff. Colonels Irwin and Alden spoke of the advantages of post messes; Dr. Brown, of the liability of the illiterate volunteer soldier to intestinal disorders as compared with his educated comrade; Major Huntington, of the untrained company cooks of our army and the desirability of having the food of the soldier well cooked in times of peace as well as in times of war, and Major Hoff in this connection suggested a service corps of cooks, organized by and under the orders of the subsistence department.

The next paper read was by Dr. BROWN giving his personal experience in the results of good and bad sanitation in the confederate army. He described the insanitary conditions of camps in the confederate service in the early period of the war, and contrasted the non-efficiency from sickness in certain of these camps with the corresponding rates among troops living under an efficient sanitary government. The systematic location of tent sites was represented as of the highest importance. Some interesting points were mentioned in connection with the prevalence of measles in the army generally, and of cerebro-spinal meningitis in camps at Raleigh, North Carolina. The latter disease was regarded as eminently infectious and required for its suppression the prompt removal of the sick to isolated wards. Diarrhea as due to faults of cooking also received its share of attention at Dr. Brown's hands; but the keynote of his paper was a call for systematic cleanliness as the most potent agent at our command in military or civil practice for the prevention and cure of disease.

Dr. BROWN took the chair during the presentation of the next paper, which was on

THE CAUSES AND ORIGIN OF CONTINUED FEVERS IN NAVAL SERVICES.

by C. A. SIEGFRIED, Surgeon U. S. A. The studies and experience of this delegate led him to believe that all continued fevers are of similar origin in the first place, differentiating finally and becoming types only when the specialized microphytic elements have gained characteristic virulent properties and the power of transmitting them. In all forms of these fevers there is a constant blood change, eventuating in severe cases in disorganization, deposition of dissolved hematin, the cell protoplasm having lost cohesibility as a rule, the proteids of the blood being under the disintegrating influence of new substances circulating in that fluid—derivations of illy formed leucamines and enzymes. We can not draw sharp lines between these fevers until the process has become far enough specialized to form types: the enteric lesion on the one hand with the association of the Eberth bacillus, and the putrid blood condition with exanthematous skin and depositary membrane lesions on the other. In Dr. Siegfried's opinion, the direction of the etiology of continued fevers is as pointed out by Murchison. Saprophytic microorganisms invade the system during periods of diminished resistance and lessened immunity, or, as suggested by Rodet and Roux, a homeless saprophyte acquires by contact with water new and infective properties. The bacillus coli commune assumes a toxic nature within the human organism, and becomes in fact Eberth's typhoid bacillus.

At the conclusion of this paper, Captain L. G. GARDE made some remarks on the difficulty of dealing with those fevers which, associated at first with distinct malarial types, become adynamic later in the season and mingled with cases having ulceration of Peyer's patches and all the characteristic symptoms of typhoid fever. Major Hoff indicated from his experience the typhoid nature of certain of the febrile cases generally spoken of as Rio Grande fever and mountain fever.

At the afternoon session General STERNBERG took the chair and announced a paper by Dr. STEPHEN SMITH entitled

SOME FACTS BEARING ON THE CONDITION AND SERVICEABILITY OF THE STUMP AFTER AMPUTATIONS IN THE LOWER EXTREMITY AT DIFFERENT POINTS AND BY VARIOUS METHODS.

The paper was read by Major HUNTINGTON in the absence of its distinguished author. Dr. Smith measured the amount of atrophy in a series of 137 amputations of the thigh and 287 of the leg, and found from a consideration of these measurements that: In the thigh the farther amputation is performed from the trunk the greater will be the atrophy of the entire stump, while on the leg the farther amputation is performed from the trunk the greater will be the atrophy of the extremity of the stump and the less the atrophy of the body of the stump. He found also that the method of amputation had its influence on the nourishment of the stump and correspondingly on the amount of atrophy. The methods which in the thigh give the least atrophy of the stump, both in its proximal and distal portions are the skin flaps and circular of the muscles, and the posterior flap. The latter method leaves quite intact the full vascular supply to the entire covering of the stump. In this respect it might well be regarded as the best method of operation in the thigh, but these advantages are so counterbalanced by tendency of the flap to retain pus, its heavy and unsuitable position for transportation, etc., that it has but few advocates. The method by skin flaps and circular of the muscles gives results nearly as favorable as the posterior flap and much more favorable than by any other method as the circular, the antero-posterior flaps, the lateral flaps, the anterior flap, or the rectangular flap. It is greatly preferable to the posterior flap method, both on account of the facility of drainage and the neat apposition and lightness of the flaps, thus adapting it to transportation. This same method gives the least atrophy in amputations of the leg as well as in those of the thigh. Ankle joint amputations bear direct pressure on the stump, and the tendons of all the muscles employed in locomotion retain their former or acquire new attachments and are immediately and constantly exercised in the movement of the limb. Amputations through the leg, at whatever point, never furnish

stumps that take direct support, it is only when an artificial limb is accurately and skillfully adjusted that the purpose of even simple progress is subserved. Hence Dr. Smith's conclusions that "the stumps left after ankle joint amputations are far more serviceable than those resulting from leg amputation for unassisted locomotion," and "an artificial limb can be far more usefully applied to an ankle joint than to a leg stump."

In a paper entitled

AMPUTATIONS PROTHETICALLY CONSIDERED.

Mr. GEORGE E. MARKS announced that modern leg makers care nothing for "the point of election," as artificial legs can be made that can be worn on stumps of any length. Any stump that is capable of bearing weight on the extremity is preferable to one that can not. Syme's operation gives an end-bearing stump of the most favorable kind; and the methods of Pirogoff, Chopart, Lisfranc, Hancock and Hays are all capable of excellent prosthetic treatment; but in every partial foot amputation care should be taken to prevent contraction of the tendo Achillis. A stump extending below the knee is preferable to one extending to the knee, provided the stump is capable of flexion and extension. If the stump is disposed to become extended and ankylosed it will be preferable to sacrifice the leg to the knee. A stump extending to the knee is preferable to a shorter one. The condyles and nodules of the femur should never be excised in knee disarticulations. If the patella can be placed in the inter-condylic space and properly secured, it is always desirable to do so.

Professor Charles Parker of Cleveland, O., discussed these papers, expressing surprise at the statements made in regard to amputations of the foot. He had been accustomed to look upon that point of selection as in many degrees the best.

Surgeon General HAMMOND, U. S. A., retired in his paper on

THE FETTERISM OF ASEPTICISM.

He claimed that the days of antiseptics are numbered; that the washing of wounds with solution of corrosive sublimate or any other supposed germ killer, the ablution of the hands of the operator and the cleansing of his nails with microbicides, the soaking of the instruments in carbolic acid and other similar procedures are all utterly useless, except in so far as they tend to insure cleanliness, and in that respect they are inferior to soap and water. He stated his belief that in ten years or less we will look back on the antiseptic methods of to-day with as much scorn as we now entertain for the absurd use of the sympathetic powder of Sir Kenelm Digby. The remainder of his paper was mainly an extract from an old book giving an account of the first published case in which the powder of sympathy was employed.

THE LAWS OF GROWTH OF BACTERIA APPLIED TO ASEPTIC SURGERY.

was the title of the next paper which was read by its author, Dr. ROBERT REYBURN of Washington, D. C. The first point that attracted our attention in this paper was the to us peculiar application of the terms aseptic and antiseptic. We had been in the habit of considering the Listerian method as an effort to produce and maintain asepsis; and that this having been found to be cumbersome and unnecessary it had been gradually supplanted by our present antiseptic dressings. Dr. Reyburn, however, reversed the application of the terms in referring to the fact that "the theory and practice of antiseptic surgery as perfected by Professor Lister are rapidly being abandoned and the more perfect science and art of aseptic surgery is being substituted." He cited experiences illustrating the inefficiency and even harmfulness of germicides, including corrosive sublimate when used on living tissues. In surgical operations the only liquid necessary is recently boiled water. Instruments should be soaked in boiling water or exposed to a dry heat in an oven. Aseptic material should be used for ligatures and sutures. Then the wound should be dusted with iodoform, boric acid or sublimate of bismuth and protected with iodoform gauze and aseptic cotton.

"Ricochet Bullets," by Capt. CHAS. E. WOODRUFF, U. S. A., was next submitted to the Section, and was followed by "The Wounds of the Maunlicher Rifle in the Recent Civil War in Chili," by A. M. FERNANDEZ DE YBARRA, M. D. of New York city. The orifices made by the bullet were small slits; hemorrhage was slight; complications few and repair rapid.

In adjourning the Section sine die, General STERNBERG congratulated the members on having had a pleasant and profitable meeting.

New Officers, American Electro-Therapeutic Association.—On Thursday the Association elected W. J. Herdman of Ann Arbor, president; Franklin H. Martin of Chicago first vice-president; R. J. Nunn of Savannah, treasurer; Margaret A. Cleaves, permanent secretary.

NECROLOGY.

Dr. John Rae, LL.D., F.R.G.S.—This well known explorer of the Arctic zone was a graduate in surgery, in 1833, at the Edinburgh Royal College of Surgeons. Not long after graduating he received a commission as surgeon in the Hudson Bay Company. His death took place July 24, at his home in Kensington, London. The following brief account of the adventurous life of Dr. Rae has been abstracted from the *Lancet* and other English sources:

"He was a native of the Orkney Isles, and early in life made several voyages in the northern seas. In 1846 he commanded a small exploring party, which made a voyage of 900 miles to Repulse Bay, and wintered on shore there. Next year, with his companions, he walked 1,300 miles along the coast, of which he made a scientific survey, practically connecting the discoveries of Ross, in Boothia Felix, with those of Parry, in 1823, at the Strait of the Fury and Hecla. Dr. Rae's next important expedition, jointly with Sir John Richardson, in 1848, was in search of Sir John Franklin, coasting eastward along the Arctic shores, Wollaston and Victoria Lands, from the Mackenzie to the Coppermine River, after which Dr. Rae, with two men hauling sledges, traveled 1,350 miles to Winnipeg, now in the Canadian Dominion. He gained the reward of \$50,000 for intelligence concerning Franklin. His third notable performance, in 1853 and 1854, was the exploration of the west coast of Boothia to Bellot Strait, completing the map between the surveys before made by Ross, Bease and Simpson. He was afterwards engaged in Greenland and in British Columbia, upon surveys for telegraph lines. In 1850 he published a 'Narrative of an Expedition to the Shores of the Arctic Sea in 1846 and 1847.' His name will rank among the Arctic explorers of the nineteenth century."

He also wrote papers on the transposition of boulders, and the saline matters of the sea, and contributions to the learned English societies.

Dr. George R. Sullivan of Flemington, New Jersey, died in the latter part of August. He was a native of Maryland, born there in 1836. When 23 years old he obtained his medical degree from the university of that State. He settled in New Jersey, and when the war broke out he became assistant surgeon of volunteers in the 15th New Jersey Regiment. He was afterwards surgeon to the 39th Regiment. He joined the American Medical Association in 1872.

MISCELLANY.

Abandonment of Fort Bidwell, Cal.—Improved railroad communications and the settlement of the country have of late years rendered unnecessary the continuance of a number of small military posts originally established for the protection of civil communities during their early struggles for existence. Apparently it is the growth of the settlement in Surprise Valley, in the northeastern corner of California that has led to the recent order directing the abandonment of Fort Bidwell; for the post and neighboring settlements are still 135 miles from the nearest railway station and are reached only by a tedious stage ride or a more tedious march. The valley, sixty miles long, is well watered and fertile, and has supplies of pine, fir and mountain mahogany in the gorges of the mountains which surround it. The post has been in existence for nearly thirty years and now, at the time of its abandonment is probably in better sanitary condition than at any previous period of its history. The quarters are comfortable frame buildings raised on masonry piers and lined with tongued and grooved lumber. Water is piped and distributed by gravity from an impounding reservoir on a mountain stream. Sewage is disposed of by irrigation on gardens which furnish an abundant supply of vegetables for the garrison. Sickness has always been at a minimum. Typhoid fever was at one time imported by recruits from Jefferson barracks, Missouri, but this was the only appearance of enteric fever at the

station. In fact, Fort Bidwell was one of the posts at which a young medical officer had every facility for forgetting, in the course of a four years' tour of duty, all the knowledge that he had gathered prior to his graduation. No doubt a number of other military posts will soon suffer the fate of Fort Bidwell, as the policy for some time back has been to concentrate troops in large garrisons from which they can be dispatched by rail when their presence is required in other parts of the country.

The Heroine of the Crimean War.—Florence Nightingale recently celebrated her seventy-third birthday. Although a confirmed invalid, she is somewhat stronger than during the past two or three years. She still maintains an active interest in hospitals and nursing.

Cholera.—ROME, Sept. 11.—There has been a severe outbreak of cholera in Livorni (Leghorn), in a dirty quarter of the town named Venezia. In this district yesterday 205 cases and several deaths were reported. The record in other infected places for twenty-four hours is: Naples, five deaths; Casino, four new cases, one death; Palermo, three new cases, four deaths.

Fourteen new cases and five deaths in the last twenty-four hours, are reported from Constantinople.

LONDON, September 13.—Another death from Asiatic cholera has occurred at Rotherham, in the West Riding of Yorkshire. The physician's report as to the two deaths at Relford, County of Nottingham, confirms the statement previously sent in these dispatches that they were caused by Asiatic cholera. A death that recently occurred at Gansborough is now declared to have been due to the scourge. A death occurred at Leicester Sunday, the symptoms being considered suspicious by the physician attending the case. An examination was made, which resulted in a certification that the death was due to Asiatic cholera.

Letters from the Crimea says that cholera is committing terrible ravages. Hundreds in the province of Taurida are dying daily. The official figures give thirty-eight deaths last week, whereas there were more than thirty deaths in two towns alone. The authorities have forbidden the tolling of bells in order not to cause a panic through the frequency of funerals.

LONDON.—The *Official Gazette* declares London and Liverpool to be suspected of infection with cholera. All vessels from both ports will be inspected rigorously.

*** Have Quarantined.**—The State Board of Health has issued an order that all passengers out of Muncie, Ind., must show certificates of proper vaccination and that their baggage has been disinfected. This is to prevent the spread of small-pox, which is epidemic in Muncie.

Dr. Dewitt C. Patterson of Washington, one of the Trustees of THE JOURNAL, is seriously ill, and at the last meeting of the Board, resolutions were passed by the other members expressive of their sincere regret in learning of his illness, and their earnest wishes for his speedy recovery.

THE PUBLIC SERVICE.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from September 2, 1893, to September 8, 1893.

A board of officers, to consist of Col. JOSEPH C. BAILEY, Asst. Surgeon General; Major LAURENCE DE WITT, Surgeon; and Major HENRY M. CROSBY, Surgeon, is appointed to meet at the call of the president thereof, at San Antonio, Tex., for the examination of such officers as may be ordered before it, with a view of determining their fitness for promotion.

Capt. HENRY S. KIDDER, Asst. Surgeon, will report in person to Col. JOSEPH C. BAILEY, Asst. Surgeon General, president of the examining board appointed to meet at San Antonio, Tex., for examination for promotion.

Capt. MADISON E. TAYLOR, Asst. Surgeon, having been found by an Army retiring board incapacitated for active service, is granted leave of absence until in further orders on account of disability.

Capt. JULIAN M. CARROLL, Asst. Surgeon, is relieved from duty at Ft. D. A. Russell, Wyo., and ordered to Washington Bks., D. C., for duty with the company of instruction of the hospital corps.

First Lieut. ALLEN M. SMITH, Asst. Surgeon U. S. A., is granted leave of absence for four months, to take effect on or about October 25, 1893.

Dr. Henry P. De Forest of Brooklyn, has been appointed Asst. Surgeon of the Thirteenth New York National Guard.

The Journal of the American Medical Association

VOL. XXI.

CHICAGO, SEPTEMBER 23, 1893.

No. 13.

ORIGINAL ARTICLES.

INSANITY AMONG CONVICTS.

Read in the Section of Neurology and Medical Jurisprudence, at the Forty-fourth Annual Meeting of the American Medical Association.

BY M. V. BALL, M.D.

PHYSICIAN TO THE STATE PENITENTIARY FOR THE EASTERN DISTRICT OF PENNSYLVANIA.

The few cases here presented illustrate some of the types of insanity found among persons convicted of crime.

I do not believe the fact of their being convicts influences the insanity in any way; but because of the conditions under which they have been raised, and the selection practiced by courts, the most degenerate classes find their way into prison and thus come to our notice.

Very often superficial observers accuse this or that mode of imprisonment as predisposing to insanity. As well charge the almshouses with breeding idiots because the mentally defective are found in them.

The separate system of cellular plan, as practiced in the penitentiary for the eastern district of Pennsylvania has been accused of driving men insane, and year after year this charge finds its way into print.

There are insane prisoners in that institution—some sent there because of their insanity; others whose insanity was not recognized before they were admitted, and some who have become insane during their imprisonment. Insanity exists in about the same ratio in other prisons and among the same classes, outside all penal institutions.

When we consider the avenues and factors that lead to insanity—syphilis, chronic alcoholism, hereditary defects and the social history of the great mass of prison population, we wonder that insanity is not more frequent among them.

Case 1.—White male, aged 38, native of Germany. Family history negative. Childhood uneventful. At age of 14 was hit on the head with an iron instrument causing a depression of skull yet visible, and a discharge of pus at the time of the injury. Was arrested in Germany for quarreling and while in prison had an attack of probable mania. Was arrested in New York city for assault and battery and pronounced insane and sent to an asylum at Newark, N. J. His wife obtained his release but he was subsequently returned for abusing her. After the death of his wife in 1889, he had intercourse with his 12-year-old daughter, as he claims while under the influence of liquor. For this crime he is now serving a sentence of five years. He was regarded as insane on admission, and his conduct since has corroborated this opinion. He believes himself Christ, God, a poet; writes Bibles; revises them; makes crowns out of paper; talks fluently, though not incoherently. Has periods of excitement during which he is homicidally inclined.

Case 2.—White male; age 44; native of the United States. Mother committed suicide and he was reared by strangers. Has been arrested six times for larceny, highway robbery and assault and battery, serving in all some eight years in prisons. He is now serving his second term here. While serving his previous sentence here he

attempted suicide by cutting his throat because some of the other prisoners teased him. During his present term he has behaved well—has been constantly in separate confinement—answers questions readily and intelligently; has hallucinations of hearing his neighbors speak ill of him and putting spells on him so that at times he can not eat or sleep. He believes himself to be an executioner and obliged to "desassinate" people when their time comes. He claims that he has put away 3,000 people by striking them on the head or stomach.

He expresses his views as follows: "To kill a man through malice, that is murder; to kill in self-defense is manslaughter, but he is obliged to kill because the court says so." He sleeps well, always turns out his allotted work, says "good day," etc., to his keeper, knows his sentence and when his term expires expects to work on a railroad as brakeman as he has done heretofore.

He is intemperate in liquor and vengery. Eyes staring. No other physical signs noticeable.

Case 3.—White male; aged 23; native of the United States. Mother died of phthisis. No other family history. Has been arrested three times for burglary, serving seven years and is now serving a sentence of five years here. On admission giving evidence of symptoms of phthisis, he was placed in an appropriate ward. He quarreled with two different cell companions, both of whom he accused of attempting to abuse him. He was then placed in separate confinement in another block; this displeased him and he refused to eat; he kept his bed and would not get up; one morning he announced himself as a holy ghost; commanded the keeper to open the cell door and laid on his bed with an ecstatic look and immobile. This continued for a few days when he was sent to the hospital where he promised never to call himself the holy ghost. Cold baths were given him whenever he disobeyed. He ate well, slept well, but at intervals pretended to have religious powers. In a few weeks he seemed perfectly normal, and said he would never attempt such actions again. He was sent back to the ordinary working cells and in a few days broke out again, singing at night time, etc. He was then placed in the coal gang outside where he worked well, and now does miscellaneous work around the corridors apparently well. He attempted to run away one day but was caught, and explained that he was afraid he would be hurt. When questioned about his previous trouble he says he remembers everything; that he was in the habit of abusing himself; that he is nothing but a man; but something in his way of repeating words and a certain absentness at times, together with very much heightened reflexes make me think that he is not simulating. He says that he was always nervous; that he got into crime by running away from home when he was 16 years of age and getting into bad company, and that he can blame no one only himself. Once he attempted to hypnotize a fellow convict and when asked about it said, "It is a gift from heaven." He has attempted sodomy. At first he believed himself drugged, and poisoned and refused medicines.

Case 4.—White male, aged 66; native of the United States. Family history negative. At the age of 8 years had a fracture of the skull which left a depression, but no serious consequences seemed to follow. He worked at various occupations from the time of leaving school at 16 until he was 26 years of age. Upon one occasion while in a saloon a row occurred and he was shot in the throat and shoulder. He recovered after a narrow escape. Afterwards he was obliged to change his residence on account of difficulty with an officer. At the beginning of the recent civil war he began to raise a company but it was not accepted. He tried to enlist but the company was full, but finally succeeded in joining a California regiment, and at the battle of Ball's Bluff was injured in the rectum, from the effects of which he was discharged. Afterwards he re-enlisted and served until the close of the war.

While working on a railroad as a special officer he got into a drunken quarrel and shot two men for which crime he was sentenced to the penitentiary for five years but was pardoned at the expiration of five months. He subsequently fell off a scaffold, broke his nose, crippled his hand and dislocated one patella. After twenty-three years marriage his wife gave birth to her first child and she became insane. He then became intemperate, was placed in an inebriate asylum for a short time and after his release had illegitimate relations with a woman for four months drinking excessively during all this period. The woman was found one day shot, from the effects of which she died. He was convicted of the crime, was sentenced to a term of twelve years in this institution which is now nearly completed. After he had been here six years and was working at carpentering he got an idea he was going to be removed and attempted suicide by twice cutting his throat, splitting his head open with a hatchet and cutting a gash across his arm. These wounds were all healed and he was returned to the carpenter shop, when he again made a suicidal attempt by driving a spike into his temple. When this wound was discovered he said he had fallen on a nail. About two years ago he says the devil came into his head again and he tried to cut a vein in his arm. He was placed in the hospital where he remains. He thinks he hears people talk about him, and worse than all, he hears himself talk about those he likes. A voice within him seems to utter curses against his best friends. Nowhere was he treated so well and yet this voice will talk; but it is only a delusion as no one ever hears him say anything derogatory. He eats and sleeps well; is entirely rational in every way, and I am disposed to believe that his injuries were inflicted with the purpose of exciting sympathy and to prevent his being removed. He now works around the yard and is obedient to orders.

N. B.—Removed back to his own cell lately; he has never referred to his hallucinations, a thing he did daily while in hospital.

Case 5.—White male, aged 36. Father and mother intemperate, and brother a thief. He was sent to the house of correction for assault and battery, and claims to have been arrested thirty times for this offense. He is now serving a sentence of one year here for larceny in breaking the window of a pawn shop, as he says, "to steal." When admitted here he was excited and suffering with acute mania, probably alcoholic in origin. His cell was covered with his own filth; his clothes torn to shreds. Night and day he kept up constant talk in which prayers and curses were jumbled together. He had exaggerated ideas; he was God; he could drink thousands of bottles of beer; he had fifty children, etc. Hypnotics had little effect on him.

This condition continued for several weeks when he was placed at the wheel in the wash house and made to turn the crank, but every now and then he would pick up dirt and eat it or tear his clothes. Gradually, however, he became quieter and more tidy, and now he is well behaved but his exaggerated ideas continue, and at times his eyes fill with tears and he promises everything, and then will instantly change and threaten vengeance. He says his trouble comes from drink and this appetite he attributes to inheritance from his father. His entire illness has lasted about one year.

Case 6.—White male, aged 39. No satisfactory family history. Says his father was hung. He has been arrested three times for entering houses. Has various insane delusions about electricity; believes he is worth millions; does not associate with the other men in the wash house where he is employed, but whenever the opportunity offers walks off and talks to himself. He answers questions only after repeated pressing. Recognizes his crime and knows his sentence and expresses the hope that it will be his last. Was defective on entrance.

Case 7.—White male, aged 27. Native of the United States. Family and previous personal history good. Worked well in prison until five months ago, when his overseer noticed a gradual apathy and disinclination to talk or work. A new cell companion had been given him, and to him he would not speak. He eats very little and will do no work. He lies in bed constantly and when asked what is the matter replies, "I do not know." There was slight rise of temperature, cold extremities, and replies to questions in monosyllables and generally "don't know." Physical examination negative. Urine normal. Tongue coated. He gave his name, age, and complained of pain, but does not know where. Knee reflexes exaggerated; pupils react normal. Was sent to hospital and during the same evening

talked with other convicts about shoemaking but only when drawn out.

The next day he refused food; said it would not go down. Temperature normal. No obstruction in throat and so informed him, when he swallowed as usual. He remains awake at night murmuring to himself. Diagnosis: Stuporous insanity, or so-called primary dementia. Ordered cold baths and abundant light food. The latter he now ate readily. In a few weeks he seemed sufficiently restored to return to work, in fact, asked to do so. Within a few days after returning to work he again relapsed to his former condition, sitting in one place constantly and never speaking. Was readmitted to the hospital and put on light work in the yard, but would not move unless constantly urged. The fear of the bath was sufficient to impel him to many things. His appetite is voracious. He sleeps well; answers only after repeated questioning, and then only yes or no. Has grown fat; reflexes normal; secretions normal. When first admitted to hospital he would allow saliva to gather in his mouth and dribble over his clothes. Later he would constantly spit on the floor and soil his bed, but he is now cleanly. His head is always bent. He never looks at any one. Occasionally he can be made to smile. He promises to do better when the cold baths or wet cups are suggested. There has been but little change in his condition for the past two months. Is serving first sentence here for assault and battery.

Case 8.—Colored male, aged 42. Sister epileptic; he is very ignorant; believes prisoners below him are endeavoring to extract a confession from him and to that end torturing him with electricity. He feels electric sparks going through him and hears voices saying, "Turn it on stronger; make him tell us." His suffering from imaginary torture will occasionally be so great at night that he screams out. No physical ailment can be detected. Moral influences have had some beneficial effect and for weeks he will be apparently well. He works regularly. A partner was given him, but this seemed to have no effect upon his hallucinations. He is serving second sentence for larceny.

Case 9.—White male, age 40. Nativity, England. Family history good. Has been convicted four times for larceny, serving in all six years. Was similarly troubled in his mind while serving a sentence in Canada. While here he believed the food poisoned; spirits came in the walls; he concealed weapons with which he threatened the overseers. He was disciplined and has since been quiet and pleasant. He claims he has no more delusions or hallucinations. He believes he did wrong, and it was proper that he should be punished, but he calls God to aid him, and expresses a wish to die here. He sleeps and eats well and is abundantly nourished.

Case 10.—White male, age 30. Nativity, Austria. Family history negative. At 9 years of age had a serious illness and was unconscious but does not know what the disease was. He is a baker by trade and a sailor by occupation. Seven years ago he was convicted of rape on a child 9 years old, and sentenced to this institution for a term of ten years, which is now nearly completed. About eighteen months ago he announced he was going to die; it had been revealed to him. He stripped off his clothes, refused food, etc. This lasted a short time and he became all right again. The priest says he had noticed evidences of insanity in him on religious subjects. He is one of the best prisoners in the institution. He does the work assigned him regularly; believes he is atoning for his crime and no doubt would become easily disturbed if the subject of religion were broached. He has only shown this one outbreak, and since has acted rationally and has no other delusions or hallucination.

Case 11.—Black male, age 20. Family history good. Early personal history negative. Convicted of breaking in a house. When he had been here eleven months developed acute mania, becoming filthy, noisy and destructive. Was placed in wash house to work and now, after two years, has had no recurrence of the difficulty. His mind seems well balanced and he has no recollection of the symptoms described above.

Case 12.—White male, age 32. Family history negative. Was addicted to intemperance and venery. Convicted of attempting to kill his mistress in a fit of jealousy and sentenced to five years here which he is now serving. After the lapse of eighteen months from his admission his cell companion was discharged, and being left alone he began to make a noise and rave, all of which he remembers. He continued in this condition for three months when he was placed in the hospital in association with other prisoners when his raving stopped. He desired a partner. He accounts

for this malady by attributing it to masturbation which he claims to have practiced two or three times nightly. As soon as he entered the hospital he appeared all right and has continued so up to this time now three years. This was evidently a case of simulation. An element in the case was the effort of friends to obtain a pardon for him.

Case 14.—White male, aged 63. Native of the United States. Grandmother and aunt committed suicide. He is a machinist by trade and had his skull fractured by an accident; was unconscious at the time and his wife would not permit trephining. He showed symptoms of insanity six years ago. Has worked sometimes at his trade and sometimes at other occupations. Had spells of unconsciousness and forgetfulness. He invented a patent and stole tools to complete it and for this was arrested, pronounced insane and sent to an asylum. He escaped and wandered around the country working at odd jobs and finally came to Philadelphia where he was caught in stealing some tools and sent here for seven years for attempting to resist arrest by an officer. On admission was easily moved to tears; could remember nothing; cried constantly; was worried about his wife and children whom he imagined to be starving; gave an assumed name; seems well educated; has a depression in the skull and begs to be operated upon, either to die or get well. Letters from his wife and from the asylum corroborate his statements. He has no apparent delusions. He left the asylum because he thought he was well and wanted to earn a living for his family. His case at times resembles one of cerebral softening.

After he quieted down and was given something to do to occupy his mind he became more rational; wrote letters; made a model of his lock out of wood, and eats and sleeps well. His memory continues impaired. His wife says that when he gets to worrying he has spells of violence, a possible epileptoid condition, and he will leave home and wander around. He is yet very easily excited so that he trembles and can not write.

Case 14.—White male, age 31. Native of the United States. Illegitimate child. No family history obtainable. Mother is very voluble and might be called foolish. He is addicted to intemperance and venery. He was first convicted of larceny in his twelfth year and has since served six terms for similar offenses. Four years ago he was convicted of assault and battery on his wife and sentenced to three years. Two days after the expiration of that sentence he was arrested for a similar crime and upon conviction sent here under a sentence of three years, making his eighth conviction and sentence. He has hallucinations of hearing. People speak about him, and they with his wife are constantly persecuting him. He has hallucinations of sight also. He is easily excited and angered. Eyes staring.

Case 15.—White male, age 53. Engineer by trade. Phthisis on mother's side. Had syphilis twenty-six years ago; was formerly intemperate in habits. He met with an accident during the war in which his skull was fractured. This was followed by one month of delirium and one year of dementia. Since then there has been no noticeable symptoms except that delirium easily occurs when drunk. In a quarrel he struck a friend with his fist and killed him. Pupils are pin hole in size; knee jerks greatly exaggerated. No other physical symptoms. No evidence of any psychological disturbance.

Case 16.—White male, age 34. Loom fixer by trade. Father insane. One sister committed suicide while insane. He has had "general nervous trouble" for the past four years, with illusions at times. Is intemperate in liquor and venery. He struck his aged mother a severe blow for ordering him out of the room. He has a small head; semi-agitated; is very irritable when under the influence of liquor. No evidence of any delusions or hallucinations now.

Case 17.—White male, age 34. Carpenter by trade. Father addicted to drink and had a stroke of paralysis, which took him to the almshouse. He was convicted of patricide and sentenced to ten years. He has tremor of hand; knee jerks greatly exaggerated. Has been nervous for years. When angered he will instantly use any weapon at hand. Is bothered greatly by insomnia. There is no evidence of delusions or hallucinations.

Cases 15, 16 and 17 represent a group that is very interesting and which might be classified as neurotics; not criminal neuropathy as Wood defines a class, but *simple neuropathy*. They are persons whose family history shows crime, or insanity, or intemperance; who have always been fidgety; prob-

ably, as children, "bad tempered" when opposed; who have indulged in liquor to excess; who have not been dominated by any distinct delusions or hallucinations or impulses, but who opposed in a quarrel they can not control themselves, and the first best thing they can grasp is hurled madly at the object of their sudden passion. A moment afterwards they are sorry and curse themselves for their uncontrollable temper.

Often we meet children with such ungovernable passions they are feared by their parents and hated by their friends. No doubt such moments of anger could be traced in the childhood of many "homicides of occasion."

The outburst of ill temper found in the early stages of general paralysis is readily diagnosed from that of the neuropathies, because in the former it is unusual and a change from another condition. In the latter, however, they have been nervous from childhood.

When paralytics commit crimes that are punishable they present so many other phases of their disease that lawyers soon discover it, and they are switched off to the proper asylum.

We find among fifty cases showing mental trouble fourteen were indicted for homicide, or 28 per cent., while in the entire penitentiary population only 9 per cent. are murder cases. (The census statistics of 1890, of all the prisons in the United States gathered by Wines, gives 8.9 per cent. of homicides to the total prison population.) Eight of our fifty cases were convicted of assault with intent to kill, and seven for rape, making a total of twenty-nine or 58 per cent. committed for crimes against persons. Of the entire prison population only 30 per cent. are sent for crimes against persons while 70 per cent. are for crimes against property. Thus our statistics support the opinion that insanity leads more often to crimes against persons than against property. Very seldom does the crime seem to be the direct outcome of insane delusions.

In 40 per cent. of our insanities, ideas of persecution, "Verfolgungs Wahn" is clearly developed.

The prisoner known as specular by his cell companion, tells his overseer some morning that he "should not put any more of that stuff in his food;" he sends for the doctor and claims he is being poisoned; he commences to write letters to various persons, the warden, inspectors, etc. Again he complains about persons occupying neighboring cells speaking of him; they call him obscene names and accuse him of indecent crimes. He abandons work and sits all day in the corner of his cell, speaking only when repeatedly addressed. His bowels are or soon become constipated, but otherwise the prisoner appears well. His cell and person are kept clean. Sometimes he refuses his food for a few days, but is easily persuaded to eat.

In some cases religious ideas are intermingled. He may believe himself possessed of the holy spirit; God has commanded him not to eat. Hallucinations sometimes combine themselves with delusions about his sentence. He imagines his time has expired and he is restrained from going out. Letters are withheld from him, and a pardon awaits him in the office.

Sleep is variable. Some rest soundly, while others are kept awake all night by their delusions. According to their own explanations, "electrical appliances

keep them awake" or "persons come through the windows and awaken them," etc.

The hallucinations may each be only of short duration, recurring at varying intervals. They may be constantly present, but interfering so little with the daily vocation that the prisoner eats, sleeps and performs all tasks without interruption, and his defect is only disclosed by questioning.

The hallucinations may disappear entirely and not return during the balance of his term, and only reappear in some form when he returns to serve another term as a re-convict.

And just here occurs the difficulty of at once recognizing simulation. If one who presents such manifestations of mental disturbance is placed on extra diet, excused from work and receives other privileges given the sick, if he is maligning he will attempt the same deceit whenever he enters a prison. And even men who were not simulating the first time may attempt the deceit subsequently on account of the privileges.

There are very few forms of insanity in which punishment and reward are not understood.

There is at present in this penitentiary a man who is serving a life sentence for murder, committed as a sequence of his insanity, who was always considered "cranky" by the people who knew him. He is noisy, filthy and incoherent, yet were I to place him in a hospital cell with others he would be quiet and neat. Only at times will he become very talkative. This has been tried several times with him with the same result. He is not left permanently in the hospital for fear of injury to others.

I am acquainted with no possible test to detect all simulation. When prisoners will feign to obtain slight favors while in confinement, how much greater is the incentive when on trial for life or liberty.

Case 18.—White male, age 43. Native of Ireland. Family history negative. Deprived of father at early age. Came to this country with his mother and located in New York city. Began to run streets and at 9 years of age was placed in house of refuge. At the end of a year in that institution he was bound out on a farm, ran away and returned to New York city, where he became a newsboy. When 12 years of age he followed a company of soldiers destined for New Orleans and left them at Cairo and began operations as a hotel thief, stealing clothes, etc., and thus working his way back to New York, where he became the associate of a bad crowd. At 14 years of age he was sentenced to a year in the New Jersey penitentiary, and three months after the expiration of this term he was returned under a four years' sentence for burglary. The night following his release from this term he robbed a guest at a hotel, enlisted in the navy, went by sea to California and there deserted and worked his way East. He enlisted in the regular army, fought all through the Modoc war, deserted, went to San Francisco and resumed his occupation of hotel thief. He was finally caught and sentenced to four years in the California State Prison. While there was witness to the murder of a prisoner by his room mate. This brought delusions and he began to imagine people were trying to kill him. After his discharge these delusions vanished. He resumed his old occupation and worked his way back to New York at the expense of the hotels en route. Here he was convicted of another crime and sentenced to Sing Sing for four years. In prison his delusions returned and were treated without avail. Upon his discharge they again disappeared, and he resumed occupations working the hotels until he reached Chicago, where he was sentenced to four years in the Joliet Penitentiary. The delusions returned and continued throughout his confinement. Upon his release he worked his way to Philadelphia, and caught in the act of stealing at the Lafayette Hotel, shot the watchman, and received a sentence of ten years here, which he is now serving. He is a quiet man, well behaved here, eats and sleeps well, and rational in all

his conversation. He does not claim to have been impelled by some uncontrollable force to steal, but did so because that life pleased him.

There is another prisoner here who escaped from the Auburn Insane Asylum for convicts, who was sentenced here for breaking into a jewelry store. While in the county prison he manifested signs of mania, but here he was rational until one day he had some trouble with his knitting machine, and in his passion wrecked it. When reprimanded he said he would do such a thing whenever it bothered him, and threatened any one who attempted to prevent him; that was the way he did in other prisons and that was the way he proposed to do here; he was no one's slave. He was disciplined and made to understand that such conduct was not permitted here, and since, there is not a more civil or industrious convict than he in our population. There is no evidence of insanity. He has spent most of his life in various prisons for burglary. Like the previous man noted he follows this occupation as a matter of choice.

But, in reality, simulation is rare here. More frequently does true insanity go undetected throughout the trial and is only discovered by the prison physician or keeper.

That the crimes of the insane bear no relation to their insanity is a well known fact easily established.

A man who has hallucinations or delusions of persecution might logically be supposed to commit an assault on the person he imagined as offending, but in fact they are often common thieves and are repeatedly convicted of burglary or larceny. As a companion of one such aptly remarked, "he hasn't sand enough to kill a fly."

The crimes against persons are often committed in a drunken quarrel—a man is killed without the slightest premeditation, a rape accomplished or attempted under the influence of liquor, etc.

Probably the crimes resulting from insane delusions or hallucinations take their perpetrators to insane asylums, but the record of such crimes is not large.

In this connection I am impelled to refer to the usual practice of the courts in the treatment of offenders whether sane or insane—the moral responsibility—"does the man know the right or wrongness of his act," is the usual test.

When a person commits an act contrary to the laws of the country a jury is empaneled to decide as to his guilt and all the facts in the case, and when the question is raised, these are made to include the sanity or insanity of the defendant, and what a judge, jury and lawyers take weeks often to decide, an ignorant fellow is asked to do offhand.

This question of absolute right or wrong is both a broad and intricate one. It involves each man's idea of what is right or wrong and that depends almost wholly upon his education and surrounding influences. If this be true is not the man of few social advantages less responsible than those with many? May not an act be right for one individual and wrong for another? Or at least wrong for one and not culpably wrong for the other? And so the worst criminals be less responsible?

How many years is it since we have ceased to punish people for their beliefs?

The common opinion (at least as it finds expression in print) is that justice is not administered in a spirit of vengeance. The aim is only to deter, protect and reform. If this be the real motive, why inquire about the moral responsibility? Is not protection needed as much from the criminal acts of the insane or mentally defective as from the mentally strong?

Beccaria says crimes are only to be measured by the injury done to society, and our modern penologists are approaching the same conclusion. Paul Dubuissin (*Archives de l'Anthropologie Criminelle*, Vol. vii, No. 38), says: "When we will only consult the social utility in our treatment of criminals then the great question between crime and responsibility will cease. Then will arise in each case not, Is he responsible, but is he dangerous to society? Not, Does he know the difference between good and evil, but is he of more evil than good to society?"

It matters not, then, whether we believe with Lombroso that all professional criminals are diseased and therefore irresponsible, or whether the criminal be morally insane, a born criminal, an habitual criminal, an idiot or defective of any class. If he is unsocial, society should be as much protected from his acts as she seeks to be against cholera, leprosy or any other corrupting or dangerous or unsafe influence. And the more dangerous the more protection.

Is the criminal an insane person, or do we find insanity more prevalent among criminals than among honest folks?

The answer to this question depends upon our interpretation of crime and honesty.

As we have no real measure for right we can not with entire accuracy say one man is honest and another dishonest. Every man on one side of the iron bars is not a criminal, and every man on the other side an honest man. Diogenes would have just as much need for his lantern to-day as in the time of Alexander the Great.

It is *conviction* that makes a man a criminal in public esteem, not *detection*. How many are there among us who have not some time in their lives committed an act that was punishable under the law? and had it been enforced would have sent us to the reformatory or prison, and thus by a simple application of the law, without reference to its violation branding us throughout our future lives as criminals. I stole an apple when I was a youngster. Many a boy has received a year's sentence for less and obtained his degree in a house of refuge. Because I was not caught I am supposed to be honest. The other lad is a *criminal*.

The smartness of the lawyer keeps many a guilty defendant out of prison. The theory is that every man is equal before the law. Practically we know this to be a fiction. When the machine is in good working order with a batch of poor and friendless victims on hand, they are "railroaded" to prison with so little an attempt at legal defense as to amount to a farce.

In view of the self-evident unevenness and partiality in the administration of law, it is impossible to draw the line between the criminal and the non-criminal classes so as to compare the diseases peculiar to each.

A CASE OF SO-CALLED MORAL INSANITY.

Case 19.—White male, age 23. Nativity, United States. One sister reported as having chorea and another puerperal insanity.

When eight years old was sent to the house of refuge for running away from home. After a residence there for thirteen months he was returned to his home. At the expiration of another year was arrested for larceny and being

declared insane was sent to an asylum and from there to an institution for defective children, and from the latter finally ran away. He stole from his parents and was generally so incorrigible that he was placed in the Norristown Asylum as morally insane. At the expiration of two years he was discharged and at once returned to his old habits. In 1886 was again arrested for stealing from his parents and readmitted to an insane asylum from which he was discharged at the end of a year by direction of the Board of Lunacy. In 1890 he was convicted of larceny and sent to the Huntington Reformatory, from which institution he was transferred here for incorrigibility. He says he is addicted to intemperance, opium, onanism and venery and seems proud of his record. His mother can do nothing with him and in the neighborhood of his home he is a common nuisance. The first day here he tried to obtain opium through complaining of cramps as he claims to have succeeded in doing in other institutions. He failed here, however, and has had no returns of cramps. He maligned epileptic fits. These were promptly cured by the cold water douche. He went through the entire list of troubles to obtain special privileges or escape work, with the regularity of a professional. Failing in every attempt and through the assistance of persistent but harmless discipline he has finally been brought into fair submission. He has been exhibited as a living example of moral insanity. When asked questions before a class of students he would purposely give false and outrageous answers to keep up his reputation. His crime history has been obtained and thoroughly established by relatives and acquaintances. He is short and fleshy, head brachycephalic, eyes small, teeth irregular, boyish feminine appearance. He is very cowardly and fawning—never abusive or angry.

Is this lad insane? Is it moral blindness? Was his home training defective? These are questions which no one can satisfactorily answer, and yet society needs to be protected from such a class.

He belongs to a class that is rapidly increasing and especially in the large centers of population. They are the "incorrigibles" of reformatories and as such are transferred to prisons and inducted into a career of professional criminality which they follow until death. The reformatory can not or does not reclaim them; the prison has no terror for them. If their energies and genius could be diverted into some useful occupation they might become beneficial members of society.

The question whether criminality is due to mental defect, remains unsolved.

Mandley says: "The criminal class constitutes a degenerate or morbid variety of mankind marked by peculiar low physical and mental characteristics."

By an artificial selection such as is practiced in our police courts, the man who can afford to obtain able attorneys, or pay fines, or by his talents avoids detection, or by many of the other fortunate or practical known avenues escapes conviction. Then as a rule only the poorest, most ignorant and lowest classes are sent to prison, the exceptions being the rare occasion of a great popular clamor where some victim must be taken from the higher class, but these are limited to the very smallest number demanded to satisfy the outcry. A prison population so collected must of necessity be degenerate from every point of view.

Does insanity appear more frequently in prisons than in communities outside? Authorities in former times have all answered in the affirmative. Can this

answer be accepted as entirely true? Were these convicts insane before they reached the prison? Did their insanity lead them into crime?

Is it insanity or is it simulation? Semal finds insanity much more prevalent among those outside than those inside prisons. Sir Matthew Hale is quoted as saying: "Habitual felons suffer from a degree of partial insanity." This means nothing, as there is no complete insanity. Dr. Macdonald of Auburn, in his twenty-third annual report "believes crime to influence the insanities and to constitute them as a distinct class." He remarks on the general absence of expressed delusions, generally coherent in conversations, perform their allotted tasks, display wonderful combinations of shrewdness and cunning in their efforts to escape.

If we compare the lower orders of men in the community at large with those in prison, the proportion of insane in each would not differ much.

The trouble with all our statistics on the subject is that they are one-sided. We must divide society into classes, according to wealth, ability and position, as Chas. Booth has done in his "Life and Labor of the People."

Class "A" in prison must be compared with class "A" outside before any reasonable conclusions are warranted.

We know that insanity does sometimes cause persons to commit crime, but there are many insane who do not commit crime, and there are many criminals who are not insane.

Masoin, at the Anthropological Congress held in Belgium, gave the following differences between the criminal and the insane act: the diseased kill for the sake of the deed—rob for the sake of robbing, without any other aim. The criminal acts out of covetousness or hatred. After the act he seeks to conceal himself; the alien does not.

The crime calms the insane. It troubles the criminal.

When we will recognize that "every society deserves the criminals it has," and we will endeavor to correct the evils that in a large part cause crime, and treat our malefactors not with a spirit of vengeance, not with a visitation of justice, not as sinners but simply as obstructionists, whom society must place under restraint or remove to a place where they can be of service instead of hindrance, then only will the penal question reach a solution.

Has a man stolen my pocket book two years in prison will not return it to me; time can not measure the injury done me or the suffering caused the prisoner. To one man, ten days will cause as much anguish as ten years to another.

See how childish our present mode of justice; a man commits 100 burglaries and is caught; he is only charged with two; is sentenced to five years imprisonment. His term is served; he is caught stealing a watch and receives two years. He again returns to burglary, and after awhile is caught and is given another sentence of a few years, and so ad infinitum, ten, eleven sentences, each time a trial, each time efforts to detect him, and the numerous times he wholly escapes detection. What would be thought of the suggestion that a chronic maniac be sent to an insane asylum for one year and then released unconditionally; then after he had killed some one, again returned for a definite term of one or more years?

The danger to society alone should be considered

and the professional criminal placed in "durance vile" until cured, if that result is possible; or permanently if the danger to society is ineradicable, and this wholly as a protection to society and irrespective of his sanity or insanity, his moral responsibility or irresponsibility, his reformation or punishment.

CHAIRMAN—I think Dr. Ball is to be congratulated on doing what has been done too little in this country, namely, working in the prisons for facts in reference to mental diseases, instead of having issued from the officials of prisons and others in authority general statements about matters of this kind. This, I think, is a sort of work which will do for criminology what men have done for other forms of mental disease outside of prisons.

DR. F. P. NORRERY of Jacksonville, Ill.—I have met with quite a number of these cases in the Illinois Hospital for the Insane. It is a rule in the Illinois institution, or was until the inauguration of the criminal hospital for the insane, that all criminals found to be insane should be sent to the State Hospital. As a result, we got all cases belonging to the county or district in which the hospital was. I found that quite a number of these cases were not chargeable with criminal responsibility, and it is just from that standpoint that I would like to speak—cases of paranoia in which the delusions were not thoroughly settled, but probably did exist prior to the commitment of the crime, which after conviction and sentence to the hospital or to the penitentiary developed. I have in mind two cases; one convicted of horse stealing and sentenced to five years, another case convicted of larceny. Another case I might mention is a case of homicide, life sentence; one of these cases was a marked case of paranoia and is now in the Central Hospital for the Insane. The patient's delusions are thoroughly systematized and all of a religious nature; he believing that he is Elijah, and his inspirations come through the rocks, etc., and daily he is engaged in his preparation of prophecies. The other case is a case of general paralysis and the patient died after having gone through the regular course. His insanity was not recognized as general paralysis or in fact as insanity for over a year after his sentence, when his maniacal attacks increased and he became a subject of considerable anxiety to the prison officials. The other case is a paranoiac under life sentence; and he is one of those individuals who is being poisoned by the guards and is having noxious gases thrown into his room by unseen forces, and who also has telephonic communication with the devil and his hordes daily. As a result, you can imagine that he can make life miserable for all about him, which he has done since he came to the institution. It was on this account that he was placed in the Hospital for the Insane. It is evident that the attention given to mental diseases in the prisons of our State has been sadly neglected, and it is to be remarked also, that in the paper that accompanied those cases from the prison officials, every form of mental disease is set down as dementia, duration unknown, no symptoms given and no history at all, and all that we can get is probably from the guard who accompanies them. The appointment of the prison physician is largely political; his attention to details in regard to mental disease is very slight, and all the history we can get is from the guard and from the patient himself.

DR. J. G. KIERMAN of Chicago—We have had too little on this subject, especially from American alienists outside of Dr. Ball. I remember some communications of Dr. Carlos Macdonald of New York, based on his results in the Auburn Lunatic Asylum and in part in the penitentiary. In a general way he found the same features of insanity among the inmates, such as delusions, ideas about being poisoned, etc.,

as has been mentioned; but it seems to me that a number of the cases that the doctor has reported might belong to a good many other categories; for instance, one case which is classified as stuporous insanity might possibly be epilepsy. There were no convulsive attacks to be sure, but their occurrence is not necessary in epileptics, there being perhaps but one in a long period and recurrent stupor taking their place. With regard to the frequency of insanity in prisons, I would state that on one occasion I went through the reports of the Joliet Penitentiary, and discovered that the proportion sent from Joliet to the various asylums was twelve times the ordinary proportion in the State according to State statistics. A number of those cases came under my observation at the Cook County institution. They had gone to the State institution, their term had expired and they had been transferred to the hospital. There was one case in particular which illustrates the point that is often ignored, that underneath a primary hallucination may run a secondary delusion which may impel a man to crime. This man had a delusion about witchcraft; he was a negro and a paranoiac and his delusions were based on certain experiments in mesmerism which he had seen performed in his boyhood; and it is a fact that he stole in order to get placed in the penitentiary to escape mesmeric persecution.

Another fact, in which I was very much interested, was that the penitentiary officials had reverted to the old procedure of Louré. As the majority remember, he used to treat the insane as follows: argue with them to show them their peculiar absurdity and delusion and hallucination, and then proceed to douche them; and he undoubtedly checked the exhibition of the delusions of a large number of his patients. In a few cases the inhibitions were sufficiently strong to control the patient, but the great majority of his cases when followed up were found to be rendered even more persistent and dangerous than before. Another point raised by the doctor which I think does not quite deserve the credit given it, is the attempted differentiation between the insane and criminal. The insane do things with the same motive as the criminal. You will find insane people stealing from each other, and recognizing that the insane man knows what he is about in that thing. You will find that in patients in the wards they will make that distinction themselves between stealing that is delusional and that which is not. Furthermore, it is stated that the insane have not accomplices. Here very often you have a central figure, a paranoiac, a principal, and he has a number of accomplices, some of whom may be sane and some insane of a weaker type. Take for instance the celebrated religious homicide that occurred in Massachusetts. The son of Freeman was ill-balanced and so was his wife, but around them were a number of sane Second Adventists, and some affected with mild paranoia.

With regard to the test of insanity in Illinois, we have no test, strictly speaking, other than the essential test of the common law based on each case. For instance, if you raise the question of insanity in Illinois, the State must overcome the presumption of insanity and must prove the prisoner insane beyond a reasonable doubt. Furthermore, even a prosecuting attorney would not attempt to raise the right or wrong test, pure and simple; the insanity must have overridden the reason and judgment; that is the test in Illinois. Of course, as Dr. Norbury has stated, the people in charge of the penitentiaries are decidedly careless in their examination, study, history and treatment of these cases. One of the physicians in the penitentiary on the witness stand recently did not know the name of the inferior maxillary bone. He was a graduate of Harvard, had turned Hahnemannian and was in charge of the Joliet Penitentiary in the interest of a certain clique. He is now at the head of a homeopathic asylum in California.

Paretic dementia was spoken of. I remember that New York three cases came to Ward's Island Hospital. They had been a year in the penitentiary and repeatedly punished for dirty habits, and one of them an old laborer, had stolen socks and shirts in plain view of everybody in a store. The boldness made it plainly insanity. We found his back criss-crossed with lancing. In the interests of society I think it is best to adopt the view of considering the criminal of the habitual type as a chronic lunatic and to shut him up for life. I remember the case of an expeditious man who lost a portion of the bone in his head from an accident. The traumatism resulted in delusion with occasional periods of excitement. His wife gave him quinine on one occasion and got him quieted when the police broke into his room, but the insane man knocked the policeman down with a hatchet, grabbed the policeman's clothes, put his wife's hat on his head and paraded the street with a club. He was arrested, taken to the station house, tried, and the jury gave him three years, and the very intelligent judge took off one year on account of the injury to his head. The man went to the penitentiary three months and then went to the insane hospital. The absurdity of sending such a person to the penitentiary is evident. The whole system needs remodeling, but it can be done without any change in the common law which must furnish the basis of all change.

DR. BALL.—I would like to see the chronic criminal shut up for life, but I do not think it would be well to regard him as a lunatic in order to accomplish that, unless you can prove his insanity. As far as epileptics are concerned, I would say that I have as yet very few who have shown any signs of their epilepsy in prison. They might have been epileptics, but because of the quiet life they led in prison they never had any convulsions there. It is usually the fact that epilepsy has a great deal to do with crime.

HEMIPARAPLEGIA; WITH REPORT OF A CASE COMPLETELY RECOVERED AFTER ONE YEAR'S DURATION.

Read before the Section of Neurology and Medical Jurisprudence at the Forty-fourth Annual Meeting of the American Medical Association.

BY L. HARRISON METTLER, A.M., M.D.

CHICAGO.

In certain lesions of the spinal cord, the prospects of recovery are so much more hopeful from surgical interference than from medical treatment, that an exact diagnosis is of paramount importance. Hence every ray of light, however feeble it may be, that illuminates the question of spinal cord localization, should be most carefully cherished. Our knowledge of the motor centers of the cord is already sufficiently exact to guide the surgeon in his operations, but the precise limitations of the sensory areas are matters still of much uncertainty. A great deal has been accomplished towards increasing our information in this respect by Oppenheim, Westphal, Rosenthal, Eulenberg, Ross, Mills, Osler, Church, and especially Thorburn. According to the general consensus of opinion to-day, the decussations of the sensory and motor tracts are such that a lateral focal lesion anywhere below the cervical enlargement gives rise to a *hemiparaplegia*, with paralysis upon one side of the body and anaesthesia upon the other. Every instance of an anomalous presentation of this classical picture must be possessed of unique interest, hence I beg to present the following case, which has seemed to me to be worthy of special study:

case. 24. D., a bright, cultured girl 20 years of age and residing in the western part of Pennsylvania, was brought to me Oct. 5, 1890, by Dr. C. J. Stein. The following history was narrated to me by the patient herself in the presence of the doctor and her elder sister: On the morning of Dec. 25, 1889, while walking along the street, she accidentally stepped upon a loose coal-hole cover and fell in such a manner that the left leg passed down into the coal-chute while the right was extended out over the pavement. She fell completely out with her whole weight. Unconsciousness at once resulted, and on account of the free use of narcotics by her medical attendants, she was not fully cognizant of her surroundings until a week after the accident. In the meanwhile the hip joint was found to have been dislocated and was immediately reduced. There was a considerable hemorrhage from the vagina, and in some way indistinctly described, she was torn. Shortly after the accident the left limb began to swell, became extremely painful and was completely paralyzed. Poultries and hot applications were employed. The fever continued high and with it there was excruciating pain at the back of the head. A week later the swelling of the limb entirely disappeared. Six weeks after the accident, the faradic current was employed locally to the paralyzed muscles without any improvement. In March, three months after the accident, the swelling of the limb reappeared. At this time there was no local sweating, no glossing of the skin, no formation of blisters or sores. This was the last time that the leg swelled. During the course of the year, the right arm enlarged somewhat and became cold and cyanosed. This occurred some five or six times. At no time were there any symptoms of a similar character in the left arm or right leg. There were no circutary pains, no eye disturbances, no dysphagia, no dyspepsia, no dyspnoea. The bowels remained unaffected, with the exception of a few small bleeding piles which appeared immediately after and seemed to be one of the direct results of the fall. The rectal sphincter was very slightly if at all affected. The sphincter of the bladder was much weakened. Severe metrorrhagia occurred some five or six times, and during the entire year there was a profuse leucorrhoea which for a time contained considerable pus. Prior to the accident menstruation had always been painful and scanty, but now had become very much more so. Micturition also produced severe pain. The urine was never voided in normal quantity, but frequently contained a small amount of blood and sediment. At times violent pains shot along the spinal column, especially in the lumbar and lower dorsal regions; while a continuous intense pain was felt in the occipital region of the head. This latter pain was almost constantly present, but on alternate days became so exceedingly unbearable that the patient was obliged to take to her bed and make free use of anodynes and narcotics.

Three weeks before the patient was brought to me, a brilliant stroke of lightning flashed close beside the room wherein she was seated. She experienced a most peculiar sensation or "kind of rush" up the spine into the head. She fell, became unconscious for a time and continued to be delirious for several days after. For a long while she said she could feel a kind of repetition of the shock about every third or fourth day. Usually the sensation died out in ten or twelve hours. When I saw her she was still subject to intense constricting headaches. These seemed to strike from the back of the head forward to the temples, were always worse in wet weather, and as a rule lasted about twelve hours. Sometimes the face became puffed and pale, while the eyes would be directed inwards. Two weeks after the accident the patient first noticed for herself that her left leg was completely paralyzed and anæsthetic. No improvement had occurred in this respect during the course of the year. So much for the history of the case.

Upon examination I found the eyesight and hearing both good. The grasp of the hands was normal and the same in both. In the right leg the patella reflex, ankle-clonus, muscular movements and sensation were all normal. In the left leg they were all completely abolished. The line of beginning anæsthesia corresponded quite sharply with that of Poupert's ligament in front, the crest of the left ilium and a line drawn transversely across the left half of the back on a level with the crest of the ilium or fourth lumbar spine. Above this line there was considerable hyperæsthesia. The limb was well developed,

warm to the touch in its upper part, and exhibited the natural color of health. Both the cutaneous and muscular sense were entirely wanting. The deep insertion of a needle into the tissues, the strongest electric currents as well as simple contact with the skin, were absolutely unperceived. So thoroughly did I test for sensation that the possibility of simulation was completely eliminated. A similar examination of the opposite leg and of the two arms revealed nothing abnormal in regard to motion or sensation. Severe pressure along the course of the left crural and sciatic nerves gave no indication of pain. There was no atrophy, as actual measurement showed both limbs to be of the same size. With the use of faradism, a mild primary current produced slow but decided muscular contractions, while the secondary current gave rise to more marked muscular movements. The galvanic current produced the usual normal responses. I could detect no indication of the reaction of degeneration. The electrical examination was not, however, as complete as I would like to have made it, as the patient was suffering from considerable pain in the spine and I did not care to distress her further. The distal circulation was slow, and as a result the leg and foot were cold and cyanotic. The whole spinal column was so exceedingly sensitive to the touch that its examination was not so satisfactory as could have been desired. In the region of the lower lumbar vertebrae it was unusually tender, so that the patient winced and screamed with the pain each time I gently pressed the lumbar spines. Between the third and fourth lumbar vertebrae I could distinguish on the left side a small, hard nodule about the size of a pea which was especially painful. The distress and general nervous excitement of the patient prevented my determination at that time of the nature of this swelling. In the vicinity of the sacrum and coccyx the pain upon pressure was quite unbearable.

As a result of this somewhat incomplete examination, I diagnosticated the case as one of incipient meningo-mylitis, with the meningitis as the more pronounced feature at the maximum intensity of the disease focalized on the left side of the lumbar cord. I imagined that at the time of the accident there had been a hemorrhage within the spinal column, either in the lumbar region or elsewhere, and that some of the blood had gravitated and formed an irritative clot which in conjunction with the attending inflammatory process was compressing and constricting certain nerve roots from the left side of the cord. With this conception of the case, I recommended a vigorous daily counter irritation of the entire spine, the administration of mercury (blue mass guarded by opium) to the point of ptyalism, the use of the mild faradic current to the paralyzed muscles, and the employment of cod liver oil by local injection. The treatment was commenced Oct. 5, 1890. About a month later, Nov. 7, or nearly eleven months after the accident and onset of the paralysis, the patient arose from her chair and walked with as much ease apparently as she would have done in perfect health. She stated that a few days prior to my last visit she suddenly felt a kind of tingling and burning sensation, as though the leg had been "asleep," and were recovering, and that this was immediately followed by a complete restoration of its movement and sensation. Hyperæsthesia, I found, had replaced the anæsthesia and though it tired the patient

quickly to use her limbs. Its power of motion was not to have been completely regained. The 12-28-89. Sensation was noticed at the same time with a sharp sensation up and down the entire length of the sacral cord. I found the tenderness of the vertebrae almost entirely gone so that the patient could stand quite vigorous blows upon the back, except in the lumbar region where it was still some what sensitive. From this time on she ate and slept better and the bleeding of the hemorrhoids ceased. On Nov. 1, Dr. Steim wrote me as follows: "Patient is steadily improving and is quite as strong as ever she was." On April 28, 1892, I received this note from the Doctor. "I am glad to inform you that Mrs. S. (she had become married by this time) has never had a single symptom of the old trouble since you saw her. In fact her health generally since then has been almost perfect." Again during the summer of last year the Doctor wrote me: "The recovery has been perfect and the patient has been as strong, if not indeed stronger than ever before in her life, with the exception of typhoid pneumonia over a year ago."

The unilateral distribution of the anesthesia and paralysis in this case indicates, of course, a unilateral lesion. The presence of the motor and sensory paralysis upon the same side would suggest a lesion outside of the cord proper. The absence of any girdle pain or pronounced alteration of the sphincter functions, and of atrophy of the muscles establishes the non-involvement of the gray matter of the cord. The upper border of the anesthetic area limits the upper border of the lesion to the level of the first lumbar segment. The tenderness of the spine, the fever and other constitutional symptoms resulted of course from the meningitis, which was probably a mere extension of the inflammatory process from the lumbar region upwards. The traumatic origin of the paralysis is extremely indicative of a fecal hemorrhage and the presence of an irritative clot would be an all-sufficient reason for the inflammation of the membranes. The hemorrhage was probably subarachnoid. The transitory symptoms which arose during the course of the year in conjunction with the upper regions of the cord may have been due to a number of smaller hemorrhages of which the blood may have gravitated and so produced a large irritative clot along the line of the lumbar segments and in the meshes of the cauda equina. The chief difficulty in this explanation, however, is the completeness of the anesthesia from the very beginning of the paralysis: for such a sudden and complete anesthesia usually follows a lesion in the substance of the cord itself or complete severance of the nerve roots. When nerve roots are compressed by hemorrhagic clots or meningeal adhesions it is more customary for the anesthesia and paralysis to be preceded by pain, hyperaesthesia, paresthesia and spasm. Furthermore, with anesthesia dependent upon destruction of the posterior nerve roots, there is generally very decided atrophy of the corresponding muscles, especially if the lesion involve the root ganglion or that part of the root external to the ganglion.

It must be admitted that there are certain features about this case strongly suggestive of hysterical hemiparaplegia. They are for instance the sex and age of the patient, the location of the paralysis (hysterical paralysis being most frequent in the left leg) the absence of any considerable atrophy, the apparent preservation of the rectal with but slight involve-

ment of the 2-3-4-5-6-7-8-9-10-11-12 segments of the parasympathetic system, the absence of the peculiar dissociation of the motor and sensory correspondences, the slow development of the limitations of anesthesia, the absence of pain. Against the hysterical hypothesis, however, stand the traumatic origin of the motor and sensory paralysis, the absence of an hysterical reaction, simple in duration this or any previous period of the patient's life, the prolonged duration of the paralysis and anesthesia without the slightest modification, the absence of the hysterical temperament, the completeness of the anesthesia and the perfect insensibility of the nerves to the strongest electric currents, the hyperaesthetic zone just above the level of the anesthetic area and the complete restoration without the slightest subsequent reappearance of any of the old symptoms. Furthermore the upper limit of the anesthesia posteriorly corresponded with a horizontal line drawn across the back on a level with the fourth lumbar vertebra, and not with the line of hysterical paraplegia which Charcot says, "follows the insertion of the muscle of the buttocks exclusive of a V-shaped area over the sacrum."

In the *American Journal of the Medical Sciences* for July, 1892 Starr reports a case (No. 5) possessing many points of similarity with our own. Briefly stated, the patient was a woman, 28 years of age, who was well until May, 1889, when after a day of fatigue she was suddenly seized with severe pain in the sacral region and in the back of both thighs, with retention of urine and feces and with a sensation of numbness over the lower sacral region, perineum and vagina. The urine and feces were moved with much difficulty. The sphincter was contracted on the finger. The knee-jerks were exaggerated. The plantar and gluteal reflexes were normal, and there was no tendency to bedsores, no tenderness of the back, no girdle sensation nor anesthesia of the legs. When examined again in Feb. 1890, there was beginning muscular weakness in the left leg and a diminished response to faradism, without atrophy. There was still some pain in the back and in the left leg constantly but more especially in the left ilioinguinal region. There was still no girdle sensation, spinal tenderness or bedsores. The area of total anesthesia had increased. There was slight impairment of the tactile sensation on the outer side of the leg below the knee and on the back of the thigh from the anesthetic area downwards. The case was not so far advanced as ours, but in the association of its symptoms closely resembled it. The diagnosis of Starr was that of a hemorrhage into the conus medullaris and lower sacral segments of the cord. He suggested that this hemorrhage had lighted up a chronic meningomyelitis and as this advanced slowly upwards, it had increased the symptoms.

Starr and Lloyd's case (No. 11) in the same paper, was one of compression of the cauda equina producing a localized paralysis and limited anesthesia in the right leg. There was a fracture of the lumbar vertebra, followed immediately by a paralysis and indefinite area of anesthesia in the right leg. A year later there was marked deformity at the third lumbar vertebra, paralysis with atrophy, reaction of degeneration of most of the muscles of the right leg, anesthesia down the back and outer side of the same limb. In view of the diagnosis of compression of the cauda equina at the third lumbar level, Dr. Lloyd open-

rated and removed the second and third lumbar spines and laminae with ultimate recovery of the patient. The point of significance in this case is the association of the anaesthesia and paralysis, which is explained here by the limitation of the lesion to the cauda since the spinal cord proper terminates at the first lumbar vertebra. The absence of the sphincter symptoms would exclude involvement of the corresponding nerve centers, which Starr finds from two of his cases to be located in the "lower two segments of the cord," a fact which has been confirmed by autopsies in the cases of Kirchhoff, Westphal, Oppenheim and Herter, and in the cases of Rosenthal, Bernhardt, Eulenberg, Mills and Huber. It is always difficult, except in fracture cases, to differentiate lesions of the cauda from those of the cord; and Starr takes the position that it is "questionable whether, except in cases of fracture below the first lumbar vertebra with displacement of the vertebrae any sharp line of distinction between cord and cauda lesions should be attempted." It is to be hoped, however, that some day our knowledge may permit us to make such a differentiation.

In connection with the case I have reported, the question arises as to the possibility of there being a unilateral paralysis and anaesthesia in the same limb, as a result of a single unilateral lesion of the cord. In other words, Is there such a thing as a true hemiparaplegia produced by a focal lesion in which the paralysis and anaesthesia are not crossed? The textbooks almost universally answer this question in the negative. Ranney¹ says: "The muscles below the seat of the lesion are paralyzed on the side of the body corresponding to the exciting cause and the skin is sometimes rendered hyperæsthetic; while the integument of the side opposite the lesion is deprived of sensibility." In his "Lectures on the Nervous System," he furthermore most emphatically states that "should symptoms of anaesthesia appear upon the side where the motor paralysis is present, you may regard it as conclusive evidence that the exciting lesion is progressing and the opposite lateral half of the cord is being involved to a greater or less extent." Seguin² writes that "hemiparaplegia is a rare variety in which one lower extremity is paralyzed while the other is anaesthetic."

Mills³ says that "motor paralysis occurs in the leg of the same side and anaesthesia in the trunk and leg of the opposite side." So authority after authority might be quoted, all stating the same truth. They insist upon the crossed nature of the symptoms. The sensory fibers, after passing through the posterior nerve roots, enter the gray matter of the posterior cornua and at once cross to the opposite side of the cord through the posterior commissure and then continue their course upward to the cerebral cortex. In the upper part of the cord the fibers decussate almost immediately after they enter the posterior cornua but farther down the cord we find them running for a short distance more or less vertically in the side of the cord and in company with the corresponding nerve roots before they pass to the opposite side. In other words, the decussations are relatively higher than the corresponding nerve roots the farther we proceed down the cord. In the

words of Gowers,⁴ "The decussation of the sensory tract is not immediate but occurs somewhat above the entrance of the nerves." This, I believe, is of some importance in the diagnosis of our case; for as Gowers again remarks, "A lesion in one side of the lumbar enlargement often affects sensation on the same side as motion because it damages the sensory path before it has crossed." In our case I can not think the anaesthesia was due merely to compression of the nerve roots by the meningeal trouble, because it came on so early and suddenly and was not preceded by the usual hyperæsthesia and initiative signs of local meningitis. In fact, the whole set of meningeal symptoms seems to have been of later development. Nor can I think that the posterior nerve roots supplying the anaesthetic area were themselves torn or injured in such a way as to be alone responsible for the loss of sensibility, because the anaesthesia lasted too long to be so quickly recovered from. Torn nerve roots are not usually restored in a few weeks' time by mere external counter irritation and the administration of mercury. I assume, therefore, that the sensory tracts must have been injured somewhere near the periphery of the cord, and that this must have been before the tracts which transmit tactile impressions were separated from those which carry the sensations of pain and temperature since all forms of sensibility were abolished from the anaesthetic area.

According to the most recently constructed tables of segmental spinal localizations, the lesions could not have extended higher than the first lumbar segment. The paralysis and anaesthesia stopped quite abruptly at Poupart's ligament anteriorly and the upper part of the buttock posteriorly. There were no girdle pains whatever, either of the body or the limb, to enable me to determine the level of the lesion more accurately. If the original trouble were a subarachnoid hemorrhage, as I fancy it must have been, the blood may have gravitated to the lower part of the spinal column and involved the fibers of the cauda without doing any special damage to that structure beyond compressing it. A clot may readily have formed on the left side of the cord opposite the lumbosacral region, there exerted a pressure sufficiently deleterious to prevent the transmission of the motor and sensory impulses in the corresponding tracts as they passed along near the circumference of the cord, and also to have lighted up a meningitis which gradually extended along the whole column and even implicated to a slight degree the membranes covering the brain especially in the occipital region. Such an explanation is the most reasonable to my mind and harmonizes most satisfactorily some of the discordant symptoms of the case. If such be the correct explanation, the case indicates that we may have a hemiparaplegia, especially from a lesion in the lower part of the cord, in which the anaesthesia and paralysis appear upon the same side of the body. Further investigations are needed, however, upon this point, though I feel sure that the textbooks are somewhat too dogmatic in asserting that in all cases hemiparaplegia is a paralysis of one-half of the lower part of the body with anaesthesia of the opposite half.

Columbus Memorial Building.

¹ *Principles of the Nervous System*, Appleton & Co., N. Y.

² *Principles of the Nervous System*, Vol. 3, page 11.

³ *Principles of the Nervous System*, Vol. 3, page 11.

⁴ *Principles of the Nervous System*, P. Blakiston, Son & Co., Philadelphia, 1888, page 166.

WHAT SHOULD CONSTITUTE LEGAL RESPONSIBILITY, IN THE MEDICAL SENSE, IN INSANITY?

Read before the section of Neurology and Medical Jurisprudence at the Forty-fourth Annual Meeting of the American Medical Association.

BY LANDON CARTER GRAY, M.D.

PROFESSOR OF NERVOUS AND MENTAL DISEASES IN THE STATE UNIVERSITY OF NEW YORK POLYCLINIC.

It is high time that we medical men should impress upon lawyers the fact that the question of legal responsibility in insanity should not be determined by laws, but by facts. As it is, the belief of English and American jurists is that which is embodied in the statutes of almost all of the States, to the effect that knowing the nature and the quality of an act and its consequences should be taken as a full test. As every one in this room will know who is acquainted with the insane, this dictum is worse than ridiculous, for it is false, as there are very few forms of insanity in which the patient is not fully aware of the nature, quality and consequences of an act which he or she may commit. Out of this definition of a legal responsibility has grown the legal belief that a person is possessed of testamentary capacity when he or she can talk in a sufficiently intelligent way to evidence a knowledge of the nature, quality and consequences of the will which he or she may be making. Indeed, so ill-defined is the definition of testamentary capacity that I have frequently suggested to my legal friends that the greatest certainty of having a will admitted to probate would be to establish the insanity of the testator or testatrix. Let us briefly examine the facts, not the statute law, about insane patients.

All the types of insanity that have been demarcated up to the present time can be classified by:

1. The moods.
2. The presence of hallucinations.
3. The presence of delusions.
4. The coexistence of the neuroses.
5. The coexistence of organic disease of the brain.
6. Traumatic causation.
7. Causation from excessive use of narcotics.
8. The mental disturbances occurring induced by disease of non-nervous viscera.

Mania and melancholia present as their basic symptoms alterations of mood; the former being an exaggeration in slighter or greater degree of good spirits, and the latter presenting the converse. When there are hallucinations as the chief symptom around which all the others cluster, there is hallucinatory insanity. A persistent delusional condition, at first consisting of delusions of persecution, to which in the course of time are added delusions of self-exaltation, constitutes that type of insanity to which has arbitrarily been given in latter days the name of paranoia, formerly designated delusional insanity. Mag-nan, it should be said by-the-by, maintains that in many cases of this type the delusion of persecution is never succeeded by that of self-exaltation or grandeur. Such neuroses as hysteria and epilepsy lend a peculiar imprint to mental disturbances occurring in the course of them. These insanities, whose pathology is yet but dimly understood, are happily embraced by the Germans under the generic term of the psycho-neuroses, to distinguish them from the mental disturbances which occur in the course of such organic diseases of the brain as hemorrhage,

thrombosis, embolism, meningitis, tumors, intracranial syphilis, and that slow, remittent, insidious encephalitis which is known as parietic dementia or general paresis, and which is characterized by the commingling of characteristic mental symptoms with physical ones. Insanity of traumatic causation is usually an insanity due to organic cerebral disease produced by trauma, or to epilepsy from the same cause. We are all familiar with the mental disturbances from alcoholism, cocaineism, morphinism or chloralism. I have but little faith in the frequency of so-called reflex insanities, i.e., those produced by slight lesions of non-nervous organs, but no one will attempt to deny that mental disease can occur from the widespread vascular, textural and nervous derangements of nephritis, pyeluria, hepatitis, typhoid, peritonitis or septicemia.

Of all these varieties of mental disease, the ones that most frequently give rise to medico-legal questions are paranoia, mania, melancholia, general paresis and the insanities arising from the excessive use of narcotics. In paranoia the mental condition is, as has been said, a delusional one; generally at first of persecution, to which in the course of time is added another of self-exaltation or so-called grandeur. But these delusions are perfectly logical, and the memory and the reasoning powers are intact. In mania there is chiefly an alteration of mood, so that the patient seems more vivacious than usual, and in the subacute form this exhalation may be so slight as not to rise above the level of high spirits, while in many instances delusions and hallucinations are not present, and in most there is the same preservation of the reasoning powers and the memory as in paranoia. In melancholia the alteration of mood is that of depression, but in a vast number of cases, constituting the bulk of mental diseases observed in general practice, this depression is so evanescent and slight as not to be greater than that caused by indigestion, a disagreeable bit of news, an unpleasant emotion, and a thousand and one other disturbing factors in life; while in melancholia, as in mania and paranoia, the reasoning powers and the memory may not be at all affected. In the early stages of general paresis and in its remissions the element of stupidity is so slight that it can often only be detected by an observer made keen by experience. In the mental alterations caused by undue indulgence in narcotics there may only be present some hallucination, some delusion or some unbalanced judgment that can not be evidenced except by observation of the patient through days, perhaps weeks. In all these forms of insanity, therefore, it is absurd to test the patient's knowledge of the nature, quality and consequences of an act by merely questioning him. For instance, Dougherty, the so-called lover of Mary Anderson, murdered a young Dr. Lloyd of the Flatbush asylum, because he believed that Lloyd was one of the agents of a system of legal procedure that had done him grave injustice, and he was proceeding to murder a supreme court justice and about a dozen State and county commissioners of charities whom he thought to be agents of the same legal machinery, when he was fortunately arrested. All this murderous action had arisen from his delusion that Mary Anderson loved him and that the world had con-

*In all these types of insanity hallucinations, illusions, delusions and alterations of mood may occur, but it is the predominance of one or the other of these symptoms that is the basis of classification.

spired to prevent his going to her. Yet when this man was tried for murder, he insisted on taking the witness stand himself, and stating that he knew perfectly the difference between right and wrong, and the nature, quality and consequences of the act that he was doing when he shot Dr. Lloyd. The jury found him insane; but there was so much doubt in the public mind that a commission was appointed, of which I was a member, and he was again adjudged a lunatic. Judged by his general intelligence—indeed, by his own statements—this man understood well what he was doing. Nevertheless, it was evident to every one that his delusions so warped his mind that he did not realize, in the true meaning of the word, what he was doing. Nor do I believe that any insane person has a true realization of his acts. Never mind how small the flaw may be in his mental machinery, it may be quite sufficient to warp the mind. The law clings tenaciously to the old idea of lucid intervals; but alienists nowadays no longer believe in them, and the imperfect science of a former day probably mistook remissions for them. No one can catalogue the human mind, except in a very general way. So far as we have been able to analyze it clinically, however, it may be said to consist of sensations received by a conscious intelligence in a way that experience has shown to be normal to the human being, as well as of actions springing from this intelligent recognition of sensations. If the moods are altered, as in mania and melancholia, there can be no intelligent recognition of sensations. If the sensations are faulty, giving rise to what are technically known as hallucinations and illusions, the intelligence is corrupted by false news traveling in over the perverted nerves from the various tissues of the body. If there are delusions, the intelligence, in proportion to its intelligence, is the sport of these delusions. If the intelligence itself is confused, causing what we call stupidity, who can venture to prophesy what the mental outcome will be? If erratic actions arise from diseased brain cells receiving normal or perverted sensations, these very actions are evidence of a warped mind. I could make this short recital of instances much longer if I were to go into all the clinical proof at my command of how a seemingly partial mental defect is really a general one.

But I think that you will agree with me that the only safe test of the legal and testamentary responsibility of a man lies in an answer to the simple question: Is he insane? If he is, he is not legally responsible for his acts, nor has he a testamentary capacity. Nor should this question be determined by questions put by lawyers, by fine-spun metaphysical definitions of mental aberration or by evidence of seemingly intelligent acts and motives, but rather by examinations made by physicians competent to decide whether the man in question is suffering from one of the recognized types of mental disease. When a physician testifies that a man is sick with some disease affecting a non-nervous organ, no lawyer would dare to raise a Homeric roar of laughter by asking him for a general definition of sickness, instead of having him localize the disease and then make him state the usual symptoms of this malady. Is it not true that the same common sense should be applied to mental diseases? I think so, most assuredly.

LEO KERNY. It seems to me that Dr. Gray's strictures are much more applicable to many of the eastern States

and perhaps a few of the western, than to all. Now in Illinois, although the practice has slightly departed from the decision enunciated in New Hampshire, and which is practically the outcome of the old common law before the ecclesiastical lawyers got to fixing notions about responsibility, the principle still holds that each case is tried on its merits. In the next place the State must prove beyond a reasonable doubt that the man is insane, if the defense raises even a suspicion of insanity. In New York the right and wrong test was swung into the code under the influence of David Dudley Field, with the old notion of deterring the insane from crime. It so happened that David Dudley Field himself had a relative who committed a crime and under that same test was sent illegally to an insane hospital. Even in New England we find judges on the bench applying the strict letter of the code in trying such cases as that of a woman who has killed her child with the full knowledge of the consequences of the act. It seems to me that all these cases can safely be left in a great degree to evolution. The more you attempt to express matters in the statute the more you tend to crystallize them and interfere with the due course of things. The tendency is directly opposite from what is usually assumed. The proper course is to deal with each case on its merits and not to lay down any general rule, and that is the old doctrine of the common law. Even old Sir Matthew Hale's divisions of insanity are correct, except when he is influenced by the ecclesiastical law notion of responsibility, when he gets sadly twisted.

DR. FRANK R. FRY—I would like to ask what the Doctor means by having established a suspicion of insanity in a legal way, so that the case might be presented on that basis. I am not familiar with what the method is in the State of Illinois.

DR. H. M. MOYER—The practice in Illinois is under the common law, and it seems to me from a careful study of the statutes of other States and those States like New York that have codes, that the practice that holds under the common law is far preferable in these cases. The proceeding in Illinois is substantially this: a person that is charged with crime is indicted. Then it becomes the duty of the State in the first instance after indictment when the person is called upon to plead, to accept the plea of not guilty, if insanity is to be the defense. The State then goes on and makes its own case as to the crime. Of course that is perfunctory where it is practically admitted that a crime has been committed. Then the defense comes in, if there is no defense on the merits, if insanity alone is rested upon, to prove the mental condition of the patient. What is meant by the suspicion raised? It is this: no matter how much or how little is raised as to the mental condition of the patient it must be overcome by the State; and the rule of the law that is given to the jury is that the State shall make out in rebuttal after the defense is put in, and prove the person sane beyond a reasonable doubt; which means that every scintilla of evidence tending to show that the patient is insane must be overcome by proof. We have tests that are propounded and used, and sometimes they go into our instructions, but the common law is so construed in that State that the tests are practically inoperative, because there is always an instruction asked on the part of the defendant, taking all the facts of the law into consideration, does the jury find that the reasonable doubt is in favor of the prisoner. That brings it down to a matter of the jury entirely. I will say regarding Dr. Gray's paper that it seems to me that he is a little in error on one point. He says that insanity if present should absolve a man from the consequences of his act and should not entitle him to testamentary capacity. The rule of common law as most States

give it, is that there is a different degree of mental aberration to absolve from responsibility for a criminal act, and that it will permit a man to will his property. The rule of the law in determining whether a person has testamentary capacity or not is, Did the person know and comprehend the matter, in which he intended his property to descend and to whom, if he comprehended these two factors it has generally been held that he has testamentary capacity. Certainly, I admit of a degree of mental defect far greater than would excuse a person for committing a crime. I think that we shall never reach any better basis than that of the common law, although there are faults that can be found with it in some respects. It is to be remembered as the darkness of mental disease settles down on a man's mind it does so gradually; there is the beginning of twilight settling down into hopeless dementia and all stages between those, and there must be an arbitrary division fixed somewhere, and I do not think that arbitrary division can be fixed by medical men or by lawyers. Nobody can fix it, because it is the same thing as after sunset; when the sun goes down there is a period of all shades of twilight into absolute darkness. No one can say where day leaves off and night begins absolutely. So in mental disease; some such flexible rule as is adopted by the common law I believe to be as near perfection as we shall ever get in dealing with the matter of insanity as a defense in crime.

DR. L. C. GRAY—I did not know that the State of Illinois had a law so entirely different from that of New York, but certainly the textbooks of law do not give any such rule as seems to be current in Illinois, and the test taken altogether of the American States is the test of the individual knowing the difference between right and wrong measured in the consciousness of the act. There are many absurd laws which judges will attempt to get around by permitting a laxity in their application, but as long as those absurd laws remain on the statute book, some martinet of the law may make you follow the hard and fast line. Whatever the practice may be, the statute law can always distort the practice. The fact is that in the majority of our States the old test of responsibility of right and wrong and the knowledge of the nature and consequences of the act remains; we in New York are constantly asked to solve that question by the testimony put at our disposal and it leads to all sorts of fraud and injustice, whereas a much simpler test would be simply, Is the man insane? It is no answer to say to that, that we do not know all the forms of insanity. We can make out the majority of cases that come before the courts. It is better to have some test than not to have any at all, as we have now, even though that test is not a perfect one.

I should disagree with Dr. Moyer in regard to the gradual obliteration of the mental faculties and the ultimate passage into dementia; because there are different forms of insanity, acute and subacute and chronic, and their onset may therefore be very sudden, or on the contrary gradual. The onset of transitory frenzy is very rapid indeed. Then again a great many forms of insanity like paranoia do not pass into dementia, and a great many of the cases of mania and melancholia have no inherent tendency toward dementia, so that I do not think that that line of argument will exactly prove to be the safe one. I do not think that any man's mind that is affected by disease is a safe mind to be left to dispose of his own goods and chattels. The statute law or any law made by sane minds, can do better than the mind of any insane man no matter how slightly affected, and you can not tell with all the myriad reflexes and connecting causes, how much of a given act or of a given opinion has been made up by diseased action and diseased reflexes. It is utterly impossible for any man to unravel that knot, and taking the common sense of it, is it not much safer to

trust the disposition of that property to the sane mind which is thought over by competent and educated laymen and which is so good that many able lawyers would as prefer to leave their property to be distributed by the statute law, rather than to say that the criminal must have a right to disinherit her nearest relatives, as was the case in the case of Buffalo Mrs. Richard Linton, who disinherited every legitimate heir, to encourage a pseudo-scientist and religiously giving her property to a society for all sorts of wild purposes, leaving her heirs in absolute poverty. It is no use to discuss what would abstractly be the best, but what is in the majority of cases an improvement on the present system, which is no system at all, and which was simply a wretched system when originally proposed, and a disgrace to our present civilization, inasmuch as it takes no ground whatever as to what has been done in psychiatry for the last fifty years.

LEGAL CRITICISM OF MEDICAL EXPERT EVIDENCE.

Read before the Section of Neurology and Medical Jurisprudence at the Forty-fourth Annual Meeting of The American Medical Association.

BY CLARK GAYEN, M.D.

(CHICAGO, ILL.)

A recent writer in the *Columbian Late Times* somewhat intemperately characterizes medical expert testimony thus: "Of all the cant that is canted in this canting world expert medical cant is the most pernicious. Of all species of evidence offered in a court of justice, none, not even the testimony of the accused, when a witness on his own behalf is more freighted with suspicion than is the evidence of the medical expert." And quoting Lord Campbell he adds: "They come with such a bias on their minds to support the cause in which they are embarked that hardly any weight should be given to their evidence." The writer then goes on to say that the medical expert in his first estate was a formidable ally of justice, but that the corruptions of the world have demoralized him. "These doctors," says he, "are of the earth, earthly, and their virtue, if not an unknown quantity is flagrantly insufficient in quality." He charges our profession with a vast amount of "very gaudy and unembarrassed lying," and believes the average doctor to be possessed of such an exalted opinion of his own accomplishments, and such a corresponding contempt for antagonistic views as to seriously cripple his judgment. "The serene Olympian" in the opinion of our author, "mounts the witness stand with a chilling and withering hauteur, a composure and touch-me-notishness that belong only to the elect." This intemperate philippic against expert evidence has recently passed around the newspapers and the echo is heard in multitudinous editorials on the subject.

"Doctors," says one, "seem to regard their profession in such cases much as lawyers do theirs. They are expected to use their knowledge and skill as lawyers do theirs to aid in the detection or acquittal of the accused. The result is the sacredness of expert testimony. It is hardly more valuable than the assertions of the attornays." Nor are these criticisms confined to recent times, for the newspapers and legal journals, no less authoritatively than Justice Gray of the Supreme Court of the United States said in an opinion written many years ago: "Opposite opinions of persons professing to be

experts may be obtained to any amount, wasting the time and wearying the patience of the court and perplexing instead of elucidating the questions involved in the issue." Chief Justice Chapman of Massachusetts may also be quoted as saying that "experts might be found to testify to any theory however absurd," and the learned Chief Justice Redfield of Vermont, author of the best treatise on wills extant says: "Experts are beginning to be regarded much in the light of hired advocates, and their testimony as nothing more than a studied argument in favor of the side for which they are called." Justice Davis of the Supreme Court of Maine went farther than the others, however, when he said: "If there is any kind of testimony that is not only of no value, but even worse than that, it is that of medical experts." With all this weight of very learned testimony against him we might reasonably conclude, that the case of the medical expert witness was effectually disposed of. We still find him, however, though somewhat disfigured yet an important factor in the various litigations that arise. There can not transpire a business transaction of any kind, an act civil, or criminal, of which the courts have jurisdiction but may involve some question demanding the attendance of the medical witness. Criticisms such as I have quoted from bench and press are not, however without foundation in fact. Some to be sure are grounded in a purely ignorant and asinine dislike of another profession. Some due to the bitterness of defeat. Corporation attorneys, no doubt feel themselves often aggrieved and justified in doubting both the honesty and value of much so-called medical expert testimony. Let us look at the causes underlying these conditions and ascertain if possible what are potential on our side, and what active on the side of the legal profession, to bring about this unhappy state of mind in our brother profession and lay upon ours this stigma. The first and perhaps most potent cause lies with the attorney himself. He has a case—perhaps unprepared both in respect to his knowledge of the case and a sufficiency of evidence. He casts about for some bright medical man to assist him. I am afraid he does not always care most to know how unimpeachable is the man he selects. What he wants is help. Honest help if he can get it—if not, help. He wants some one to help him make out his case, which usually means that he has a mark set up and he wants some medical man to swear at it. This matter of the oath is possibly seen from somewhat different points of view by the lawyer and the doctor. Theoretically the oath is to the lawyer a sort of fetish. In all his books and lectures, it has been enough to say "under oath" to express to his mind the highest degree of certainty and solemnity. I doubt if the physician and layman has any adequate conception of the feeling inspired in the breast of the lawyer by the term "under oath." But in some other respects the law in practice does not maintain so high an ideal of professional morals and conduct. It is not generally regarded to be to the lawyer's discredit that he resort to almost any means of winning his case. In legal practice that is constantly done which would make even the doctor shudder for the welfare of the soul of his professional brother in the law. It may be that the great and solemn phrase, "under oath" is not often enough uttered in the hearing of the student of medicine. It may be that he has not in the language of the

Buddhist, "gone into the forest," and seriously meditated what it is to be a witness under oath, but certain it is that he has not been able to see such a vast difference between telling a lie and swearing a lie. He that does the one, will find a way to do the other. When the doctor is on the witness stand, however, the lawyer (on the other side of the case) experiences a sudden expansion of his conception of the gravity and importance of strict adherence to the naked truth. But when the witness is his, the lawyer is too apt to become willing for him to strain any part of his conscience that will help the case. If the doctor is weak enough, he will be thus used again and again, but the very attorney that uses him will cherish a contempt for him. The solemnity of the oath should not be undervalued nor its importance as a safeguard in evidence be lightly considered. But the truth is the truth and at all times most sacred. "Every place a temple" to truth and justice. In the large majority of cases involving medical, surgical or psychological questions the attorneys are merely "crammed" for the case. In the very nature of things this must be so, for it is manifestly impossible for any mere lawyer to have other than a very partial view of the questions involved. He may have acquired knowledge, but he can not have acquired that experience which vitalizes knowledge. It is oftentimes very laughable to realize how partial this view is. Only the fact that the opposing counsel is equally ignorant and the jury still more unenlightened keeps the case from breaking down. I have sat through a trial for manslaughter and heard a bandying back and forth of medical and surgical terms by the opposing counsel that would have kept a medical college in a roar. But with this partial view the lawyer sets up a theory of the case for the poor doctor to work to, and he is expected to help it on whether it would have been his view or not if left to himself. The course chosen, everything must bend to it, everything must be done to help it on, and everything suppressed that will in any manner retard. The trial of the case then becomes a mere contest of wit in adducing and suppressing evidence. Of course this is all wrong and no one knows it so well as the well informed lawyer. It is not common sense, much less common justice. Any intelligent member of the bar will tell you that as at present conducted, the trial of a cause involving a medico-legal question is a mere farce, as compared with the trial of a cause involving a pure question of the law. The reason is simple. The lawyers trying the case understand the questions of law involved and it is Greek to Greek. But they neither know nor understand questions in medicine, surgery, psychology or toxicology. This great fault in our jurisprudence is probably in the main due to the jury system which we have not yet outgrown, and which we are not likely to outgrow for some time to come, notwithstanding the fact that no country in Europe has a jury but England. Another cause is the desire of some lawyers to pose before John Smith as a man who knows everything and to hear John remark that he (the lawyer) knows more medicine than all the doctors. Of course John knows. I believe it will be found an invariable rule that the greater the lawyer the more will he seek and value assistance by those specially trained and informed. The lawyer that merely aims to pose before Smith and expects to win his case by hook or by

crook needs little counsel. It takes a fair sized lawyer to realize that he doesn't know it all and is merely making a fool of himself when he attempts to utilize knowledge of which he has only a mere smattering. The condition referred to can be corrected only by a change in the statutes of the several States relating to the selection and calling of experts. The expert should be selected by the court from lists presented by the counsel, as advisory to it, and wholly with reference to his special knowledge of the question involved, which question should be submitted after the evidence is all in, in the form of one or more hypothetical questions based upon all the evidence. "Opinions on the case" should not be tolerated in any form. They are a plain invasion of the province of the court and jury. We should not, however, conclude that the trouble lies wholly with the law or the lawyer. A large part lies with us and in our faulty systems of medical education. We educate the student in medicine, surgery, bacteriology, pathology, etc., and forget the all important fact that he is to become a *citizen* of a community and that great and peculiar responsibilities resulting out of his professional duties and relations are to be laid upon him by the law. The very first case to which he may be called may involve a grave legal responsibility. It may be a case of murder or poisoning or involve a question of mental competency or responsibility. Nearly every medical college has a so-called chair of medical jurisprudence, but what does it teach? It usually repeats the mummery of some textbook of the science, merely rehearsing in a weak way what has been better taught in other departments by teachers specially qualified. The instruction is uninteresting to the student and valueless. What should be taught are the special facts of medico-legal science, not taught elsewhere, and the legal duties and responsibilities of the practitioner in his triple relation of *citizen, practitioner of medicine and expert*. In short he should be given a forecast of the legal experiences he is about to encounter in the many and varied relations upon which he is about to enter. If he practices at all he must come into contact with law in some manner. This is not a kind of practice he can choose or let alone. He should therefore be especially and carefully taught his responsibilities and duties under the law. He should be taught to know when he is placing himself in a position that will or may make him a witness, and his eyes should be opened to the things he should see and note to make him a reliable and useful witness. He should also know how to be a witness—how to prepare and demean himself, that he may not be disconcerted by the ordeal or reflect discredit upon himself and his profession. He should know that to be frankly truthful, to be calm, self contained, direct and plain in his statements, simple and non-technical in his language, avoiding pomposity and high sounding phrases is to be a good witness and that the converse is to be an ass. Being untaught in these important practical matters he goeth forth as a lamb for the slaughter. I have known a middle-aged physician filling a high position, nearly ruined professionally and an exceptionally well-educated young physician driven out of a city by the want of the knowledge of which I am speaking. That students go forth unequipped in this regard is not their fault. Twelve years of teaching both law students and medical students has

taught me that law students are always interested to know something of medical science, and medical students eager to know that part of the law which concerns them. Another cause of the disrespect of medical expert evidence is the common custom of participating both as counsel and witness in the trial. This, too, is the mistake of the lawyer. He knows better. The doctor does not. A lawyer shuns the witness stand and especially in a case in which he is counsel. It is universally conceded to be bad practice for counsel to testify and important evidence will often be sacrificed rather than violate this rule. Only in extreme cases is it countenanced. But the lawyer not only permits, but encourages the physician to do this very thing—act as a witness and sit by as counsel with the effect of impairing the confidence and respect of court, jury and public in him and in his testimony. It is a practice to be condemned in no uncertain terms. Another grave source of impairment of confidence is the fact that there is a large and growing class of medical men who pose as professional witnesses—expert swearers, so to speak. Men who are tempted by the publicity and the emoluments to frequently participate in trials as experts, even where they are not specially qualified to be experts either by learning or experience. The courts themselves are to blame for this. It is within the discretion of the court whether or not a given witness is expert in respect to the particular question involved. The adjudications are very satisfactory on this point and only need to be lived up to. The legal rule and definition of expert is "one instructed by experience." (Bouvier.) To be competent the individual must be in some way peculiarly qualified to speak on the subject. (3 Bosworths, N. Y. 7.) The fact of special skill must be established or witness rejected. (Ordronaux, 126.) A court may hear evidence to satisfy itself that a witness is really what he assumes to be before admitting him to testify. (6 Rand, 704—12 Alb. 648—1 Munn, 125.) It is often said that the medical profession is narrow, both in its scope and tendency—that the doctor gets rutted and never knows or thinks anything else than medicine and each year grows narrower. I believe this to be in the main unfounded, but in respect to knowledge of the law, which every man is presumed to know, it is true. It is not to the discredit of the lawyer that he knows many things other than the law. Why should it be to the discredit of the doctor that he knows something besides medicine? Are we not too modest in this respect? We should not forget that some of the greatest lawyers this country has produced were first doctors. The late Justice Miller, of the Supreme Court of the United States and Judge Dillon are examples. May we not do something to dissipate the idea that we of the medical profession are not to look beyond the horizon of our own calling?

DR. J. G. KUERNAN—There are two or three points with which I agree and others in which I dissent from Dr. Gapen. There is a certain class of lawyers including criminal lawyers who are exceedingly high, while others are about as low down as possible. That class of lawyers does not, as Dr. Gapen has stated, think the less of a man because he lies. I have known a specimen of that stamp denounce every doctor who appeared against him, as venal, even though he had approached every one of those doctors and attempted to retain him in his case. Furthermore, it is a growing practice among a certain liberal set of criminal

lawyers to form their theory through the aid of a physician in a given case. The physician forms a theory of a case on the facts stated by the lawyer, and the testimony agrees generally much more thoroughly with the theory so formed than with the hit-or-miss method usually employed. That was the case with the medico-legal issues arising in the Cronin matter. In that case the attorneys consulted a physician who never appeared in the case and who made up the minor theories on which the blood question and the other questions were afterwards proven, and every one of the questions drawn up by him were laid before the experts afterwards. With regard to the proposed remedies by the courts, I would say that it seems to me that the true remedy has been suggested by Dr. Gapen, namely, instruction in our colleges in the first place; that in criminal cases every circumstance tending to prove innocence must be taken into account, and furthermore everything must be construed in the light of innocence, and guilt proven beyond reasonable doubt. We find every day, physicians considering certain cases as exceptional and therefore not taking them into account, but swearing positively to a certain set of facts to which there are exceptions. On the other hand, the point should be brought out that the question is one of preponderance of evidence merely in civil cases, and instruction should be given in that line as well as in criminal cases and the distinction clearly shown. True medical jurisprudence is really not taught in our colleges, but in the place of it the Gradgrind method is used of pouring in mere facts.

THE CHAIRMAN—I think many of the reader's points are well taken; still I do not believe that some of his remedies are practical. It is a frequently made suggestion, that the trouble with reference to expert testimony and the evils connected therewith, could be overcome by making the experts the advisers of the court. The method suggested by Dr. Gapen is one; others have been suggested; but in the main they are on the same principle. It has been suggested to have official court experts. A very considerable experience in medico-legal matters leads me to believe that this plan would not work any better than the present except, perhaps, occasionally; at least, I am doubtful of it, and I believe as Dr. Kiernan has said, that probably in Europe they are finding it somewhat of a failure. It would be impossible for court experts to give opinions in an open jury trial, for or against a man, without the party accused being allowed full opportunity for expert and every other sort of defense. Otherwise, it would be taking away the rights of the individual, and simply would result after a time in most of the cases that the court expert would be submitted to the same sort of examination and cross-examination as anybody else, and with this additional difficulty in many cases that the court expert would be a political or personal or some other sort of obnoxious appointment; nor would the difficulty be removed by allowing the judges to call in in special cases a court expert. I do not see how we could get around the difficulty in this way, although it has often been suggested. I think I understood the doctor to say that opinion should not be tolerated.

DR. GAVEN—I used the expression, "opinion on the case," and I used it technically; not in the ordinary sense.

DR. KIERNAN—I understood that you meant hypothetical opinion.

DR. GAVEN—No, no.

CHAIRMAN—Do I understand you to refer to the opinion that experts are called upon to give in court?

DR. GAVEN—On that point you agree entirely with me. I do not say that an opinion should not be entertained by the expert. An opinion is entirely proper, but an "opinion on the case" in law is a technical expression; if the expert

states what his opinion is about the case, then he puts himself in the position of the jury.

CHAIRMAN—As I understand it, the expert or witness will testify as to facts that come within his knowledge, in an examination of an individual, and he gives his opinion on the facts which he has studied himself, or his medical opinion on the facts which are stated in a hypothetical question or in some other way; he gives no opinion upon responsibility, for instance, in a case of insanity. He does not assume the function of the court or the jury, but he gives an opinion upon the facts he has learned in investigation, and an opinion upon a hypothetical question; that is he gives an expert opinion upon it, and it seems to me perhaps the doctor and I are agreed upon that matter.

I fully agree with him in regard to teaching medical jurisprudence in our institutions, and I think with Dr. Kiernan that the true solution of this problem like many others must be in the advance of education, and every other method of attempted improvement in these matters seems to me will fail. As to the medical witness acting as counsel, I believe that very often properly and usefully, he acts as adviser to the attorney on the side that he happens to be retained for. As Dr. Kiernan said it is a common practice, and I do not see any objection to it, for the witness and the lawyer to go carefully over the case in order to see whether or not the witness will testify. If he finds in going over the case that he does not agree with the gentleman who wishes to call him he refuses to testify, and in the same spirit he can, if he does agree, assist in the preparation of the case. I agree with him, however, in reference to the injurious influence on the case which the appearance and particularly the manner in which a medical man sometimes appears in court assisting counsel. I have had some experience in that and I have seen others in this position. I avoid it wherever possible. Lawyers sometimes insist on being assisted in the examination of witnesses. My own experience teaches me that with the jury particularly, and I have no doubt with the judge in many cases, this often acts against the case very much, and it would be a much better plan in the vast majority of cases for the witness to have nothing to do with the counsel in court except upon the witness stand. I do not see anything morally wrong or legally improper in his giving assistance if he gives it in the proper spirit. Now as to courts excluding experts. I think it would be a very difficult matter in many cases for courts to say, and in many cases it would be very easy; but I remember only once in many trials seeing the court exclude a medical witness as not being competent to testify. That was in a case of a man in Philadelphia who certainly was incompetent and who testified in a well known case there that he had made three examinations of the person who was on trial, a woman; and the district attorney in cross-examination asked him what these three examinations were that he had made; whereupon he calmly stated that he had made a digital examination, a general examination and a speculum examination at the same time of the patient. This man was ruled out.

DR. J. E. EMERSON—I think that the doctor has stated some of the difficulties in the way of successful expert evidence but, as it seems to me, aside from the ignorance of lawyers of medicine, a great deal is due to the personal character of the witness, his inability to express in terse brief language exactly what he means, so that he says a little more or a little less than he should; and, at the same time, his fearfulness of admitting ignorance is a great drawback to him. In my observation and that of several of my friends who have been on the stand and who are well qualified as physicians to treat such cases, when they appear on the stand make very poor experts, simply from a hesitation to admit ignorance and from inability to express concisely

just what they mean. In regard to one point, of the witness acting as counsel, perhaps I misapprehend exactly the point, but it has been my observation that in many instances questions can be suggested to the lawyer by the expert witness which bring out the real merits of the case and which can not be brought out or will not be brought out in any other way. It may be said that that is not acting as counsel, but simply to suggest questions. I have a case in mind where a witness who went on the stand was asked by the opposing counsel if he was assisting counsel; he said, no, but he was requested by the lawyer to suggest questions to bring out the real merits and true facts of the case. I can recall a case where the expert suggested such questions, where the questions all hung on whether the patient was epileptic or not; whether the homicide was committed during an attack of epilepsy or not. The questions put by the medical expert through the lawyer essentially decided the whole case on its merits. As regards experts giving an opinion in the case, while I know it is a legal maxim that legal experts should not be allowed to give an opinion in a case, yet I have in mind two cases that occurred in the courts in Michigan where the judge permitted exactly that thing to be done. The question was put, "Have you heard all the testimony in this case?" Answer, "Yes." Q. "What is your opinion from this testimony as to the mental condition of this patient?" And he was allowed to answer the question. At the same time the Supreme Court of Michigan has ruled that such questions must be put in the hypothetical form.

DR. J. G. KIERNAN—I merely wish to make one statement that may avoid some little discussion in regard to a question that I raised. It is a matter of record that the French Psychological Association came within three votes of urging the adoption of the Anglo-Saxon expert system in France and the same is true of the German Psychiatric Association, although by not quite so close a vote. We find decisions of courts varying as to what constitutes an expert, and we find also that various tests are applied by different courts in varying conditions and that frequently opposite results are met with.

DR. WILLIAM THOMAS BISHOP—One phase of the medical witness which has not been brought out is of great importance. As a general thing the expert would take care of himself, if medical jurisprudence were taught more fully and in a better manner than at present. For instance, in the case of an accident on a railroad, if the physician knew just exactly how to make the examination and how to get the information when he first saw the patient, that would be a matter of the most vital importance in cases of injury which may result in death; also in cases of alteration, of abortion, etc., if physicians were educated up to getting what would be legal testimony, that would be worth a great deal. But there is one misfortune about the medical witness and that is he often puts himself out of the way to get on the witness stand; he thinks it a smart thing to put himself on exhibition. Another smart thing that he often does is to put himself in a position to antagonize some other practitioner. I have seen a good deal of that. My father was a criminal lawyer and I was raised in his office; he wanted me to be a lawyer, but I did not care for it, yet I have had some chance to judge of that matter, and one of the great troubles is that these experts get on the witness stand and do not for a moment admit that they are mere citizens the same as other witnesses, but want to claim privileges; here they make a great mistake; they are imprudent and indiscreet in their replies to counsel on one side or the other. Another thing is, they undertake to explain the lawyer's questions instead of making the lawyer explain the questions himself; undertake to answer two questions with one answer and they make a mistake; but in regard to

experts, the principle that applies to medical men, civil engineers and everything else is so broad that we can not interfere with it; that is that the judge is the one who determines as to the qualification and the capacity of a person to testify on a hypothetical state of facts; there is almost a general rule to this effect; and all questions that you are asked as an expert must be asked and answered on a hypothetical basis, not as a matter of fact. That runs all through the law; but if the doctors were a little more careful in giving a well protected answer instead of a broad and vulnerable one, stating that such a thing is utterly impossible and all that sort of thing, they would not get themselves in half as much trouble as they do.

The expert who gives the lawyers advice outside of the court room and who assists in the preparation of the case is all right, but sometimes he is decidedly offensive. You will see him crawling all over counsel on the other side, and he discounts his usefulness before the jury and before the court. He certainly is simply committing professional suicide. I think that if the legal position that the medical man occupies in the court is recognized as no different from that of any witness, if that were impressed upon the medical profession more fully, it would save the medical expert from a hundred indiscretions. All he has got to do when he sees that the lawyer is embarrassed for him on a certain point, is to switch off on another line. That will break the lawyer up.

DR. CLARK GAYEN—I notice that I have used unconsciously legal terms that are misunderstood by us as medical men, and I think an explanation of these terms will perhaps remove the necessity for some of the criticisms that have been offered. For instance, I used the term "witness as counsel." I do not mean by that that the witness shall not consult freely and advise freely with counsel in respect to the case; but when I say "witness as counsel," I mean counsel in the court room. The law does not understand anything else in speaking of counsel, except as counsel in the case in the court room. You will constantly see medical experts and medical men sitting by lawyers and advising them, and virtually acting as counsel. The lawyer is a mere parrot repeating the words the doctor has put into his mouth, and that is what I object to. There should be the freest consultation, and the freest advisory relation between the expert and lawyer before the case and during the case for that matter, but there is no better way for a lawyer to commit professional suicide than to have the medical expert sit by actually as counsel in the case.

In respect to the term, "opinion on the case," that is a legal phrase and has a very distinct meaning in the law. A lawyer would not hesitate on that a moment. An opinion is a very different thing from an "opinion on the case." Dr. Emerson has very well illustrated that. You can ask a medical man, stating the evidence that has been adduced, Do you think such symptoms as these indicate insanity? What is your opinion as to the mental condition of an individual who presents these symptoms, enumerating all the symptoms that have been presented; now you give your opinion with regard to that. There is no objection, whatever, to giving an opinion in that case. But when you say, Have you heard the evidence in this case, and what is your opinion as to whether the prisoner is sane or insane? That is just exactly what the court and jury are there for to determine, and every supreme court has reversed cases where questions like that have been asked instead of the proper hypothetical ones. It is a direct invasion of the province of the jury. It may be a little unusual to medical minds to make the discrimination, but there is from a legal point of view the widest discrimination between giving an opinion on that identical case and giving an expert opinion relative to the facts involved in that case.

Now with reference to the calling of experts, I would not do away with the English system at all, but I think that experts should be called something in this way: each side should hand in a list of experts that he wishes called and the court should select an equal number from that list after hearing evidence, if necessary, with regard to the qualifications of any of the men on the list. The court can, as it were, stop the proceedings and make a side issue of it as to whether this physician is expert with reference to the particular question, and the court should do so. I think the greatest trouble that arises is in bringing in men who know nothing about the particular subject involved and opposing them to men who are learned. Why the jury is very likely to conclude that the ignorant man knows the most, because the learned man makes discriminations which are absolutely incomprehensible to them. The test should always be experience, and that test is recognized by the law.

PUERPERAL HEMORRHAGE.

Read in the Section of Obstetrics and Diseases of Women, at the Forty-fourth Annual Meeting of the American Medical Association.

BY JAS. P. KERR,
PITTSBURGH, PA.

The subject which I have the honor of bringing before you is one which demands as much consideration as any in the whole category of medicine or surgery, because it is one of the most frequent complications of labor, and if the means and remedies are not applied and administered speedily and effectually, death is sure to ensue.

It is most apt to come on at a time when least expected, and if not properly treated to be rapidly fatal. Practitioners in general are too apt to consider all cases of labor normal, and not make any preparations for this accident, which is likely to occur at any time; so it is our duty to impress upon them the necessity of careful preparation and of a thorough study of each individual case. Obtain, if possible, the patient's family history, discover whether she is, or is not, of a family of bleeders, and how much blood she has lost during her regular menstrual periods. If a multipara, ascertain whether she has had hemorrhage at her previous confinements; how many children she has borne, and the length of time between each conception. I am aware of the fact, gentlemen, that in a country so cosmopolitan as ours, the general practitioner (who is usually called upon to fight these battles single-handed in the dead hours of the night, when assistance is far away) occasionally does not have an opportunity to see his patient until summoned to her "lying-in" bedside, consequently we oftentimes know nothing of our cases until brought face to face with them.

There is no class of cases which require more prompt action, cool and wise judgment, than that of puerperal hemorrhage. The golden rule of surgery must be obeyed to the letter, that is—"do not let your patient bleed to death;" and to prevent that requires, first, a preparation for it; and second, a prompt application of the means and remedies which you have provided. Picture a case of puerperal hemorrhage. The obstetrician is called; finds the mother on her "lying-in-bed" suffering the effects of an effluence; her heart is buoyed up by hopes and expectations that her agonies will soon be over, and that she will soon press to her bosom a living issue.

Her woe!—such hopes and expectations can only

be experienced by a woman on the "lying-in-bed." Finally the child is delivered, the mother is happy and her friends are rejoicing; when suddenly without a sign of warning the life-giving fluid begins to flow away in torrents, we hear the death-like gurgle, we see the bleached and anxious expression and the purple lips; we feel the clammy and velvety condition of the skin which always supervenes a great loss of blood. Our patient is pulseless, very restless, pupils dilated, and to all appearances the "King of Terrors" is about to invade this home,—and instead of joy and pleasure, we will have tears and sorrowing. This woman, who has children dependent upon her, who are dear to her, and to whom she is dear, is cut down in the full vigor of womanhood without one moment's notice. The time to act is at hand; we have no time to call a consulting physician; we must act promptly to save the life of this mother and wife.

Then do you wonder that we insist so much upon a thorough knowledge of this subject, when a patient's life is thrown in the balance so suddenly, and nothing can save her except the prompt and skillful action of her attending physician who, to act, must have a thorough knowledge of the subject and be able to meet all emergencies? To be able to remove the cause and to apply the means and remedies which will put a new life in that prostrate form, and restore the wife to her husband, the mother to her children, and bring joy and happiness back to that household is characteristic of a true trustworthy physician.

The skillful and experienced obstetrician who considers the responsibility which devolves upon him, the implicit confidence placed in him by his patient and her friends, has in consideration all the complications which may befall her during her parturition; he also considers by what means he is to successfully combat these complications, should they arise, to save the life of his patient.

The necessity of strict asepsis is apparent to every one in the lying-in chamber. Always hope for a speedy termination with happy results, but be prepared for any emergency which may arise; who can tell when, after the delivery of the child, he may be compelled to introduce his hand into the uterus to control a fatal hemorrhage, and would it not be criminal, with our knowledge of asepsis, to carry septic material into that uterus, and endanger the life of our patient? It only requires a few minutes to render your hands, at least, practically aseptic.

We believe if there was more attention given to aseptic midwifery, the mortality would be much lower. This brings us to the consideration of a class of cases which we encounter occasionally during the walks of obstetric practice, which strike the heart of the accoucheur with alarm, because of the gravity of these cases in the hands of the most skillful obstetrician. I refer to accidental hemorrhage. This accident is caused by the premature detachment of a normally situated placenta, which may be either partial or complete. It may occur at any time during pregnancy, but rarely until the later months; often not until labor has commenced. When the blood makes its way between the decidua and the membranes appearing per vaginam, we then have a typical case of accidental hemorrhage, but the blood may be retained in the uterus, constituting internal or concealed hemorrhage. In concealed hemorrhage

the blood collects either in the cavity formed by the central detachment of the placenta or between the uterine wall and the membranes, or in the amniotic cavity, or free in the uterus, but retained by a completely obstructing presenting part. Accidental hemorrhage is comparatively rare, especially the grave form. The detachment of the placenta causing this complication is most frequently due to an injury, such as a blow on the abdomen, or a fall. Emotion or over-exertion may start a separation of the placenta. If that imperceptible uterine action that goes on just before labor sets in should be unusually violent it may cause a small vessel of the placenta to yield, and the effusion which would be the result would act as a foreign body and excite further uterine action, and a partial or complete separation of the placenta would be the legitimate result. It may also be the result of some of the general diseases, such as typhoid fever, variola and scarlet fever, or of some of the local diseases, such as albuminuria, acute yellow atrophy of the liver, also degeneration, and disease of the placenta itself. It is generally met with in women who have borne many children, and in rapid succession, and in those who are suffering from anemia or impaired health from any cause. It is rarely if ever met with in the primipara. I had the misfortune to see a woman die from this accident a few years ago. I have stood by the bedside of many poor individuals, in all conditions and circumstances of life, and watched the last spark of life expire, but I have never had an experience so sad as this one. If there is anything that will strike the responsive chord in the heart of man and set the strings of sympathy in tune, it is to stand by the bedside of a dying mother and see the human life ebbing away. Mrs. L., 37 years of age, the mother of six children, who was expecting to be confined at any time; a woman of good family history; she had not had any complications during her previous confinements; never had an abortion or miscarriage; a woman of fine physique, but whom I had never seen until summoned to her dying bedside. On the morning of the accident she arose at the usual time, and expressed herself as feeling as well as she had at any time during her pregnancy. I presume she had albuminuria, from the condition of her feet and limbs, and from the symptoms which I elicited from her husband. I was called about 11.30 A.M. She had not had any pain; had not received an injury; the uterus was not greatly distended. The accident was apparently without any cause except the possible albuminuria, and came on without any warning. There was a sudden gush of blood which rendered the woman pulseless; in fact when I arrived she was completely collapsed and still bleeding. I immediately lowered the head of the bed, injected ergot, brandy and ammonia hypodermically. I tried to excite uterine contractions by external manipulations of the uterus which was soft and flabby. Made an examination, found the os dilated, soft and patulous, so I delivered by podalic version, which was accomplished without any difficulty; carried ice into the uterus, vinegar, turpentine and hot water; continued my external manipulations but could not stimulate permanent contractions and retractions of the uterus. Hemorrhage went on, and the woman died in about fifteen minutes after delivery. The placenta came away with the child, and from the coagula which had formed

upon it I should think it had been wholly detached. Hemorrhage was so severe in this case from the beginning, that death was unavoidable. It was just about an hour from the time hemorrhage began until the woman was a corpse.

Open hemorrhage is recognized without any difficulty, as the appearance of the blood is sufficient and makes the diagnosis. Concealed hemorrhage is more difficult to diagnose. The symptoms are obscure. Pain is usually present, and severe in character. Associated with it are the symptoms of acute anemia, and in severe cases even collapse, without any apparent cause. The uterus is usually greatly distended. Labor pains diminish or cease entirely. This accident may be confounded with rupture of the uterus. In rupture the uterus is smaller, and the fratus may be felt in the abdominal cavity through the thin belly wall. The presenting part recedes, if it is not wedged in the pelvis. The rent may also be felt and sometimes prolapsed intestines.

Placenta previa is one of the causes of hemorrhage, but as it is a subject itself it would require too much time to discuss it in this paper. Hemorrhage during or after the third stage of labor may be either primary or secondary. If it occurs during or within twenty-four hours after the third stage of labor it is primary. If at any time during the puerperal period thereafter, secondary. It may come on immediately after the birth of the child, and before the expulsion of the placenta, or it may follow the delivery of the placenta. Any circumstance, whether functional inactivity, organic defect, emotional disturbance or mechanical obstruction to a firm closure of the uterus, acts as a cause and invites hemorrhage. The anatomical relation of the muscular fiber of the uterus to its vascular system is such that during tonic contractions and retractions of the uterus, the muscular fiber acts as a ligature to the arteries and sinuses which ramify its walls, and hemorrhage is impossible. It is very important, in fact absolutely necessary, to be familiar with the cause or causes of this accident, because intelligent and skillful treatment is based upon the cause, and a successful termination of the case will depend upon one's ability to early recognize the cause and remove it. Functional inactivity or uterine inertia, bears a casual relation to this complication. The predisposing causes of uterine inertia are, hydramnios, twin pregnancies, constitutional weakness produced by some of the wasting diseases, insufficient food or bad hygienic environments, exhaustion from prolonged labor—any cause that so affects the constituents of the blood as to prevent the formation of thrombi, predisposes to hemorrhage; also, hemorrhagic diathesis, rapid delivery and the employment of anaesthetics during parturition. Hemorrhage during and after the third stage of labor is often caused by the retention within the uterus of the placenta, or parts of the placenta. I do not think any obstetrician of to-day, skilled in the practice of his profession, with the gift from God of good common sense, would dare to leave the placenta as a whole in the uterus, although this practice at one time had its advocates; but it is not rare for parts of the placenta to be retained.

The formation and retention of blood clots may also cause hemorrhage. This is generally due to uterine relaxation, uterine displacements or the retention of some small pieces of the placenta around which the clot formed, which may be either the

result of too forcible or premature efforts at expression or extraction; or abnormal placental adhesions, or some abnormality of the placenta, multiloba succenturia, etc.; lacerations of the cervix uteri, which may extend so far as to sever the circular artery. Lacerations of the vagina, or of the perineum, or extreme soft parts, are sometimes the source of serious hemorrhage after firm contractions and retractions of the uterus, and a careful examination will reveal the true cause of the hemorrhage. These lacerations should be repaired at once, so it is necessary for an obstetrician to be a surgeon as well. Many previously healthy women are made invalids by not receiving proper attention from the attending physician.

Repair these lacerations immediately, and prevent the suffering which often accompanies them. Fibroid tumors sometimes cause hemorrhage by preventing firm contractions and retractions of the uterus. Varicose veins in and about the vulva are sometimes the source of hemorrhage. Carcinoma, either of the body of the uterus or cervix, may cause hemorrhage. Retarded involution, which is often due to some of the displacements, such as retroflexion, is the most frequent cause of secondary hemorrhage, although all the conditions which cause primary hemorrhage also cause secondary hemorrhage. We are glad to say that severe postpartum hemorrhage is generally a preventable accident by a skillful management of the third stage of labor. If every case were treated as a case of itself, and as though hemorrhage was impending, there would be very few accidents of this kind. The attention should be directed to securing tonic contractions and retractions of the uterus as a prophylactic. This is done by carefully following the uterus down with the hand when the child is expelled, also by making pressure over the fundus, and by external manipulations. If the uterus is soft and flabby, give some of the preparations of ergot, *prof. ergotin*, by hypodermic injection. Misraichi claims that caffeine acts more readily than ergotin, especially if the patient has lost much blood.

If the patients are known to be bleeders, or to have had hemorrhage during previous confinements, they should be prepared for their parturition several weeks before it is expected to come on.

Dr. John M. Duff of Pittsburgh, is in the habit of giving such patients strychnia. He begins six weeks or two months before the expected time; administering $\frac{1}{16}$ to $\frac{1}{32}$ grains of the sulphate three times a day. Considering the physiological action of strychnia, we think this treatment rational and scientific. Bossi considers *hydrastis canadensis* a very useful remedy in the treatment of hemorrhage both during pregnancy and during and after parturition. He administers it to patients with a predisposition to flooding, and claims excellent results. In the treatment of accidental hemorrhage, we must strive to control the hemorrhage and also sustain the patient. If the os is dilated, it is good practice to deliver as soon as possible; if it is not, use the Barnes' dilators and proceed to deliver. Murray advocates plugging the vagina where the os is undilated. I do not think this good practice, because it will not prevent the hemorrhage, but will only prevent its escape from the vagina, and the woman may literally bleed to death in her own womb. When the uterus is empty, we have more control over it; it may then be packed

with iodoform gauze, as recommended by Dührssen. Hot water injected into the uterus acts very kindly sometimes. Ice introduced into the uterus, and turpentine or vinegar, often give very satisfactory results. If these fail we may resort to the application of styptics. Ergot should be administered either hypodermically or by the mouth. The patient must be sustained, so we resort to stimulants. Brandy, ammonia, ether, etc., should be administered hypodermically and by the mouth. Warmth should be applied. The patient's head should be lowered and if necessary the extremities may be bandaged from the distal end up. A successful termination of the case will depend on our ability to control the hemorrhage, and the recuperative powers of the woman. This treatment also applies to severe postpartum hemorrhage. If the hemorrhage after labor is due to retention within the organ of portions of the placenta or clots of blood, they should be removed at once.

Dierska's method of controlling postpartum hemorrhage is to press the fundus firmly with one hand, with the other remove all clots, and then introduce into the uterus and upper part of the vagina two or three small pieces of ice. The ice is left in place for a few minutes, and pressure kept up for a quarter of an hour longer. He believes this method to be extremely efficacious.

Kochs recommends a mode of treatment of postpartum hemorrhage, which is at least novel; that is to invert the uterus, and put an india rubber band around the neck of the inverted organ; after six hours the band is removed and the uterus replaced. If hemorrhage is due to a laceration of the cervix which severs the circular artery, the artery should be ligated and the laceration repaired; lacerations of the vagina, perineum and soft parts should be repaired if possible. Fibroid tumors, if they assume the shape of an intra-uterine polypus, should be removed by scissors, after ligation of their base. If they can not be removed, administer ergot, quinia, and apply the faradic current daily. When hemorrhage is due to carcinoma, plugging the vagina is good treatment. If the patient is suffering greatly from anemia, we can resort to transfusion of blood, or, which is just as beneficial, a 3 per cent. solution of common salt.

Dr. T. RIDGEWAY BARKER of Philadelphia, took exception to the plan of treatment suggested for the control of puerperal hemorrhage. He was a firm believer in the methods mentioned a few years ago, until he had a severe case of postpartum hemorrhage which terminated in the death of the patient. He had learned from experience in this case that ice, hot water and ergot were entirely inefficient, and their use led to a waste of precious time. He recommends a tampon of antiseptic gauze. In slight hemorrhage the measures first mentioned would effect control. He thought the number of cases seen by the practitioner were in inverse ratio to his experience in midwifery.

Dr. E. P. Davis of Philadelphia, said if the uterus is held in one hand and tamponed with the other it is a physical impossibility for serious hemorrhage to occur. This is a comparatively modern procedure. In England they were again discussing compression of the abdominal aorta.

Dr. MORRIS of Wisconsin, had saved a case twenty years ago by compressing the abdominal aorta with the hand in the uterus, reinforced part of the time by the other hand pressing upon the uterus from without. Other cases were seen by him, and treated successfully in the same manner.

DR. WILLIAM L. BUECHNER of Youngstown, Ohio, finds that he is able to control cases of postpartum hemorrhage with hot water. Formerly he resorted to cold water and ergot with unsatisfactory results. Ergot judiciously administered in the second stage of labor controls hemorrhage, and he finds if he does not give it that clots form, and that later these clots give way and hemorrhage takes place.

DR. E. E. MONTGOMERY of Philadelphia, emphasized the advantage of using strychnia, not only prior to the delivery of women who are disposed to bleed, but subsequent to it with a view to arresting hemorrhage, to awaken the nerve centers and prevent the collapse that takes place by the loss of blood. He said we have no drug at the present day so effective in its influence upon the heart's action and muscular coats of the vessels as that of strychnia. He doubts the practical value of compression of the abdominal aorta, especially with the hand in the uterus, as part of the blood supply comes from the ovarian arteries, which arise high on the aorta.

DR. GILES S. MITCHELL of Cincinnati, Ohio, laid stress upon the importance of prophylaxis of postpartum hemorrhage. He believes that almost every case of postpartum hemorrhage can be prevented if the accoucheur pays proper attention to the third stage of labor. He has had a tolerably large obstetric practice, and does not remember of ever seeing a case of postpartum hemorrhage. He has seen one case of accidental hemorrhage from the premature detachment of the normally implanted placenta. Fortunately the patient recovered.

THE ROUTINE PRACTICE OF ADMINISTERING ERGOT AFTER THE THIRD STAGE OF LABOR.

Read before the Section of Obstetrics and Diseases of Women, at the Forty-fourth Annual Meeting of the American Medical Association.

BY T. RIDGWAY BARKER, M.D.
PHILADELPHIA, PA.

While the routine administration of any drug, one must admit, can scarcely be considered an indication of the highest degree of scientific knowledge yet, as the practice of medicine is not, and never can become, an exact science, since the personal equation always contains an unknown quantity, *vital assistance*, I think we may, without violation of current practice, adopt with advantage such a procedure.

The old and apt proverb that an ounce of prevention is worth a pound of cure applies so forcibly to the employment of ergot after the termination of labor, in order to secure firm uterine muscular contractions and render them tonic, that this course would seem to be not only justifiable but actually indicated.

Were it possible to prognosticate with any measure of certainty that Mrs. A. will suffer from uterine inertia with resultant hemorrhage, while Mrs. B. will not, then the opponents of this method would have some grounds on which to base their antagonism; but unfortunately for them, this foretelling the course of events has no foundation in fact and rests largely upon assumption, often not even reinforced by experience.

I think I may declare, without fear of contradiction, that the occurrence of postpartum hemorrhage is due principally to a lack of correlation between uterine muscular contraction and coagulability of the blood; and while the latter, as I pointed out in a pa-

per read before the Philadelphia Obstetrical Society in February, 1893, can readily be ascertained by noticing the tendency to clot formation by the blood escaping from the birth canal during the early stages of parturition, the other factor, (muscular contraction), must remain in doubt, since uterine exhaustion is liable to occur when least expected. The realization of the above facts is absolutely necessary in order that one may follow out the arguments and results offered for consideration.

Those who take exception to the routine practice of administering ergot, do not hesitate to say that it is suitable in most, if not all, cases of threatened postpartum hemorrhage, or where the uterus fails to contract promptly after the completion of the third stage of labor.

This is undoubtedly sound reasoning, so far as it goes, but those on the affirmative side of the question say that it is not far enough.

As I have endeavored to show, one can not tell when uterine inertia will occur; it may be within five minutes of the delivery of the fetus or it may be five hours. Therefore, under such circumstances it is necessary in order to avoid this dangerous complication, that one resort to precautionary measures in every case. 'Tis true, every woman who is confined, if properly attended does not suffer from postpartum hemorrhage, nor does the woman who is so afflicted necessarily die from its effects, yet it is too great a risk to run when nothing is to be gained thereby but rather a loss sustained, as I shall strive to prove.

It has been said by some, who have given this method of administration a trial, that it "is neither necessary, expedient or devoid of danger." Further objection is offered that its routine use is liable to increase the parturient's discomfort by subjecting her to more severe and frequently recurring after pains.

This is, in a measure, in accord with my observations, but I look upon after pains as synonymous with uterine contractions and while for the first few hours the discomfort, as alluded to, is somewhat increased, I hold that this is more than balanced by the advantages which accrue from the immediate expulsion of all clots and debris from the uterine cavity, the more perfect and permanent closure of the uterine sinuses and the reduction in size of the placental site. It is further claimed that there is danger in its administration from the fact that it may convert a simple hemorrhage into a concealed one and thereby increase the risk of sepsis. Now just how it is possible for ergot to be guilty of such a thing I fail to comprehend.

If the statement is based on the assumption that the drug is capable of causing complete stenosis of the cervical canal, I would ask for proof of a single case where such a condition could be so ascribed.

In the first place, the effect of ergot is expended upon the whole layer of circular muscular fibers of the uterus, and not solely upon those in the immediate vicinity of the cervix.

Besides the stimulating influence is not limited even to this layer but causes the longitudinal fibers, though to a less degree, to contract also. Some have asserted that they noticed a rise in temperature follow the routine employment of this medicine.

Such, however, has not been my experience; on the contrary, I have found the reverse to be the case, which I credit, not to any antipyretic effect inherent in the

medicament, but to the more perfect retraction and depletion of the uterine vessels.

That there exists great diversity of susceptibility to the action of ergot none will deny, but the variability would appear to be due in no slight degree to the strength of the preparation, and the time and method of administration.

The above are some of the more general objections offered in evidence against this practice and yet, I can not but think they are more imaginary than real, since the routine method is being so generally adopted by some of the greatest clinicians and teachers in this country and Europe.

Bussey of Washington, D. C., writing on the conduct of labor in "Hirst's System of Obstetrics," says: "The routine administration of ergot at this stage of labor (after delivery of the placenta) is approved and practiced by many, if not a majority, of the most experienced and successful obstetricians, because it secures firm and persistent contraction of the uterus, lessens the danger of postpartum hemorrhage, protects in some measure the patient from septic complications, and promotes involution, whilst the dangers, if any, of producing hour-glass contraction of the uterus are too remote for consideration."

I therefore feel emboldened, when supported by such an authority and the results of my own personal experience, to declare myself in favor of this routine method, since by such means hemorrhage and its accompanying dangers are wellnigh impossible. By the employment of ergot, in suitable doses, we place a trusty servant on guard to watch the uterus and see that it performs its duty, and should it be unequal to the task imposed upon it then this agent is at hand ready to lend assistance.

Through its activity the uterus is reduced in size thereby lessening its encroachment upon the contents of the true and false pelvis. Moreover, we can not fail to realize that by the closer crowding together and more perfect rearrangement of the muscular fibers the sinuses are practically obliterated, the thrombi smaller and the congestion of the organ relieved.

Were the beneficial effects of ergot limited to the reduction in size of the placental site alone, it might well be considered a boon, for of all points within the cavity of the uterus this is the most vulnerable for the entrance of septic material since it is devoid of a protecting layer of epithelium.

In this respect differing from the other portions of the cavity which recent researches go to prove is lined by an embryonic layer of epithelium which, while not attaining its full development until some weeks after separation of the decidua, yet serves a useful purpose as a protective against the entrance of pathogenic organisms.

Accepting and appreciating this fact, one can not fail to realize the importance of reducing this denuded area to the minimum. Though, as has been stated, the immediate discomfort of the parturient may be somewhat increased for a few hours, yet the subsequent annoyance from after pains is avoided, since the uterine cavity on the completion of labor is freed of all clots and debris which by their presence tend to excite muscular contractions.

As to the danger attending the routine administration of ergot, I can not but think it is largely visionary, at least I have yet to meet with a single case, though practicing this method for over two years, in

which, in appropriate doses it has been productive of baneful effects, nor so far as I know, has any proof to the contrary been presented.

Some of my opponents may claim that it is bad practice to interfere with nature when she is doing her work properly, and at first it would seem so, but when we consider that it is not *interference* but *assistance* that we render, the whole aspect of the case changes, and what appeared to be meddlesome midwifery proves really to be a judicious application of a scientific agent in the furtherance of a physiological process.

The method of administration has, I believe, more to do with the rate of absorption and the degree of activity than is generally supposed. Though at first I prescribed ergot in the form of fluid extract by the mouth in half drachm to drachm doses, I have of late discarded it, preferring one-quarter of a grain tablet triturates of ergotin, since their ingestion is free from the bad taste and stomachic irritation which always accompanies the fluid preparations.

With regard to the hypodermic administration of ergot, I would say, that I have employed it in a considerable number of cases and found it to act promptly and efficiently, yet as the needle gives pain and its use is often objected to by the patient, without offering any additional benefit, I now but rarely have occasion to resort to the subcutaneous method.

Where one has, however, to deal with a patient in a state of extreme exhaustion or collapse associated with or due to hemorrhage, this agent can not be relied upon since for its activity is required a more or less responsive nervous system. This fact must be borne in mind, lest one postpone other and more efficient artificial measures for the control of hemorrhage until too late, when the rescue of the parturient becomes impossible.

As to the oft discussed and disputed point that ergot assists and hastens involution, I wish to place myself on the affirmative side, believing as I must from clinical experience that it does facilitate fatty degeneration of the uterine muscular fibrillæ through its indirect influence upon the uterine blood vessels.

It has been stated by my opponents that in the routine practice of administering ergot one can not know how large a dose to prescribe; my rule has been to order one-quarter grain of ergotin in tablet triturate form, to be taken immediately after delivery of the placenta, and this dose to be doubled and repeated every half hour for the control of any excessive bleeding.

In this way, I believe I have avoided the ingestion of any amount of the drug in excess of actual requirements. The dose I am in the habit of employing may be said to be very minute, but I care not for its minuteness if it only does what is demanded of it.

The object desired is not to drive nature to her work but to assist her should she fail. One may very properly ask, how do you know that a dose of the size mentioned does benefit the parturient or even stimulate uterine contractions? To which I would reply, from the fact that shortly after its administration, uterine contractions are more frequent, lasting and complete, and by the prompt expulsion of all debris.

In recommending the routine employment of this cathartic it is not to be supposed that other measures are to be overlooked or neglected for the prevention of postpartum hemorrhage; just as much

care should be exercised during every stage of labor as under other circumstances. The administration of ergot is not intended to correct and and injudicious midwifery practice, but to aid and facilitate in the perfect restoration of the parturient to a physiological non-pregnant condition.

To summarize, then, the advantages derived from the routine employment of ergot after labor, one I think, is justified in stating that, first, it insures the woman against possible uterine relaxation; second, it causes a reduction in the size of the uterus, which consequently encroaches less upon the pelvic viscera; third, the vessels in the uterine muscular walls are depleted and the force of the blood current reduced; fourth, it secures permanent closure of the uterine sinuses and allows the formation of firm clots at the mouths of the lacerated vessels; fifth, it reduces the area of the denuded placental site thereby lessening the danger of the entrance of septic matter into the circulation; sixth, it markedly diminishes the size of the uterine cavity with the resultant expulsion of all debris; seventh, it shortens the duration of after pains and renders the occurrence of fermentative changes within the cavity impossible; eighth, it hastens and facilitates the physiological processes incident to involution; ninth, the tablet triturate form of administration is to be preferred since it is rarely attended with nausea or vomiting; tenth, that it never does any harm in suitable doses and is always productive of good.

Quite the contrary, I believe to be the case, and have so placed myself on record, when ergot is prescribed during any of the three stages of labor. It is then a dangerous remedy and one likely to do far greater injury than any fancied good.

For the above valid reasons I have adopted the routine practice of administering ergot after the third stage of labor and would recommend the same to those engaged in obstetric work as a valuable conservative measure.

DR. JOSEPH EASTMAN of Indianapolis, Ind., said we must not forget that it is the law of all organs in the human body to have a period of life and a period of rest. He objects to the routine use of ergot, because it substitutes tonic (unnatural for clonic (natural) uterine contractions. He is confident that he has seen cases of subinvolution of the uterus produced by the too persistent use of ergot. He has seen cases where strychnia replaced ergot without interference with the normal clonic contractions of the uterus. He has on previous occasions said, when speaking of the prevention of subinvolution of the uterus, that the use of ergot should be restricted to the third stage of labor. He has gone even further and said that its use should be restricted to the satchel and not used at all, but this he thought was too extreme.

DR. J. A. MURPHY of Wilkesbarre, Pa., finds that in cases where ergot fails to secure uterine contraction, mistletoe acts well.

DR. JOHN M. DUFF (the chairman) of Pittsburg, Pa., said he read a paper on the same subject last year in which he took an opposite view and argued against the routine use of ergot. He thinks the routine practice of administering ergot after the third stage of labor is unscientific. He administers it where he thinks it is indicated, and the obstetrician who is scientific and careful in his work will nearly always be able to tell in what cases it is indicated. Those who have not tried strychnia in connection with cases in which they are afraid of hemorrhage, or in which there are severe after pains, will be agreeably surprised with the bene-

ficial effects of strychnia. (See *Am. Jour. Obstet.*, 1892, p. 100.)

DR. C. S. BAYNE of Chicago, Ill., said he had observed the practice of administering ergot. In several patients who were nursed children he finds that its use has a perceptible effect in drying of the milk secretion, and his attention was called to the possible effect of it in the same way given immediately after labor. An other objection was the uncertainty of its preparation.

DR. BAUKER, Indianapolis, said he had no doubt that if ergot were administered immediately after labor in the manner spoken of, large doses, it would give rise to the conditions named.

THE ABUSE OF EMMET'S OPERATION FOR LACERATION OF THE CERVIX.

Read at the Session on Obstetrics and Diseases of Women at the Forty-fourth Annual Meeting of the American Medical Association.

BY E. C. PUBLEY, M.D.

CHICAGO.

Emmet first operated for laceration of the cervix uteri in 1862. His published statement on the operation appeared in 1869. He published an elaborate paper on the subject in 1874, and another in 1877.¹ These papers were the outcome of many years' practical observation, not only of the operation itself, but of its relation to numerous pathological conditions, some of which the operation might cure, and others of which the abuse of the operation might cause.

The original literature was characterized by conservatism, by completeness, by deliberation; it warranted, and subsequent results have justified, the prophecy of Marion Sims, who said: "We can't modify the operation; we can't change it; we can't improve, for it is perfect; perfect in its method, and perfect in its results. Like all new operations it is likely to be abused, but the time will soon come when it will assume its place in the foremost rank of useful improvements." Notwithstanding the clearness with which the indications and contra indications, and the technique were defined, the operation, although no longer new, is often so badly executed as to be followed by most disappointing and sometimes by injurious results.

We pass by with simple mention the abuse of the operation in cases unsuited to it, including those in which the laceration is slight, and not associated with uterine catarrh, cervical cystic degeneration, cervical erosion, cervical eversion. We also exclude a large class of unfortunate cases, in which trachelorrhaphy is too often performed regardless of other and more important lesions, especially lesion of the uterine appendages and other peri-uterine structures.

The present discussion is confined to those failures following trachelorrhaphy, which are consequent upon faults connected with the execution of the operation itself; faults which often necessitate even the splitting apart of the united flaps, and doing the operation over again.

The most common faults in the execution of trachelorrhaphy may be indicated as follows: The operation may fail or do harm.

1. Because the operator has disregarded the presence of endometritis.
2. Because the os externum has been closed so

¹ *American Journal of Obstetrics*, Nov., 1874.

² *American Practitioner*, January, 1877.

tightly as to obstruct the free outflow of uterine secretions and menstrual fluid.

3. Because the cicatricial plugs in the angles of the laceration have not been removed.

4. Because diseased cervical glands have been rolled into the cervical canal where they find expression either in the form of cervical catarrh, or of retention cysts.

Endometritis, which complicates so many cervical lacerations may pertain specially to the vascular structures or to the glandular elements of the uterine mucosa, and may consequently give rise to menstrual disorders or to uterine catarrh or to both. Among menstrual disorders menorrhagia is most common. Granular endometritis furnishes a positive indication for forcible dilatation, curettement, irrigation, and the application of strong carbolic acid and iodine, all of which should immediately precede closure of the cervix, except in aggravated cases when the curettement should be followed by thorough and repeated uterine tamponade of gauze after the method popularized by Dr. Polk. This tamponade would postpone the suturing until after the cure of the endometritis. Undoubtedly all this may be successfully done after the trachelorrhaphy, and in exceptional cases such a course might be wise, but it would reverse the more natural order of things.

First, cure the catarrh, then close the cervix to clinch the cure. But why close the cervix at all, if the catarrh is cured? It is a principle in physiology that if irritation be applied to the outlet of a duct leading from a glandular system, the secretion of the glands will thereby become exaggerated and may become pathological, hence the closure of the cervix is now indicated, because it removes such a source of irritation. Since following this line of practice my results have so much improved that I now hesitate to close the cervix without at least an exploratory curettement which often brings away a surprising amount either of granulation or of other material having a similar appearance, whose presence had not been suspected.

The evil consequences of closing the os externum to such an extent as to obstruct the free drainage of uterine secretions and menstrual fluid, are familiar to all observers. The pathological anatomy observed after such operation is the natural outcome of the stenosis which is often so extreme as to exclude the finest probe, and sometime amounts to total atresia. The secretions accumulate, distend the uterus, and sometimes even the Fallopian tubes; the secretions become decomposed, induce endometritis, metritis, salpingitis. These inflammations may even extend still further with most disastrous results, or may only keep up such a chronic irritation and congestion in the pelvis, as often to reduce the victim to a state of helpless invalidism. The rapid and complete relief which often follows the restoration of the normal caliber of the cervical canal and os externum, proves that the uterine canal is a natural drainage tube, the integrity of which is essential to health. In such cases, however, dilatation, curettement and uterine tamponade, or some other method may be further indicated, to overcome the endometritis, as induced by the long retention of irritating secretions. The simple enlargement of the os externum, however, by incision is not permanent in its effect, because the structures involved are cicatricial,

and therefore prone to recontract. A plastic operation, by which mucous membrane is made to cover the cut surfaces is imperative. Schroeder's operation fulfills the indication perfectly.

We may omit any extended consideration of Emmet's injunction for the removal of all cicatricial tissue from the angles of the wound, although this important step in the operation is often disregarded. However, failure to remove it commonly results in failure of union, or imperfect union; a fortunate compromise for the patient, since the cicatrix is much less injurious with the laceration open, than with the laceration closed. When, unfortunately, union has taken place, the train of nervous symptoms which follows often necessitates the removal of the cicatricial plugs and the reclosure of the wound.

The common forms of disease of the cervical glands, i. e., the nabothian glands of which Tyler Smith estimates the number to be 10,000 in the virgin cervix, often demand special attention, in connection with the closure of the laceration. One form is characterized by the excessive outpouring of the familiar gelatinous white-of-egg-like secretion which acts as a tenacious plug in the cervical canal, very difficult to dislodge and usually present in enormous quantities in the upper portion of the vagina.

When the cervix has been closed, after the classical method of Emmet, this secretion is apt to continue unabated, nor is the usual preparatory treatment of topical applications effective for the removal of the disease. Indeed, any treatment in this form of disease which does not include the removal of the offending glands themselves, usually fails. Three methods of destroying the diseased glands are practiced:

1. Strong cauterization.
2. The free use of the sharp curette.
3. Excision.

The first two methods, i. e., cauterization and sharp curettement, are objectionable for the following reasons: First, the glands are so deeply seated in the mucosa that they always escape the caustic and the curette, unless these have been used with such hardihood as to produce excessive cicatrization and consequent stenosis, a condition quite difficult to remedy, even by plastic surgery. The excision of the glands on the other hand, and the closure of the cervix by the method of Schroeder, removes the disease and leaves the organs in a physiological state. After this operation, the cut surfaces can not cicatrize and contract, because covered by mucous membrane, this having been united by means of sutures to the intra-cervical mucous membrane. Schroeder has also found this operation the only effective means of curing cervical catarrh, not only in cases of cervical laceration, but also in cases in which there has been no laceration. In the latter class of cases he makes bi-lateral incisions, and proceeds with the operation the same as in cases of laceration.

The other form of glandular disease of the cervix, is that known as cystic degeneration. The ducts of the nabothian follicles having become obliterated by adhesive inflammation, the follicles become distended by their own secretions, and form retention cysts. The great increase in the size of the lacerated cervix, both before and after trachelorrhaphy,

phy is often due to the presence of cystic degeneration of these follicles; a pathological condition which often becomes much exaggerated when any of these diseased glands have been rolled into the cervical canal by trachelorrhaphy. Oftentimes the cysts are present in great numbers, and of such enormous size as to lead to the suspicion that the consequent enlargement of the cervix may be from malignant disease. Such a case has recently come under my observation, the patient having suffered from pronounced catalepsy since trachelorrhaphy was performed ten years ago. An examination showed atresia at the os externum, excessive enlargement of the cervix, right ovary partly fixed, size of English walnut, left ovary fixed, slightly enlarged. In order to ascertain the true condition of the interior of the cervix deep bi-lateral incisions were made, and the anterior and posterior lips were spread wide apart as they are in the most extensive laceration. Much pent up secretion escaped from the uterine cavity, showing that the tight closure of the os externum had converted that cavity into a retention cyst; large numbers of cysts of the nabothian follicles appeared in the cervix, some milary, others as large as small marbles. In the excision of these cysts, almost all the mucous membrane of the cervix was removed. The margin of the mucous membrane of the vaginal portion was then stitched with catgut sutures to the margin of the intra-cervical mucous membrane, both anteriorly and posteriorly, so as to fold the anterior and posterior lips of the cervix upon themselves. The lateral incisions were then closed with silk-worm gut sutures, leaving the cervical canal permanently patent. This operation was practically that of Schroeder. The perineum which was lightly lacerated was also closed. The operation was performed about six months ago, and the patient although naturally neurotic, reports herself free from cataleptiform seizures, since her recovery from the operation. This case, although striking, is only one of a large and increasing number of parallel cases, which illustrate possible evil results of bad surgery.

In the preparatory treatment for trachelorrhaphy, experience has shown that the simple puncturing of cysts of the nabothian follicles by means of the spear pointed lance is inadequate, because the cysts are prone to be refilled. They should either be destroyed by the cautery or excised. The excision may be of the individual cysts, provided they are not too numerous, otherwise of the cervical mucosa.

The evil results consequent upon the abuse of Emmet's operation, are frequently encountered, and a large part of the most necessary work, in connection with this operation, at the present time, consists of the conservative surgical procedures already outlined, the object of which is to undo work which has already been done. If the abuse of the operation has done much harm, the misguided practitioner must bear the burden of his own fault; the operation must not be made to do so for him.

ORIGIN AND DEVELOPMENT OF THE GENITO-URINARY ORGANS IN WOMEN.

Read in the Section on Obstetrics and Diseases of Women at the Forty-fourth Annual Meeting of the American Medical Association.

BY F. BYRON ROBINSON, B.S., M.D.

PROFESSOR OF GYNECOLOGY IN THE GEORGE WASHINGTON MEDICAL SCHOOL, AND HONORARY CLINICAL GYNECOLOGIST IN WOMAN'S HOSPITAL, 1015 FIRST GRAND AVENUE, S.W., DISTRICT OF COLUMBIA, D.C.

The following remarks are based on original investigation in the human and in the lower animals, especially the pig. The research embraces the examination of about 1,000 specimens of the genitals of the human and lower animals in various conditions and stages of development. The investigation was carried to the bird family, and some interesting information was gained. The development of the genito-urinary organs is one of the most fascinating of all studies, as the plans of evolution are most perfectly manifested in rapid succession. As the organs develop, the subjects of hypertrophy and atrophy are seen in their most typical forms. It is plain that in the embryo whole ages of evolutionary development take place in a few weeks, and that each of the distinct stages of the then distinct kidneys of mammals represent so many wide periods of animal life. The economy and conservatism of nature is shown in its most beautiful manner—in the development of the genito-urinary organs by inducing organs and ducts to act first for kidneys and excretory organs, and finally for egg channels and gestation sacs. The great capacity that organs have to modify themselves is a most instructive subject. Every young physician should acquaint himself with the embryological development of the part of anatomy to which his future practice is likely to lead. Embryology aids in comprehending the history of the growth of the genitals. It enables one to comprehend the adult genital organs and gives frequently a clue to their pathology. The so-called practical man may attempt to announce that the study of the development of the genitals is worthless because we can not change the course of deficient nature. But to the scientific physician every stage of the development of the genito-urinary organs is an incentive for hopeful acquisitions that may avert deformities. Malformation of the female genitals is simply nature caught in the act of wrong development. In the widespread awakening of the present it is interesting to observe the family physician attempting to study the female genitals so that he may understand arrest of development, relics of atrophied organs and tumors from the same. To be practical one must follow every stage of developmental structure. Comparative anatomy sheds a flood of light on such work, and if one will carefully investigate the growth of the Wolffian body among the lower animals and man, the adult form of the genito-urinary organs will be relatively easy of comprehension. About 1750, Dr. Wolff of Berlin, Germany, began to announce the results of his studies on the genito-urinary bodies. The subject was so attractive that it drew to it some of the most brilliant names of literature who have enriched our libraries. Mueller, Gartner, Rosenmüller, Waldeyer, Lankester, Raztke and Gegenbaur are but a few who have recorded their views on the Wolffian body. The magnificent labors of Halfour, which read like a bewitching story, aided by the industrious Semper, have enabled us to distinguish the three grand divisions of the Wolffian

LUNAR CAUSTIC.—"You are worth a great deal more to people at some times than you are at others," said the comet sardonically to the moon. "That's why they call you the silver moon."

"Yes," replied the luminary, sadly; "it all comes of having to be taken at my phase value."—*Washington Star.*

body. The best and most practical method of obtaining clear knowledge of the Wolffian body is to secure fetal pigs at the slaughter house. The development of the Wolffian body is similar in all mammals, and pigs can be obtained from a day old up to birth.

The Wolffian body is a complex, varying organ extending from diaphragm to cloaca or rectum on each side of the backbone. It is oval or spindle-shaped. In a small fetus the Wolffian body is the longest visceral organ and almost fills the abdominal cavity. The dominating fetal viscus is the liver, which rapidly enlarges and induces the large and prominent abdomen of early vertebral life so characteristic of infants. As the liver enlarges the Wolffian bodies decrease, perhaps in accord with the view that only one viscus can induce a high blood supply. Under a good lens one can easily see the longitudinal ducts of the Wolffian body, and also the very numerous short ducts that enter at right angles to the longitudinal ones. In typical specimens the naked eye detects all this and much more. I will note the study of the Wolffian body in three stages, as it occurs in nature:

1. The first stage includes the head kidney and its duct or ureter. It is called the first kidney or pronephros, and its duct is the Müllerian duct.

2. The second stage is known as the middle kidney and its duct. It is called mesonephros, and its duct is known as the Wolffian duct.

3. The third stage is called the third kidney with its duct. It is the kidney of adult life and its duct is the ureter of adult life.

1. The head kidney or pronephros will not be given much attention, as it is not functionally in the higher vertebrates. It may only be active in the fetal life of man for a few hours. But in lower animals, as fishes, it functions a whole fetal and adult life. It is the duct of the pronephros which concerns us as gynecologists, for it finally forms the vagina, uterus and Fallopian tube. The duct of the head kidney is known as Müller's duct. It is the Fallopian tube. It first carried urine from the head kidney, but it finally carried eggs. Nature is so conservative that she makes one organ do several functions. In the female, then, the duct of the first kidney carried urine and then eggs, while in the male it first carried urine and finally atrophies to a small cyst found on the testicle and known as the hydatid of Morgagni. Müller's duct of each side comes together in its posterior or lower two-thirds, and the approximated walls fuse so that one tube results. The fusion of the two ducts begins about the center of the middle third and proceeds both forward and backward. This peculiar method of fusion explains why we may have a single uterus and a double vagina, or a single vagina and a double uterus. The manner of fusion explains why we may have no uterus and a double or single vagina, or a uterus and no vagina.

The upper third of the Müllerian duct develops into the Fallopian tube. At the upper or anterior end of Müller's duct we can find, in some 15 to 20 per cent. of cases, a small pedunculated cyst known as the hydatid of Morgagni. This hydatid of Morgagni is perhaps the drawn out end of the upper mouth of the duct of Müller, or it may be a dilated uriniferous tubule of the pronephros. In the chicken the duct of Müller forms a single channel from ovary to cloaca, and the funnel-shaped abdominal end of the

Fallopian tube opens out on the ovary; i. e., the rich hen's ovary sits right in the funneled mouth of the tube. In the hen, Müller's duct is merely a channel to discharge eggs, and it hardens or calcifies them as they pass the irregularly lumened and tortuous duct. The Müller ducts in a chicken do not coalesce, so that it acts in the hen as a vagina, uterus and Fallopian tube while it is only one channel. But the hen's duct is lined with peculiar epithelium, and secretes albumen to coat the egg and calcium salts to protect it with a shell while the egg passes the duct, which lasts from one to three days. A hen has, curiously, only one Müller's duct and one ovary—the left. The right has atrophied. Dr. Lucy Waite reported to me that while investigating the genitals of hens, she found remnants of the right atrophied Müller's duct in the form of dilated cysts near the cloaca. I had also found similar vestigial remains of the atrophied right Müllerian duct in hens. At first I thought it was unique in birds to have one Müller's duct atrophied and only one duct and ovary functioning; but on further investigation it was found that several of the lower species of animals had the same non-symmetry of ovary and Müllerian duct.

The explanation of the bird's loss of the right ovary and ova duct is not yet given. A very interesting subject was found in the varying upper or abdominal end of Müller's duct. In the pig, Müller's duct ends in an enormously wide, fringed funnel. This large funnel opened into a spacious peritoneal pouch in which lies the pig's ovary. In the ovulation of the sow the ova drop either, first, into this large peritoneal pouch and then into the funneled mouth of Müller's duct, or the ova drop directly into the mouth of the duct. In either case when the sow ovulates it is hardly possible to lose any ova on account of the peritoneal pouch. In animals with multiple births nature provides large means to secure rich supplies for reproduction through the peritoneal pouch and the peculiar ending of Müller's duct. There is a peritoneal pouch in many animals—e. g., cat, dog, mouse, pig—in which the fimbriated end of the Fallopian tube opens. The pouch is peculiar in each animal. The peritoneal pouch decreases in animals up to man. There is a small trace of a peritoneal pouch in woman which I have several times observed. In all animals which I have investigated—sheep, dog, bird, cow, monkey, cat, man, there is a band of muscular or ligamentous structure which connects the fimbriated end of Müller's duct to the ovary. Ascending in the scale of animal life, we have, first, the eggs simply drop out of a hole in the peritoneum; second, the peritoneal pouch exists; third, the mouth of the duct surrounds the ovary, as in birds; and finally, the ligamentum ovaricum persists as it is in monkey and man. This little strip of muscular tissue which connects the mouth of Müller's duct to the ovary, shortens at menstruation or oestrus in all animals which I have examined. In shortening it draws the mouth of the duct over the surface of the ovary, and that part of the ovarian surface which is ovulating may emit an ovum into the duct's mouth; but if the ovulating surface of the ovary lies outside of the mouth of the duct, the ovum may be lost. In the cow as well as in the living woman, I have seen the wide mouth of the tube cemented to the ovary at its circumference by sticky mucus at menstruation. The disappearance of the peritoneal pouch is in direct ratio to

the disappearance of multiple births. The typical sample of the peritoneal pouch at the end of the tube is the pig, which has a typical multiple birth. In man the peritoneal pouch at the tubal end is least, and typical single births characterize the genus homo. So that multiple and single births have some relation to the connection of the ovary to the mouth of the tube. Müller's duct varies widely in its form and coalescence from the lower animals to man. In some the two ducts do not coalesce; e.g., birds; in some they coalesce but a little; e.g., pig, cow and horse; in monkey and man we note that Müller's ducts coalesce for their lower two-thirds; i.e., up to the Fallopian tube.

One very valuable landmark to distinguish the uterus from the Fallopian tube was given to us by the immortal Virchow; that is, the round ligament. The round ligament inserts itself in the duct of Müller at the junction of the uterus and Fallopian tube. This means that all gestation is done in that part of Müller's duct posterior to or below the insertion of the round ligament. Gestation is never done in the Fallopian tube of animals but in the horns of the uterus. In a long search I have never known an authenticated case of tubal pregnancy in any animal below man. Only, so far, has it been demonstrated that in woman tubal pregnancy occurs. It would appear that a monkey was just as liable to tubal pregnancy as woman, from the structure and shape of the genitals, but no proof is yet recorded of tubal pregnancy in monkeys. It would be interesting to note the various kinds of placenta that the Müller duct bears, but space forbids. Suffice it to say that in the carnivora it is zonular; i. e., it reaches all around the circumference of the duct or gestation sac in the form of a band. In the herbivora the placenta is cotyledonous; i. e., the placenta rests on peculiar elevations of the gestation sac, shaped just like a mushroom on its stalk. In the omnivorous; e. g., the pig, the placenta is universal; i. e., the choroidal membrane lies close against the mucous membrane of Müller's duct or the gestation sac. In the quadrumana, as in monkey and man, the placenta is discoidal; i. e., the part of chorionic membrane which nourishes the child lies on the mucous membrane in the form of a disc. Müller's duct acquires various kinds of epithelium for a lining through the animal kingdom. Where the ducts coalesce into vagina, uterus and Fallopian tube as in most higher vertebrates there are generally three kinds of epithelium membrane, as, e. g., squamous for the vagina; glandular, columnar and ciliated for the uterus; and glandular, columnar and ciliated for the Fallopian tube. But whether the duct coalesces or not, a certain part of its epithelial lining possesses peculiar properties of secretory powers. In the bird the endothelium can secrete albumen and calcium salts. In mammals it possesses the power to gestate. In general, the ova may be viewed as a gland and the Müller's tube as its duct.

2. The second stage of the Wolffian body is known as the middle kidney or mesonephros. Its duct is known as the segmental duct or Wolffian duct. The Wolffian duct and the Müllerian duct appear to me to be formed side by side. Others assert that the segmental duct splits into two and thus is formed Müller's and the Wolffian duct. The middle kidney or mesonephros and its duct probably functionates in the human fetus for six weeks. In the pig the mesonephros functionates for about one-half its fetal

life. The middle kidney is the Wolffian body proper of vertebrates and it grows to a very large size. It consists of an elongated body lying on each side of the vertebral column and reaching from diaphragm to rectum or cloaca. One can easily see its long white duct running from its anterior end to its posterior end where it empties into the cloaca. At right angles to this long duct which collects the urine, may be seen dozens of short tubes running into the long tube. The chief portion of the Wolffian body is composed of these small coiled tubes. The duct of the Wolffian body first carries urine; finally it atrophies in woman and the functionless remnant is known as Gartner's duct. In the male it is transformed from a urinal duct to a channel to carry semen—the vas deferens. Nature is conservative and utilizes already formed structures for additional higher functions. Another feature is demonstrated, in that the urinary organs and genital organs are very intimate in their development and growth. For example, the kidneys, ovaries, tubes, uterus and vagina arise from the same Wolffian body; then their food, lymph and nerve supply must be absolutely connected. This principle of same nerve supply is applicable all through adult life and can be observed in many diseases; i. e., a diseased ovary will affect the kidney or a diseased tube will disturb a kidney, by reflex action through its circle of nerves.

The middle kidney or mesonephros, is of the highest interest to the gynecologist, because he has to deal with its vestigial remnants. In woman, the whole middle kidney atrophies and its residue is known as the parovarium. The remnants of this kidney were discovered by Dr. Rosenmüller in 1891. The name parovarium was given to it by Dr. Kobelt.

The mesonephros has shrunk to a trapezoid shaped organ and lies in mesosalphynx; i. e., between the ovary and Fallopian tube. Its pointed or smaller end runs to the lumen of the ovary. It is composed of from eight to thirty tubules which run in a vertical direction. These tubes are the uriferous tubules of the mesonephros. The tubes all pursue a course at right angles to a longitudinal tube known as Gartner's duct—the original ureter of the mesonephros. The parovarium consists of three quite distinct parts: (a) Gartner's duct. This runs toward the uterus and in cows it runs near the mouth of the urethra, occasionally. It no doubt represents Skene's tubes. In the pig it is often many feet long and as large as a clay pipestem. It has a large lumen in the pig, and I have frequently noted its atrophy at different intervals of its course, so that it represents beads strung on a string. It shows also interrupted atrophy in the woman. I have several times, in laparotomy, seen Gartner's duct dilated; once to the size of a child's head, and again I saw it dilated as large as an apple and the dilations were strung along like beads. Perhaps each dilatation represented the entrance of a uriferous tube.

b. The chief remnant of the mesonephros is the vertical tubules of the parovarium, varying from five to thirty, visible to the naked eye. To see the tubules one should hold the broad ligament up to the light. These little tubules frequently dilate into cysts from the size of pin heads up to that of a child's head. The tubules have a lumen lined with epithelium.

c. The third structure found in the remnant of the atrophic mesonephros is that known as Keibel's tubes.

These are flask-shaped cysts or dilated parts of the uriniferous tubules situated external to the vertical tubules. They frequently dilate and gradually acquire a long, thin pedicle. The reason of the existence of these blind, flask-shaped tubes of Keibel must be the same as that for the hydatid of Morgagni.

d. Besides these three distinct structures, we find other relics lying in the broad ligament in the form of isolated cysts lying under the peritoneum. But they have definite locations, e.g., some are nearly always found at the upper border of the abdominal tubal sphincter. Another place is along the tubal fimbriae which connect the tube to the ovary. They are all remnants of the mesonephros. The parovarium has pathological cysts in it in 60 per cent. of women according to my examinations. I have performed laparotomy for parovarian cysts on women from 23 years up to 55 years. Parovarian cysts do not develop before puberty, but they may develop as long as the woman lives after puberty. The repeated rupture and refilling of parovarian cysts I have noted in my own patients. No peritonitis occurred. Sows have parovarian cystic degeneration. One distinguishes a parovarian cyst from other cysts by its capacity of being peeled out of the broad ligament.

3. The third stage of the genito-urinary bodies is known as the metonephros or adult kidney. Its duct is the ureter. The last kidney grows out just behind the mesonephros. It starts as a little white body, and soon grows to a large size. It has at first a spiral, crooked ureter, but as the bladder sinks down into the pelvis it straightens out. The atrophy of the middle kidney and the hypertrophy of the third is a fascinating subject. The blood stream is simply turned from the middle kidney to the last kidney; the one shrinks and the other grows. The mesonephros simply pales from lessening blood; the metonephros reddens from excess of blood. The mesonephros atrophies and the metonephros hypertrophies just by changing the blood current. It may be observed that the duct or ureter of the first kidney persists in woman as Müller's duct, making the vagina, uterus and tube. In the male it is the duct or ureter of the second kidney that acts as the vas deferens and epididymis to carry semen.

By slitting open the abdomen of fetal pigs in various stages one can observe the beginning and course of the ovary. It arises from the internal sides of the Wolffian bodies as a white spot as large as the head of a pin. It is very vascular and very glandular. It grows rapidly from a kind of large, luxuriant epithelium heaped up into a ridge named the genital ridge. It is highly supplied by nerves and lymphatics. It does not manifest sex until the tenth week in the human, and acts similar in the lower animals. One can tell sex by the external genitals far sooner than by the testicle or ovary. The ovary soon after the first three months begins to manifest its Graafian follicles, and it is always seen to be a cystic organ. It sinks down in the pelvis and its artery, the ovarian, stretches out and becomes very long in the upright animals. The ovarian arteries arise from the aorta, just below the renal, at the original site of the growth of the ovaries. The Wolffian body is held to the diaphragm by a strong ligamentous cord which may be called the diaphragmatic ligament. The body is also fastened to the groin by a process which is surrounded by peritoneum like the ferrule on a fork handle. This process of tissue

becomes the round ligament, while the peritoneum which surrounds it becomes the canal of Nuck. This process of round ligament formation with Nuck's canal can be observed to perfection in the growth of fetal pigs. It may be observed that adult kidneys of many animals are lobulated: the reason of this is that the adult kidney arose first in a lobular or separate form. Each lobule was fed by an artery, so that even in adult animals some kidneys may be found with several arteries. The kidney of a human fetus I have seen lobulated but it soon gets smooth. In man, dogs, pig, sheep, etc., the kidney is smooth, and in 75 per cent. it is fed by one renal artery. Among some fifty human cadavers which I have carefully dissected I found that 25 per cent. of the kidneys had two to five arteries. In the cow, one can see the typical lobulated kidney which must originally have had an artery for each lobule. The Wolffian body was originally generally drained by one vein and that would be the renal vein. But the upright position of man and monkey has induced the ovary to fall into the pelvis and this lengthened the ovarian vein. This ovarian vein originally opened into the main vein which would be the renal. At present the left ovarian vein opens at right angles into the renal vein and it represents the original fetal life. But the right ovarian vein opens at present into the vena cava just below the renal vein. Now the explanation I offer for this is that the evolutionary changes have occurred on the right side by the upright position, as then the ovary would drag on the ovarian vein and finally it would be apt to enter lower down in the long vena cava, while the left side still retains its original fetal condition. Gegenbaur explains it in another way by saying that the left ovarian vein is a remnant of the cardinal vein; considerable disease is due to the difficulty of venous return on the left side. The supra-renal bodies, which develop with the genito-urinary, lie in the still unknown field of physiology. They have some relation with the sympathetic nerve whose significance is yet unknown.

1. Out of the Wolffian body arise the uterus, vagina and Fallopian tube. The ovary, parovarium, kidney and supra-renal bodies come from the same source. Hence they all have a physiological and anatomical connection.

2. The genital and urinary organs arise from the same source and occasionally one is modified to act for the other.

3. Since the whole of the genital and urinary organs have both an anatomical and physiological relation, the essential knowledge for the gynecologist will lie in the nerve connections, for disturbance in one organ will disturb the balance of all.

4. Injury to the nerves in one organ will disturb the circulation and nutrition in the other by reflex action.

5. The peritoneum and genitals are anatomically and physiologically connected. Hence disturbance in one will disturb the others.

6. The chief nerve supply of the genitals and urinary apparatus is sympathetic.

7. The main pathology of the sympathetic nerve is reflex action which will disturb any distant or adjacent viscera.

8. The irritation in pregnancy passes up the hypogastric plexus to the abdominal brain and is reflected out on the renal plexus, inducing albumen in the urine. The aching back in menstruation is accounted

for by the close nervous connection of genital and urinary organs. The renal plexus and the autonomic ganglionic chain is dragged on by the hypogastric plexus.

9. The nephritis and albumen in the urine after vaginal hysterectomy is due to the wounding of the hypogastric plexus and ovarian plexus, and the irritation is reflected into the renal plexus disturbing the kidney. The shock from abdominal and vaginal section is due to the damage inflicted on the sympathetic plexus, and is often manifest in kidney disturbance.

10. The intimate anatomical and physiological connection of the *peritonsils, kidneys and peritonium* by nerve, blood and lymph supply invites dangers to one by wounding the other. The danger of disturbed balance is brought about by reflex action flashed from one organ to another through a reflex arc.

11. The anterior and posterior columns of the vagina represent the remnants at the points where the ducts of Müller coalesce, producing thick columns of tissue.

DOMESTIC CORRESPONDENCE.

Does Tuberculin Scatter Tuberculosis?

AN OPEN LETTER TO DR. HEATWOLE OF GOSHEN, IND., FROM DR. DENISON OF DENVER, COLO.

Dear Doctor:—The following are two extracts from the *Goshen Daily News* of Sept. 4, which some one has kindly sent to me. The cuttings are here transposed from their relative positions in the obituary notice, "A good citizen gone," so that the postmortem, which is what I wish to discuss, comes first:

A POST MORTEM.—This forenoon Dr. Heatwole conducted an autopsy on the body of the late George N. Thomas, ascribed by Drs. Fox, Latta, Ash, Irwin, Miller, Johnson and Whitmer. It confirmed the diagnosis of the case, and revealed the fact that the Koch treatment had stopped the progress of the disease on the lungs, but had scattered it all over the glandular system, finally attacking the spine and brain which was the immediate cause of death.

"The growth just under the knee proved to be a solid gland, five by seven inches, and had invaded the knee to such an extent as to entirely destroy the joint, the ends of the bones of the knee joint having entirely disappeared.

"He had been a great sufferer for nearly three years, and especially so for the past few months, which he bore bravely and hopefully, although recovery was hopeless. About seven years ago a growth of a tumor appeared on his leg just back of the knee, caused by tuberculosis. The growth increased gradually, but not until about three years ago were his lungs affected, since that time he has traveled in climates which promised benefit, but improvement was only temporary. Although he took the Koch treatment and it apparently healed his lungs, yet the growth on his leg was constantly increasing in size until the leg became as large as his body and very painful. A few days ago tuberculous meningitis developed, becoming so severe on Saturday that he became unconscious that night, in which condition he remained until his death."

Prompted by a desire to do justice to a most useful remedy (tuberculin) I am persuaded to write you.

For it has seemed to me that we ought to blame ourselves more and the remedy less, and then there would be hope of our becoming well acquainted with tuberculin and its *modus operandi*, as well as that of the disease it antagonizes, to use it intelligently and with good results. The medical profession must be introspective and look to tuberculosis as well as to the composition of the remedy, for an explanation of the so-called "failures" of tuberculin. The delusion, which hinders a thorough understanding of the remedy, is that it inoculates with tuberculosis, or the above inference that it spreads the disease. Whenever *insufficient diagnosis, unsuitable conditions for a cure, and excessive use of tuberculin*, such as obtained in the unfavorable results in the Johns Hopkins and the Pennsylvania hospitals,—whenever these conditions are behind the so-called "failures" I feel like nailing the evidence where it belongs. This is my reason for wishing to review this case of my former patient, Nov. 1892 to March 1893, to see if this dissemination of tuberculosis

through the glandular system is substantiated by the results of the administration of the remedy. I am sure that you will agree. On this point it seems to me there are many theories, and why the stated conclusion of the autopsy is so erroneous, of course I want to admit that this may be merely a *hypothesis* of a newspaper reporter, but it expresses a popular prejudice and a misconception taken by many physicians inexperienced with this new method of treatment, which position is not easy to combat with our insignificant knowledge of tuberculosis and tuberculin. The three reasons are:

1. The tumor in the popliteal space antedated the appearance of any lung lesion whatever by three years. I deem it unnecessary to refer to the frequency with which tuberculosis originates in other parts before manifesting itself in the lungs. Of course there may be a question raised as to the fact, but I am going to assume that the nature of this tumor, as stated in the account, was unique all the time from its beginning; i. e., tuberculous, because under tuberculin treatment it grew hard and there was an effort to contract or shrink, and because the postmortem evidences showed that the most prolonged existence of tuberculosis was in the joint underneath the tumor. I had my good friend Dr. C. Theodore Williams of London, when he was visiting us last November, see this patient. When the doctor felt the tumor he exclaimed: "Oh! lymphadenoma; there is no question about it." All of which would go to show that tuberculosis was behind the lymphadenoma, and served to confirm in my own mind a theory I have had for some time; that *the bacillus of tubercle is not the beginning of tuberculosis*. Instance our general inability to find the bacillus in glandular tumors known to be tuberculous by tuberculin reaction or otherwise, or in adenoid growths in the region of the third tonsil which I have known to be removed, as simply adenoid, from those who were steadily advancing in the tubercular process, as subsequent history proved.

2. The implication of the glandular system antedated the use of tuberculin in this case, and may have been a resultant of la grippe two years previous. I have known of other supposedly tuberculous subjects in whom the influenza seemed to center the tubercular poison in the glands of the neck. In this case both the thyroid glands were becoming much enlarged, there were nodular glands above the clavicles and both breasts were tender and as large as a young maiden's.

3. The reaction to tuberculin was not only in the affected lung, but in all these affected glands, especially in those above the clavicles, the breasts and in the tumor under the knee, showing that there was tubercular contamination there before tuberculin was given. In the case of the tumor on the leg, the size of which was 7½ inches, measured lengthwise with the limb, and 10½ inches across the center, the effect of the treatment was a hardening of the soft mass and a restraint of its growth during the continuance of the tuberculin injections. The pain caused there was a positive hindrance to the use of the larger doses of tuberculin. This was the principal reason, probably, why Mr. Thomas gave up the method at two different times although in all other respects the effect was quite favorable. At one time he almost agreed to the proposition, which the autopsy now proves would probably have been best, namely, to amputate the limb and continue the immunity producing effect of tuberculin. It was with a view of settling this question that Mr. Thomas wished to consult with Dr. Senn, and I was glad to have him do so, but of course did not expect Dr. Senn to take my view of an operation with his expressed opposition to the use of tuberculin.

I think I have made out my case that in this instance the scattering to the glands had occurred before the tuberculin

treatment was commenced and therefore was not due to it.

That the final breakup, which must come, of course, sooner or later, was through the climax in tubercular meningitis is not strange. I have now seen nine cases where the lungs were more or less completely healed through climatic influence, and death came through tubercular meningitis, usually from some intercurrent exciting cause. It is, perhaps, pertinent to this particular affection of a joint for me to add that the young lady who Mr. Thomas will remember as coming to my office on crutches for tuberculin treatment, and who had had tubercular arthritis of both knee joints for about four years, so that she had not stepped on the floor for over two years, has so fully recovered that I hear of her in her Vermont home as walking to church even without a cane. Other cases of glandular tubercular implication have done excellently well, but there is, of course, a necessity for a more persistent or prolonged course than when the glands are not affected, the same as with partially healed pulmonary cavities where the multiplication of tubercular bacilli is with difficulty prevented. While I am on this subject of tuberculin, I wish to say here what I could not, when I wrote my paper a year and a half ago for the American Climatological Association, namely that I have found Kleb's Tuberculocidin to answer excellently well in some febrile, erythric and sensitive cases where the real tuberculin (Koch's) would be inadmissible. It is about one-fortieth the strength of the latter and does not increase a previously existing fever as tuberculin does. However, the descriptions of its preparation and directions for its use are criticised as not being very lucid. I very much wish that some of our bacteriologists this side the Atlantic ocean would take hold of this matter and reasonably supply us with these useful preparations.

Finally, Doctor, I wish to remind you that frequently disseminated tuberculosis, as several cases I have diagnosed by tuberculin injections would seem to show, does not manifest itself in the lungs until the system is profoundly under the influence of the disease. Furthermore, the final dissemination to the glands, in most cases of tuberculosis ending in death, comes at that period when the individual vitality is lowered to the point where resistance is exhausted, and where it is unreasonable to conclude that any other agency scattered the tuberculosis to the glandular system.

Very respectfully yours,

CHARLES DENISON.

Has Practiced Abroad, but does not Specify His College.

To the Editor:—As the JOURNAL is looked to abroad as the exponent of American medicine, is it not likely that foreign medical boards will think that our Association approves of inferior medical colleges, when some of the very worst in the United States are given constant advertising space in the JOURNAL, thus injuring all American diplomas? Having practiced for some years in a foreign country I know with what contempt the "Yankee" M.D. is held, and this is because of the shameful ignorance shown by most of our graduates who have left our shores seeking fame or fortune in foreign climes, and who, of course, were always from inferior colleges.

Yours, etc.,

D. C. NEWMAN.

Can Get All the Cerebrin He Wants.

To the Editor:—Dr. G. Archie Stockwell can get all the "cerebrin" made in May, 1903, he wants, and for nothing, provided he will, under the eyes of three physicians to be selected by the editor of the JOURNAL, repent with it the

experiments on himself which he alleges in the *Medical News* of Aug. 26, he performed. Satisfactory evidence will be given that the "cerebrin" is of the date mentioned.

WILLIAM A. HAMMOND.

To Whom Credit is Due.

To the Editor:—In your issue of Sept. 16, there appears a letter from Dr. Hinde, in which he calls attention to a certain oversight in giving due credit for our joint report of a case, "Periodically Recurring Oculo-motor Paralysis." The facts are that Dr. Hinde first saw the case and credit is due him alone for having differentiated this rare condition. The case was shown me and I subsequently made an exhaustive study of the bibliography which, with the notes of the case formed the first paper published in the *Medical Record*. No one regrets more than myself the fact that Dr. Hinde has not been credited with this interesting observation, and I now wish distinctly to state that I had nothing to do with the case further than that I examined it, studied the literature, and wrote the first paper.

Dr. Hinde says in closing that credit ought to be divided in this case. I think not, as it belongs exclusively to him.

Very truly yours,

HAROLD N. MOYER.

NECROLOGY.

Dr. W. C. Wardlaw, died in Atlanta, September 2. For many years Dr. Wardlaw has been practicing his profession in Augusta, Ga. He had been elected Dean of the Dental College at Atlanta, and had just moved to that city, preparatory to assuming his new duties.

He was prepared for the South Carolina College, in the village school where he was graduated, and afterwards attended lectures at the Charleston Medical College, intending to make medicine his profession, but, the war coming on he was obliged to suspend his studies, and enlisted in the services of his State, and it was here that Dr. Wardlaw displayed that endurance, courage and heroism which endeared him to his men, and called forth the commendation of his Commanding General and the compliments of his Colonel.

He was desperately wounded during the war, and from the effects of that wound it was said he never recovered, and that his death was attributable to it.

Returning from the war shattered in health and empty in purse he determined to adopt dentistry as his profession, a calling to which his great ingenuity and former knowledge of surgery well fitted him. After practicing his profession in Abbeville for several years, subsequent to the war, he moved to Augusta, and rapidly rose to prominence in his profession.

Dr. Charles L. Dayton, one of Buffalo's best known physicians, died Sept. 7, at his residence on Dearborn street after an illness of about ten days. Typhoid enteritis is said to have been the immediate cause of death. Dr. Dayton was born in the town of Eden, New York. He was graduated from the Buffalo Medical college in 1851 and established a successful practice at Black Rock which continued for nearly forty years.

He was a brother of Dr. Lewis P. Dayton, ex-mayor of Buffalo, and many years ago he held the position of health physician of Buffalo. He was a member of the Erie County Medical society, and also of the Occidental lodge of Masons.

Dr. Robert Ferguson, at Anderson, Indiana, Sept. 10.

THE Journal of the American Medical Association PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, IN ADVANCE, PER ANNUM, IN ADVANCE, \$5.00
SINGLE COPIES, 10 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 6 WABASH AVE., CHICAGO, ILLINOIS.

All members of the Association should send their Annual Dues to the
Treasurer, RICHARD J. DUNCLISON, M. D., Lock Box 1274, Philadelphia, Pa.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or National Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Dunclison, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said society, with five dollars for annual dues and subscription for THE JOURNAL. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

SATURDAY, SEPTEMBER 23, 1893.

THE NEED OF ORGANIZATION.

The daily press are just now engaged in a crusade against our colleague, MR. ERNEST HART, for his outspoken speeches against telepathy, theosophy, hypnotism, Keeleyism and homeopathy. It seems that whenever there is opportunity, the press generally take the side opposed to the professional view. This fact can not well be controverted. But it is scarcely fair to the press to accuse them, as MR. HART has, of having a moneyed interest in charlatanism. The truth is that the real fault lies with the medical profession itself. The average State medical society scarcely contains ten per centum of the profession within the State. The average legislator therefore hastily concludes that the medical society is the profession—that there are none outside except the irregulars, and he very naturally infers that the irregulars constitute a large proportion of the medical practitioners. He thereupon passes laws giving representation on State boards of health and other bodies to all descriptions of medical heretics and charlatans. If the medical profession will only organize by union with their local, State and National medical associations, they will show their real strength. No politician can afford to ignore organizations controlling so many votes, and there can be no doubt but much of the official misrepresentation to which the profession has been subjected will cease when the eligible members of the profession unite.

The effect upon the press of thorough organization would be no less striking than its effect upon the political class, and a timely intimation that the united medical profession had, by a duly constituted committee, investigated the subject of "—ism" and found it wanting, would put a brake on such notoriety: except, perhaps, that embodied in paid advertisements; and even these may be suppressed later through the gradual enlightenment of public opinion. A united medical profession can mold public opinion on all professional topics.

These are among the reasons why organization is so desirable and so necessary. That the medical men of this country are beginning to act upon this conviction, we have evidence in the steady increase of membership in the AMERICAN MEDICAL ASSOCIATION. Forty-one new members were added last week, and there were ten restorations to membership in the same week. The increase in the membership, including those who joined at Milwaukee, for the three months ended August 31, is 351. We added this week one hundred and twenty copies to our mail list. We sincerely hope that the good work may be actively pushed by every member of the Association, so long as any of the one hundred thousand physicians remain out of the fold. Blank applications can always be furnished by the JOURNAL, and will be sent to any member who desires them in such quantities as he may wish.

CHARAKA-SAMHITA.

The oldest of the Hindu medical books known to be complete, the Charaka, is undergoing translation at the hands of the learned DR. AVINASH CHANDRA KAVIRATNA. The sixth fasciculus of the Charaka lies upon our table. The difficulty about ancient Hindu literature is the absence of dates, the Hindu chronology being utterly fabulous.

The laws of hygiene and of diet, however, have been studied by the Hindus from the earliest times. The Ayur Veda, the "science of life," is the oldest of their books, and as was customary in all oriental mythology its origin is said to be divine, having been prepared by BRAHMA in the Satyar-yuga.

Wise, in "History of Medicine Among the Asiatics," gives the following list of authors:

AUTHOR'S NAME.	NAME OF THE WORK.	
	EUROPEAN.	INDIAN.
Ashtanga	Ashtanga	Ashtanga
Agnivesa	Agnivesa	Agnivesa
Charaka	Charaka	Charaka
Bhishag	Bhishag	Bhishag
Jatya	Jatya	Jatya
Parasara	Parasara	Parasara
Harita	Harita	Harita
Kashyapa	Kashyapa	Kashyapa
Devadatta	Devadatta	Devadatta
Susruta	Susruta	Susruta

These works are all compiled on the plan of the Ayur Veda.

The Charaka is a system of oral instructions delivered by AGNIVEṢA (or AGNIDESA) and commented upon by CHARAKA. The work is compared to that of HIPPOCRATES, and Wise asserts as a strong probability that much of the Hippocratic knowledge was derived from the Hindu pre-existing work.

The origin of modern science may be traced in the oriental mythology, which narrates that, upon a time, when the world was young, the sages were brought together to read their books of medicine for purposes of comparison and adoption. That of the sage AGNIVEṢA received such approval, that

"with a voice which reached to Heaven" the assembled sages proclaimed their admiration.

Years rolled by, and CHARAKA corrected and revised the work of AGNIBHSA which then became the exponent of Brahminical medical lore.

The directions translated in the present fasciculus for the construction of a hospital are interesting:

In the first place a mansion must be constructed under the supervision of an engineer well-versed with the science of building mansions and houses. It should be spacious and roomy. The element of strength should not be wanting in it. Every part of it should not be exposed to strong winds or breezes. One portion at least should be open to the currents of wind.

It should be such that one may move or walk through it with ease. It should not be exposed to smoke, or the sun, or dust, or injurious sound and touch and taste and form and scent. It should be furnished with staircases, with pestles and mortars, privies, accommodation for belting, and cook-rooms.

After this, should be secured a body of attendants of good behaviour, distinguished for purity or cleanliness of habits, attached to the person for whose service they are engaged, possessed of cleverness and skill, endowed with kindness, skilled in every kind of service that a patient may require, endowed with general cleverness, competent to cook food and curries, clever in bathing or washing a patient, well-versed in rubbing or pressing the limbs, or raising the patient or assisting him in walking or moving about, well-skilled in making or cleaning beds, competent to pound drugs, or ready, patient and skilful in waiting upon one that is ailing, and never unwilling to do any act that they may be commanded (by the physician or the patient) to do. A number of men should also be secured that are skilled in vocal and instrumental music, in hymning encomiums and eulogies, conversant with and skilled in reciting verses and pleasant discourses and narratives and stories and legendary histories, clever in reading the face and understanding what is wanted by the patient, approved and liked by him upon whom they are to wait, fully conversant with all the requirements of time and place, and possessed of such politeness as to become agreeable companions. The mansion should also be stored with an adequate supply of *Lāya* (oil), *Kapinjala* (oil), *Caca* (oil), *Harina* (oil), *Ena* (oil), *Kālapuchi*, *cebaka* (oil), *Mrigamūtrika* (oil), and *Yrabhra* (oil).

A cow also should be kept, yielding copious milk, of a quiet disposition, healthy, having all her calves living, well tended with food and drink and kept in a fold that is properly cleaned. So also should be kept little vessels or cups, larger vessels for washing the hands and face, water vessels or jars, small jars or pitchers, dishes, metallic or earthen jars, caldrons or pans, larger and smaller jars, vessels called *kanalas*, hollow vessels for covering articles, wooden or metallic ladles, mats, covers of cloth or blankets, vessels for boiling oils and ghee, churning rods, deer-skins and sheepskins, rugs, cloths made of cotton and wool, strings and chords, beds and seats, vessels called *Rhinopterus* full of water and flatter vessels for holding spittle and evacuations, all placed ready for use, good beds placed upon bedsteads and overlaid with white sheets and containing pillows, for use when sleep is needed, beds and carpets for lying down or sitting upon, articles necessary for the operations of *Sauha*, *Sauha*, *Tanaka*, plasters, fomentation, rubbing, vomiting, purging, application of oil or other kinds of enemata, erubines, urination and passing of stools, well washed mulbers, and flat stones that are smooth and rough and neither smooth nor rough, and diverse kinds of instruments, domestic and surgical. Smoking tubes, enemas, and enemas of a special kind called *atracastibala*, brushes and brooms, bal-

ances and weights, measuring vessels and baskets. Ghee, oil, fat, marrow, honey, treacle, salt, fuel, water, honey-wines, sour gruels of different varieties, different kinds of wines, whey, butter-milk, sour gruel of paddy or rice, and the different varieties of animal urine, should also be kept ready.

We have not space to give any more of this most learned and ancient production of the Hindus, at this time, but we can here only express our admiration, alike for the scholarship of DR. AVINASH KAVIRATNA, and the industry which has produced the work, and as well the liberality of the publisher.

CANNED VEGETABLES.

The Chemical Division of the United States Department of Agriculture has just issued another part of its Report on Foods and Food Adulterants, technically known as Bulletin No. 13. The present issue, Part VIII, deals with canned vegetables, especially with regard to methods of preserving, the preservatives employed, the character of the vessels used and the food value and digestibility of the articles. A few words concerning this report may be of use, inasmuch as owing to the publicity given to it, medical practitioners may be questioned as to their views on the subject. Tin and lead were found, derived from the cans and solder; copper from salts of the metal used for "greening" the vegetables; zinc in some samples of French goods, and sulphurous and particularly salicylic acid, employed for their antiseptic properties. Boric and benzoic acids, saccharin and hydronaphthol were not found in any of the samples examined. Tin is the most common metallic contamination, being present in every can that has been put up for any length of time. Tin poisoning from the use of canned goods is not often alleged, although HEHNER and other experimenters have found stannous hydrate to exercise a marked poisonous action on guinea pigs and other small animals. Lead is freely used by the packers both in the solder and in low grade tin plate; but there is little danger of lead poisoning by the use of canned goods, for tin precipitates lead from its solutions and lead is not attacked by acids in the presence of as much tin as is found in the tin plate used. There is more danger of lead poisoning from the sheet lead tops of glass jars than from the solder or lead of the tin cans. The quantity of copper needful for "greening" amounts to only a quarter of a grain per pound, but much more than this quantity was often found. The temperature required to destroy spores in vegetables tends to disintegrate many of them and render them less attractive in appearance; hence the use of salicylic acid. Doses of one-half to one and a half grams of this acid have been given and taken daily by experimenters for periods of many months without affecting the system in any notable way. Nevertheless its action on the kidneys is recognized, and in exceptional cases of renal disease its continued ingestion

The meaning is that though not erected against the breeze, or strong winds, one portion of the mansion should be exposed to the breeze. (1)

(2) *Sauha* (oil) is explained by the commentator as "Hastanabhi"

and *Andhra* (oil).

(3) *Yrabhra* (oil).

(4) *Ena* (oil) in *paribha*.

(5) *Yrabhra*.

(6) The common variety of the spotted deer.

(7) The deer of *Shalaka*.

(8) The deer of *Shalaka*.

(9) The species of deer better towards the abdominal and lower

part.

(10) *Sauha* (oil) is explained by the commentator as "Hastanabhi"

and *Andhra* (oil).

(11) *Yrabhra* (oil).

(12) *Ena* (oil) in *paribha*.

(13) *Yrabhra*.

in the quantity present in canned goods may be harmful. In dyspeptic cases, also, the antiseptics may do harm by interfering with the normal action of the digestive ferments.

A trade journal criticises the report for conveying the impression that there is a widespread use of injurious antiseptics in injurious quantities, and points with emphasis to the fact that over one thousand million of cans are packed and consumed every year in this country alone and no well authenticated case of sickness has been traced to them, which could not with equal force be attributed to the use of similar articles not canned. The chemists, however, do not intend to convey that impression nor to urge a prohibition of the use of copper salts and preservatives; but they claim the right on behalf of the people, of being informed by notice on the label of the can whether any ingredient foreign to the vegetable is present. Packers should not be permitted to use these substances without notice plainly given of their presence and quantity, for the purchaser should be accorded the privilege of electing whether or not he will take the doses.

AN APPEAL FOR PEACE AND TOLERANCE.

The *Boston Medical and Surgical Journal*, August 24, gives prominent place to an article on "Sectarianism in Medicine." Four extra pages appear to have been added to that issue in order that the said article may be printed in its entirety. The peculiarity of the article may be judged from the fact that the author thereof arrogates to himself and his party all the charity and good-will that lies in the possession of our fraternity, while applying to the standard bearers of rational medicine the most hateful of epithets, such as, "bigotry, intolerance, narrowness," also the adjectives, "pretentious and fraudulent." The writer would remodel all medical societies according to an "ideal" of his own conception, without the restraint of ironclad by-laws and codes of ethics, and without any wholesome knowledge whether any such societies have hitherto been tried and found wanting. So far as our knowledge extends, the experiment has been tried once in this country, in the State of New York, but in no other country and no other State. Ten years have gone by, and the organization which threw off the restraints of "bigotry and intolerance" remains about where it was when it started—less prominent, if anything can be judged of it from the outside; the assumption ten years ago, by its leaders, of all the better qualities of heart and mind has really done no harm and has converted nobody. The old paths of rational medicine have not been destroyed, the ethically persuaded members of the profession are still intent upon their errands of mercy, and are ignorant of much that is said and written about their bigotry

and narrowness of spirit. The writer of the article mentioned above, has our thanks for one paragraph, namely, that wherein he reports the term "allopathy," as applied to the rational branch of medical practice. He says: "The impudence of those who would force medical men who do not believe in homeopathy as a general principle, and who refuse to place the slightest limitation upon their practice, to accept the title, allopathy, is colossal." The word "allopathy," and others having the same etymological significance, should be uncompromisingly rejected by every member of the profession; not only as being non-descriptive, but, as conveying a false impression. These terms are not used at the present time to the same extent as formerly, but we even now occasionally meet with them in situations where the audience has a right to expect a purer form of expression.

In conclusion, let us remind the writer that the honorable sentiments of justice, fair play, and toleration are as certainly the characteristics of medical men as of any other body or class of men. It is bad taste and poor diplomacy in one who bears a flag of truce and terms of capitulation to hurl abusive epithets at the heads of those who "hold the fort." Little efficacious work in the way of peace-making can be brought about in this manner.

CLASSIFICATION OF CHEMICAL SALTS AND COMPOUNDS AS PREPARATIONS OF COAL TAR.

The United States Circuit Court of Appeals affirmed May 17, 1893, the judgment of the Circuit Court, reversing the decision of the board of general appraisers in the cases of Roessler & Hasslacher Chemical Co. and W. J. Matheson & Co., Limited, its decisions being now just reported in 56 *Federal Reports*, pp. 481, 482. It holds that the provisions of the tariff act of March 3, 1883, imposing a duty of 20 per cent. on "all preparations of coal tar, not colors or dye," not specially provided for, applies to a product, the determining characteristic of which is something which it has received from coal tar, notwithstanding some of the constituents of coal tar have been eliminated, and other substances added, and that under this rule, naphthionate of soda is dutiable as a preparation of coal tar, and not as a chemical salt, under the subsequent provision of the act, (22 Stat. 494; Tariff Ind. New, par. 92,) imposing a duty of 25 per cent. on all chemical compounds and salts, not specially provided for; while tolidine base and dinitrotoluene are dutiable as preparations of coal tar, and not as chemical compounds, under the subsequent provision of the act.

A GOOD BEGINNING.—Dr. Plummer, the chairman of the Committee of Arrangements at San Francisco, has begun his labors by sending in the names of nine new members by application. This is one of the many evidences of the great movement now going on in building up the Association.

PAN-AMERICAN EXCURSION.

AT BOSTON.

[From the Boston Herald.]

The South Americans and all the other foreigners among the delegates of the Pan-American medical congress, recently held in Washington, who arrived in Boston Sept. 12, had a gay time in their own way as the guests of Boston physicians.

There are about sixty of the visiting physicians, and a good many of them are accompanied by their wives and families.

Yesterday morning they visited the Massachusetts General Hospital, where they were carried from the Brunswick in three or four big transfer coaches.

The Pan-Americans looked like foreigners. Most of them seemed not to understand more than the most commonly used English words and phrases, and Dr. A. Bustillo and Dr. Julis Selva of the Harvard medical school, acted as official interpreters.

The visitors went through the Massachusetts General Hospital under the escort of Supt. Pratt, Dr. Pratt, in describing rooms or instruments or operations, spoke in English, and Mr. Bustillo diffused his knowledge in the sweet toned Spanish tongue.

The party were escorted to Boston by Dr. Adams of Washington, and were met at the depot by Dr. Selva and Dr. Bustillo.

Gen. Ybarra met the delegation later to act as an escort. Arthur P. Cushing, Mexican consul, and his brother, Dr. E. W. Cushing of Boston, were also at hand to do their part in entertaining.

The visitors while here are the guests of the Massachusetts Medical Society, the committee of entertainment from which is composed of Dr. J. C. White, chairman, Dr. H. P. Walcott, Dr. S. H. Durgin, Dr. A. T. Cabot, Dr. E. H. Bradford, Dr. J. C. Warren and Dr. R. H. Fitz.

After the party got a pretty fair idea of our hospital they were driven to the Harvard medical school. They all gathered in the dean's room, on the first floor, where Dr. J. C. White detailed the plan for inspection through Interpreter Bastillo.

Two by two the Pan-Americans went from the bacteriological exhibit room down stairs to the dissecting room on the top floor.

Some found departments they liked, and made long stops, having everything explained.

Shortly before 1 o'clock the ladies of the party arrived at the medical school. They had been entertained by Gen. Ybarra and Mr. Cushing, the Mexican consul, and thoroughly enjoyed the drive about the city and suburbs.

The ladies and children were most pronounced brunettes. A few of them resembled the typical Brazilian maidens of the dark-skinned, dark-haired types, like the Misses Mendonca, daughters of the Brazilian minister in Washington during the last administration.

At 1 o'clock all the delegates and their families sat down to lunch in the medical school.

Wednesday, Sept. 13, the program for the delegation was to visit the City Hospital from 9:30 to 12:30; and from 1 to 6, at the invitation of the Boston board of health, they visited the sanitary and quarantine stations in the harbor.

In the morning the ladies were entertained by Dr. E. W. Cushing at his private hospital in Roxbury, and visited with him the Woman's Charity Hospital. Lunch was served at Dr. Cushing's hospital, and then the ladies were taken by Dr. Cushing to join the excursion down the harbor to the quarantine stations.

The party was composed of the following:

Dr. J. C. White, Dr. M. H. Pratt, Dr. Aug. Cornejo, Havana, both to direct the medical and sanitary inspection of the Board of Health, and to act as interpreters of the medical school. Dr. J. C. White, Dr. M. H. Pratt, Dr. Aug. Cornejo, Havana, both to direct the medical and sanitary inspection of the Board of Health, and to act as interpreters of the medical school. Dr. J. C. White, Dr. M. H. Pratt, Dr. Aug. Cornejo, Havana, both to direct the medical and sanitary inspection of the Board of Health, and to act as interpreters of the medical school. Dr. J. C. White, Dr. M. H. Pratt, Dr. Aug. Cornejo, Havana, both to direct the medical and sanitary inspection of the Board of Health, and to act as interpreters of the medical school.

Licaga, president of the Board of Health, San Andres, Mexico; David Contreras, Mexico; Dr. G. Vargas-Paredes, Bogota, Colombia; Dr. J. R. Yrujo, Mexico; Ernest W. Cushing, editor of *Annals of Gynecology and Pediatry*, Boston; Dr. Enrique Lopez, Havana, Cuba; Dr. Francisco Marin, Pueblo, Mexico; Dr. George C. Ober, Washington, D. C.; Dr. Alfredo Garces, Popayan, Colombia; Dr. Olan Mendota, Buénos Ayres, Argentine Republic; Dr. G. Wythe Cook, Washington, D. C.; Dr. George N. Aker, Washington, D. C.; Dr. James G. Meschane, Baltimore, Md.; John A. Homer, Washington, D. C.; Dr. Luis E. Ruiz, Mexico City; Dr. Daniel Gutierrez, Manizales, Colombia; Dr. Juan J. Oliva, San Jose, Costa Rica; Dr. Emilio Echeverria, Costa Rica; Dr. C. H. A. Klein-Schmidt, Washington, D. C.; Dr. George H. Rohé, Catonsville, Md.; Dr. G. L. Magruder, Washington, D. C.; Mr. De Pablo; George E. Kanning, Lansing; Dr. Antonio Jover, Havana, Cuba; Dr. Antonio Mendizábal, Mexico; Dr. J. B. Wolfe, Glasgow, Scotland; Dr. Ernest Hart, editor of the *British Medical Journal*, C. S. Newbrier, Bay City.

With the delegates are two or three Washington physicians and J. E. Jones, secretary of the National Capital Press Club, who represents the Washington *Evening Star*. He is the only press representative traveling with the party.

The party will leave Boston and stop at Saratoga, Niagara Falls, Detroit, Toledo, Cincinnati and Chicago.

AT DETROIT.

[From the Detroit Free Press, Sept. 17.]

The delegates to the Pan-American Medical Congress, which was held at Washington, arrived in the city yesterday morning before 7 o'clock. The party, which numbered about sixty, were principally from Mexico, being accompanied by Samuel S. Adams, chairman of the committee of arrangements; Dr. H. L. E. Johnson, chairman of the transportation committee. They came by special train, which the United States Government has provided for the conveyance of the distinguished party from Washington to Chicago.

At the depot they were met by the reception committee, composed as follows: Dr. E. L. Shurly, chairman; Drs. A. W. Imrie, W. G. Henry, Hal C. Wyman, E. W. Jenks, J. Flinterman, A. E. Carrier, Donald Maclean, Leartus Connor, E. A. Chapoton, P. B. Le Blanc, J. V. Beelaere, T. A. McGraw, H. O. Walker, F. W. Mann, C. Henri Leonard, and Messrs. M. R. Gattel, Herman Freund and F. H. Borradaile, and escorted to the Russell House where they sat down to breakfast.

After a short rest the party were driven in carriages to the extensive laboratory of Frederick Stearns & Co., Twenty-first street, and were there received by Mr. Stearns, Sr., who was awaiting their arrival.

They visited twenty-four departments in the following order: Mill room, fluid extract manufacturing, still room, fluid extract percolating room, fluid extract finishing room, pomade washers, pharmaceutical manufacturing, capsule room, stock room and analytical room, pill manufacturing room and gelatin coating room, sugar coating room, pill mass cutting room, Spanish office, pill finishing room, seidlitz room, pressroom, composing room, and compressed lozenge room, ointments, bottle washing room, filling room, filled stock room, packing and shipping room, cachet room and box factory, and stock room. On the top of each of the doors to the different departments was a large printed card in Spanish describing the department, and the nature of the work performed there. The doorways to the different departments were also decorated with the flags of the nations represented, the Spanish colors being conspicuous.

Special interest was manifested in the manufacture of hard and soft capsules and in the manufacture of pills. The mechanical processes in use were entirely new to the strangers, and when they saw hundreds of pills turned out in a twinkling, as if by magic, and the gelatin of capsules formed, filled with the fluid and hermetically sealed in about the time it takes to swallow one, they could only utter their amazement. They were impressed with the completeness of the lines of pharmaceutical products, with the magnitude of the establishment, its equipment, the system that was apparent everywhere, and the scrupulous cleanliness of every department. It took fully two hours to walk over the building, after which the company were entertained at luncheon in the crude stock-storing room. Time being limited, the refreshments had to be hurriedly partaken of. They left about 12 o'clock.

They also visited the great laboratories of Parke, Davis & Co. and Nelson Baker & Co., where they were courteously received and hospitably entertained. They were then driven round the city and to Belle Isle, and at 2:30 took luncheon at the Russell.

In the evening they were entertained at a banquet at the Russell House. The following day they were given a sail down the river, and left in the evening for Cincinnati.

(Detroit Free Press, Sept. 18, 1893.)

AGROUND IN LAKE ST. CLAIR.—The visit of the delegates to the Pan-American Medical Congress came to an unpleasant ending last night and doubtless many wished they had omitted the last feature of the entertainment. The delegates together with a number of local physicians and ladies took the steamer *Mary*, yesterday morning for a trip through the lake. The party was entertained at the Oakland by Mark Hopkins, but on the return trip the boat evidently lost her way, for she ran in too close to the Grasse Pointe shore and came to a standstill 300 feet from the club dock, running very hard aground. All efforts to release her were without avail, and finally a boat was lowered and some of the local physicians went ashore to make arrangements for bringing the party back. The street car company was apprised of the situation and sent out cars to convey the visitors to the Michigan Central depot, where their special awaited them. It took some time to convey all in safety to the shore, and there was a great deal of consternation among the party while waiting for turns in the small boat. The train was held and the delegates got away, although behind the scheduled time.

AT CINCINNATI.

(From the Commercial Gazette.)

CINCINNATI, O., Sept. 18, 1893.

Mayor Mosby Monday morning received the representatives of the Pan-American Medical Congress. There were about sixty in the body. The delegates arrived in the morning in a special train; stopped at the Grand Hotel for breakfast, and made the City Hall their objective point. They came in a trolley and in carriages, and on alighting took possession of the Mayor's handsome reception room. They had scarcely ensconced themselves in the heavy leather sofas and chairs when His Honor, arrayed in a new suit of black and a shining tile, stepped out of the private office. Dr. J. C. Culbertson, Chairman of the Reception Committee; Dr. Comegys, President of the Academy of Medicine; the Health Officer and several other medical men, members of the Reception Committee, stood around ready to do honor to the distinguished visitors. Dr. Culbertson introduced the Mayor, who shook hands with each of the party, and then all adjourned to the handsome council chamber, where His Honor spoke as follows:

"It is with a great deal of pleasure that I welcome the Pan-American Congress to our city. I extend to you the warmest greeting of our citizens, and I want to thank you for your interest in studying our customs and laws. Such interest is for our mutual benefit, and can not but help uniting the Americas in a firmer union. As for your excursion, I feel and hope that commercial prosperity will follow it. As for our hospitality, I wish to say that the city is yours. If you see anything you want, take it; I will give you even our new City Hall."

The speech ended, the Congress took carriages to the City Hospital, where they went through the wards. The College of Music was next visited, and President Peter Rudolph Neff had everything in good shape. In the College proper all styles of classes were in recitation, and the Lyceum and Odeon had concerts. In Music Hall the great organ was performed upon, and the only audience was the visitors. Leaving the college, the visitors walked to Fourteenth street, where three electric cars awaited them. These were run up Elm to the incline, and up that and on out to Burnet Woods, where the carriages, which had been sent on, took the members through the park and also through Clifton. After a view had been taken of the handsome suburb a cut was made for the Zoological Gardens, where dinner was served.

After dinner Avondale and Walnut Hills were driven through and then Eden Park and at the Art Museum a stop was made and a lunch served. The Rookwood pottery was then examined, and a trip down the incline made. Carriages were in waiting and conveyed the Queen City guests to the Grand, where after supper, the party took a special train for Chicago. With the party was a colored man, Surgeon General for the Republic of Hayti. Another (apparently colored) man was physician to the Khedive of Egypt, and a third, a handsome white man, was the medical adviser to the Emperor of Austria. The two latter do not belong to the Congress, and joined the party accidentally in Washington.

AT CHICAGO.

The excursionists reached the Union depot, Chicago, on Tuesday, Sept. 19. They were met at the depot by a com-

mittee consisting of Drs. C. W. Earle, J. C. B. Hamilton, I. N. Danforth, Truman W. Miller, Randolph N. Hall, Cassius D. Westcott, Frank C. Greene and Geo. Henry Cleveland. This committee had arranged for the whole party at the Palmer House, but one of the Washington committees had arranged for breakfast for them at the Auditorium, but the *entertainment* was obviated by the party going in a body to the Auditorium for breakfast. After breakfast they went to the banquet room, where they were formally welcomed by the Hon. Carter H. Harrison, Mayor of Chicago, who was introduced by Dr. Chas. W. Earle, President of the Chicago Medical Society. The Mayor made one of his characteristic speeches, which was well received.

Dr. Fernando Henrotin then bade the visitors welcome in French, Dr. E. J. Gardner in Spanish, and Dr. John E. Hamilton in English. Having been thus thrice welcomed, a brief response was made by one of the delegates, and the party was allowed to rest until evening.

At 8:30 the hall and reception rooms of Kinsley's were thrown open, and the delegates were received by the General Committee of the Medical Society.

The committee consisted among others of the following:

Dr. Chas. W. Earle, Dr. John E. Hollyster, Dr. Edmund J. Downing, Dr. Nicholas Senn, Dr. Archibald Church, Dr. I. N. Danforth, Dr. S. S. Davis, Sr., Dr. John E. Hamilton, Dr. Truman W. Miller, Dr. D. W. Graham, Dr. J. M. Patton, Dr. R. N. Hall, Dr. E. J. Gardner, Dr. L. E. Ingham, Dr. Edmund Andrews, Dr. Frank Johnson, Dr. Frank Andrews, Dr. Morgan R. Brown, Dr. R. N. Isham, Dr. J. B. Murphy, Dr. H. Kellogg, Dr. LaGrange, C. S. A. Dr. J. P. Wertenbaker, M. H. S., Dr. F. C. Greene, Dr. DeLaskie Miller, Dr. Wylie Andrews, Dr. Frank Edlins, Dr. H. T. Byford, Dr. Sanger Brown, Dr. C. B. Cleveland, Dr. F. C. Hotz, Dr. S. H. Stevenson, Dr. Hoff, C. S. A., Dr. Bayard Holmes, Dr. D. R. Brown, Dr. J. H. Etheridge, Dr. A. R. Reynolds, Dr. W. L. Clark, Dr. E. O. Bolen, Dr. Ernest Hart and Sir Richard Webster.

Many ladies attended the reception. A male quartette sang funny songs, and a mandolin orchestra furnished instrumental music.

On Wednesday the exercises began by a trip to the Chicago Medical College, where the new laboratory was inspected. The party then visited the Cook County Hospital where luncheon was served. Dr. J. B. Murphy presided. There were some toasts, after which the Rush Medical, Physicians and Surgeons, Woman's, Polyclinic and Post Graduate Medical Colleges were visited, and the Presbyterian Post Graduate and Polyclinic Hospitals. The day was finished at the Polyclinic. The visitors were escorted to their rooms at the Palmer House, and the great Pan-American Medical Congress had finished its program.

MISCELLANY.

Gift to a Hospital.—St. Luke's Hospital, Detroit, will receive \$200,000 as a bequest from the late Samuel B. Coyle of that city.

Homeopathic College.—The Louisville homeopaths have started a medical college in that city.

Binghamton, N. Y., hospital has been reopened, the city council having voted the money for its continuance.

New Hospital at Winnipeg, Man.—Winnipeg doctors are making strenuous efforts to have a general hospital established by the Dominion Government.

West Chester Hospital.—The managers of the West Chester county, Pa., Hospital have filed their application for the \$10,000 voted them by the last legislature for the erection of a new building, with proviso that the management should first raise \$5,000.

Pennsylvania Hospital for Feeble Minded.—The site for the State hospital for the care of feeble minded children has been selected near Franklin, Pa.

Dr. P. O. Hooper Resigns.—Dr. P. O. Hooper has resigned his position as superintendent of the Arkansas State Lunatic Asylum, the resignation to take effect some time within the next thirty or sixty days. No reason is said to be given by the superintendent in his letter asking to be relieved of his charge. The Arkansas Insane Asylum is the most important charity in the State.

Dr. Pozzi of Paris, the well known gynecologist, is on his way to Chicago, having been designated by the French Government to attend the World's Fair.

Medical Society of the State of New York.—The following business committee has been announced by the president of this Society, Dr. Herman Bendell of Albany: Dr. Henry Flood of Elmira; Dr. L. Bolton Bangs of New York; Dr. Edward Clark of Buffalo; to whom all communications regarding papers for the meeting of the society in February next may be addressed. F. C. CURTIS, Secretary.

Medical Club Election.—At the first regular meeting of the Roswell Park Medical Club of Buffalo, the following officers were elected for the ensuing year: president, Dr. Julius H. Potter; vice-president, Dr. George F. Cott; secretary and treasurer, Dr. James A. Gibson. Dr. Potter read a paper on diphtheria and its latest treatment.

A Hospital for Melrose, Mass.—A charter has been issued from the office of the Secretary of State for the incorporation of the Melrose Hospital Association. Royal P. Barry is president of the new association, and Decius Beebe treasurer. The hospital will be used for the needy sick and disabled of the town. Those who are in a position to pay will be requested to do so. Money so received will go to the maintenance of the hospital.

Colorado Medical Library Association.—DENVER, COL., Office of the Secretary, July, 1893.—The medical fraternity of Denver and Colorado are endeavoring, as the accompanying booklet shows, to build up a medical library in this city. It is not necessary to call attention to the advantages which accrue to the profession of medicine through the establishment of a medical library. Our remoteness from the centers of population makes the work we have undertaken difficult in many ways. Your society can aid materially in this enterprise by sending us its proceedings. Anything sent us will be acknowledged, placed on the shelves of the library and brought to the attention of its readers.

Yours respectfully,

J. T. ESKRIDGE, M.D., President,
HENRY SEWALL, M.D., Secretary,
J. C. DANA, Librarian Public Library,
For the Association.

Address, care Public Library, Denver, Col. (The association will pay transportation if you wish.)

The State Board of Health of Nebraska.—The State Board of Health Sept. 10 ruled against the issuing of certificates as physicians to graduates of Cotner University medical department, thus upholding the action of the board's secretary. The board has passed this order: "Your report in the matter of the medical college of Cotner University, together with other papers touching the same matter, having been under consideration of the State Board of Health, you are hereby notified that we affirm your decision and coincide with your conclusions that the number of clinics in connection with the college has not been sufficient to justify the recognition of its diplomas, and we further recommend that as soon as this college has, in your judgment, complied with the requirements of the statutes its diplomas be recognized, and that all due encouragement be held out to this college to put itself upon a solid footing and to build up a strong medical institution.

"It is understood that the college officers have secured a building near the main building and will open a hospital where patients may receive treatment free of charge. A free dispensary is also to be opened in Lincoln, and by these additions the officers expect to satisfy the board that the law is being complied with."

Charity Hospital at Westchester, N. Y.—Although the Westchester Free Hospital has been open only a few days, hundreds of people have visited it, and each one has left a substantial donation. Each afternoon finds it surrounded with a collection of swell turnouts and delivery carts. Westchester has for the first time an institution on which people of all classes can unite, and a wave of charity has possession of the town.

The secretary, William Hesse Ballou, announces the following medical board for the hospital year: Consulting

physicians, Dr. Clement Cleveland, gynecologist; Dr. J. E. Ellis, Dr. Frank W. Jackson and Dr. W. B. James; consulting surgeons, Dr. Joseph W. Bissell, Dr. Arnold Naudain and Dr. Z. E. Lewis; out-patient department, Dr. W. C. Deming, Dr. Frank Anson Becker and Dr. W. B. MacNichol; pathologist, Dr. J. S. Thatcher.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from September 9, 1893, to September 16, 1893.

Major DAVID L. HESTINGTON, Surgeon U. S. A., is granted leave of absence for one month.

Lieut. Col. CHARLES R. GREENLEAF, deputy Surgeon General U. S. A., is granted leave of absence for two months, to take effect from August 25, 1893.

Capt. LOUIS A. LA GARDE, Asst. Surgeon, will, upon the completion of his duties in connection with the World's Columbian Exposition, report in person to the commanding general, Dept. of the Colorado, Denver, Col., for duty as attending surgeon and examiner of recruits at that city.

Lieut. Col. J. V. D. MIDDLETON, deputy Surgeon General U. S. A., is hereby granted leave of absence for one month, to take effect on or about October 1, 1893, with permission to apply for an extension of fifteen days.

First Lieut. CHAMBERLAIN, McCULLOCH, JR., Asst. Surgeon, is relieved from duty at Ft. San Houston, Tex., and ordered to Ft. Ringgold, Tex., for duty, relieving Capt. JAMES E. PILCHER, Asst. Surgeon. Capt. PILCHER, upon being relieved, ordered to Ft. Niagara, N. Y., for duty, relieving Capt. REuben L. ROBERTSON, Asst. Surgeon. Capt. ROBERTSON, upon being relieved, ordered to Ft. Omaha, Neb., for duty.

Col. J. C. BAILEY, Asst. Surgeon General, is granted leave of absence for one month, to take effect about the 3d instant.

Major CHARLES L. HELLMANN, Surgeon (Ft. Douglas, Utah), is granted leave of absence for one month, to take effect between the 25th instant and the 5th proximo.

Major J. VAN R. B. HUNT, Surgeon U. S. A., is hereby granted leave of absence for one month.

First Lieut. HENRY R. STILES, Asst. Surgeon, is relieved from duty at Ft. Omaha, Neb., and will report in person to the commanding officer, Ft. Meade, S. D., for duty at that post.

Capt. CHARLES E. WOODBRIDGE, Asst. Surgeon, leave of absence granted is extended four months, by direction of the Secretary of War.

Capt. JAMES L. POWELL, Asst. Surgeon, leave of absence granted is extended ten days.

There are six vacancies in the Medical Corps of the Navy.

The Marine Hospital at Port Townsend was partially destroyed by fire on the 9th, at a loss of \$3,500. The patients were removed to temporary quarters, pending the construction of a new building.

Marine Hospital Service.—The importance of the work done by the Marine Hospital Service in keeping watch for cholera in Europe during this season has been undeniably great. The latest reports received from its agents indicate that there is a good deal of the disease still on the continent in various places, while strenuous efforts are being put forth by the officials to conceal the facts. Plainly this is no time for relaxation of efforts on the part of our quarantine and sanitary officers. We have practically escaped cholera thus far, and we have learned much of value from last year's experience. But increasing vigilance alone can give us the assurance of continued safety.—N. Y. Tribune.

LETTERS RECEIVED.

(A) Arend, A., Chicago, Ill.; Andrews, H. A., San Francisco, Cal.; (B) Bates & Morse, Advt. Agency, New York, N. Y.; Bond, A. K., Baltimore, Md.; Bruce, L. N., Excelsior Springs, Mo.; Bates, N. T., Poughkeepsie, N. Y.; Bakstoun, P. S., and Co., Philadelphia, Pa.; Bunn, Henry & Co., St. Louis, Mo.; (C) Case, Wilmet, Rochester, N. Y.; Cutter, J. A., New York, N. Y.; Crothers, T. D., Hartford, Conn.; Crook, J. A., Jackson, Tenn.; Carroll, Jas., Pullman, Ill.; Chappell, J. W., Chicago; (D) Dumessil, Olmstead, St. Louis; Dougherty, C. L., Cincinnati, O.; Douchey & Co., New York, N. Y.; Davis, L. S., Fairland, Ind.; Dodd's Adv. Agency, Boston, Mass.; Dulton, R. H., St. Louis; Donelson, Chas. P., Chicago; Dunn, H. M., Muscatine, Iowa; (E) Eustis, W. C., Owatonna, Minn.; (F) Ferguson, A. H., Winnipeg, Manitoba; Forbes, Hirstace, Co., Cincinnati, O.; (G) Griffin, C. F., San Francisco, Cal.; Gamble, W. E., Chicago; (H) Holmes, G. R., Avondale, Ohio; Hayes, C. W., Washington, D. C.; Hinton, J. A., Friendship, Tenn.; Holzerow, F. L., St. Louis, Mo.; (K) Keigha, L. A., San Francisco, Cal.; Kurtz, C. E., Chicago; (L) Lewis, C. H., Oakland, Cal.; Lippman, J. R., Company, Philadelphia, Pa.; Landon, Wm., Columbus, Ill.; Lippman Bros., Savannah, Ga.; LaGarde, L. A., Chicago; (M) Malted Milk Co., Racine, Wis.; McNulty, L. S., Louisville, Ky.; Merrill, J. L., F. S., Washington, D. C.; McArthur Hypophosphate Co., Ansonia, Conn.; McPherson, J. L., Detroit, Mich.; Miller, R. H., Kapa, Cal.; McKenry, J. E., Schenectady, N. Y.; (N) New York Phar. Ass'n, Yonkers, N. Y.; Novelty Manufacturing Co., Los Angeles, Cal.; (O) Opde, Thomas, Baltimore, Md.; (P) Burke, Davis & Co., Detroit, Mich.; Pope, H. B., R., Philadelphia, Pa.; Preston, W. T. R., Toronto, Canada; (R) Renz & Henry, Louisville, Ky.; Rio Chemical Co., St. Louis, Mo.; Ranch, Jno. H., Lebanon, Pa.; (S) Stearns, F. & Co., Detroit, Mich.; Sayre, E. H., New York; (T) Tuttle, H. C., Rutland, Vt.; Tracy, N., Newark, Conn.; Taylor, Jas. L., Wheelersburg, Ohio; Turf's Botanic Laboratory, New York, N. Y.; Traverso, A. W., Milwaukee, Wis.; Taylor, Henry L., New York; (V) Vollding, M. N., Independence, Iowa; (W) Widman, J. E., McGregor, Iowa; Whitney, E. E., Hillsdale, Mich.; Westgate, J. C., Detroit, Mich.; Weeks & Potter, Co., Boston, Mass.; Wooten, W. S., Blue Island, Ill.; Warner, W. R., Philadelphia, Pa.; (Y) Young, E. S., Idewater, Va.

The Journal of the American Medical Association

VOL. XXI.

CHICAGO, SEPTEMBER 30, 1893.

No. 14.

ORIGINAL ARTICLES.

AMERICAN INEBRIATE ASYLUMS.

Read before the Section of Neurology and Medical Jurisprudence at the Forty-fourth Annual Meeting of the American Medical Association.

BY T. D. CROTHERS, M. D.

SUPERINTENDENT WALNUT LODGE HOSPITAL, ETC., ETC.
HARTFORD, CONN.

Institutional care and treatment of inebriates began first in this country, and up to this time has attained a degree of development and prominence greater than that of any other country of the world. There are in Great Britain over forty asylums where inebriates are received and treated; and at least ten or twelve more in Europe; three are in India, two in Australia and New Zealand, and two opium hospitals are in operation in China. With the asylums in this country, the number will reach to about one hundred and twenty in the world. It is difficult to ascertain the exact number for the reason that many of these asylums are irregular in their work, and are associated with reformatories, sanatoriums and homes for mental diseases.

In Europe they are often sectarian church homes, and in this country many are private enterprises, dependent on the caprice of the managers and their successes. This is incident to every new work; and the formative stage, or the period of credulity that is always followed by the age of reason.

Asylum care of inebriates implies a recognition of disease and curability, which has been mentioned and urged for over two thousand years of the world's history. From the time of Hippocrates (and even before), down to the beginning of this century, the idea of drink madness and drink excesses being a disease, and curable by physical means, with restraint, has appeared in the science and literature of every age. Dr. Rush's writings in 1790 and 1809, seemed to have formulated the vague ideas along this line; although several European authorities carried the subject farther on they were practically unknown in this country; hence Dr. Rush may be said to have given the first inspiration and practical direction to the doctrine of the disease and its curability.

This idea was repeated in various ways, over and over again, until finally in 1846, Dr. J. E. Turner appeared as the first pioneer to build an asylum and demonstrate this fact.

Although the disease of inebriety had been recognized by a large number of eminent men in both this country and Europe, and asylums for their cure had been urged by the Connecticut State Medical Society of 1830, and the English Lunacy Commission of 1844, and others, the opposition of moralists and clerical reformers was so bitter and intense as to prevent any practical work. This has continued up to the present, only growing less and less.

In the year 1846, Dr. J. E. Turner of Bath, Maine, a practicing physician, became interested in the need of an asylum, from an ineffectual effort to save an early friend who was an inebriate.

He recognized the nature of the disease of inebriety and the need of hospital treatment and began an enthusiastic agitation of the subject.

He began by petitions and solicitations for money and influence to build an asylum, appealing to the New York State Legislature for years before a more recognition was given. So intense was the opposition that clergymen denounced it from the pulpit, and many of the religious and secular papers condemned the theory of disease and idea of an asylum as insane and opposed by all common sense and judgment.

At this distance, this period of denial and persecution appears like a glimpse of the dark ages, and the medieval spirit that opposed every new truth of science.

Finally, after ten years of persistent effort, despite the most bitter opposition he succeeded in forming a company to build an inebriate hospital, with the late famous surgeon, Dr. Valentine Mott, as president.

In May 15, 1854, the first inebriate asylum in the world was chartered by the New York State Legislature. Laws were passed giving power to hold inmates and charter was granted. The city of Binghamton bought a farm of nearly 200 acres of land and gave it to this company. Donations of lumber, stone and all kinds of building material were made on solicitation. The corner stone was laid in 1858, of what was later a magnificent building, and at one time the finest type of castellated Gothic architecture in the world. Six years later a part of the building was completed and opened for patients.

The founder, Dr. Turner, was a man of indomitable perseverance and tireless energy, who worked on without aid from others, begging money and material and superintending the construction of all the details of the building. At length in 1864, this first asylum of the world was opened for the physical care and treatment of inebriates at Binghamton, N. Y. The principles of treatment on which it was established were simply remarkable in clear, defined, scientific conceptions of the nature and requirements of such cases. Absolute restraint and control was provided, and no one was received for less than one year. It asked no pledges or promises from the patient; it aimed to give each one positive protection and medical treatment. The patients were locked in at night and only allowed out for exercise under the strict care of attendants. Turkish baths were given twice a week; work rooms were provided for those of mechanical tastes. Amusements of base ball, billiards, bowling and carriage drives were urged each day. Each case was considered a suicidal case

of insanity, requiring long medical care and restraint. No question of honor, or appeals to the pride was considered, but in all, the use of exact means and measures were carried out with military exactness.

These methods of treatment were far in advance of that time, and even to-day are just beginning to be recognized as the latest teachings of science. The principles, plan of organization, and treatment, although endorsed and supported by its distinguished presidents, Drs. Valentine Mott and John W. Francis, of New York, and Chancellor Walworth of Saratoga, created much difference of opinion and opposition. The patients themselves, after the immediate recovery from the effects of spirits, protested against the confinement and doctrine of disease, and sought in every way through their friends to break up the methods of treatment. As many of them had been influential men, and had prominent friends, a storm of the most bitter opposition began against the founder. Two separate views or theories of treatment became the center of intense feeling. The asylum and management insisted that each case was more or less diseased and should be under absolute control and restraint for long enough time to effect a permanent cure. The patients and their friends insisted that while the case might be diseased, his recovery depended largely on his liberty and promise to get well. That restraint was an irritation and an injury, also that appeals to his honor and manhood were the real agents for final cure. The founder and his friends insisted on long, absolute restraint and military control of the case, with the application of means and measures above all caprice and emotional changes of the patient. The opposition urged that restraint should be only nominal at first, and length of treatment vary with the man and his disposition, to which should be added moral appeals and moral remedies.

After a long, bitter struggle, the board of management changed and adopted a practically free and easy plan of treatment and Dr. Turner and his friends were turned out. The central object was to make the asylum popular with the patient. This unfortunate controversy gave new impetus to the moralists, and those who doubted the disease theory, and they joined in a wild crusade to show the folly of such institutions. The bitter controversy which gathered about the management of this asylum attracted the politicians, and the noted William M. Tweed of New York City, and others became directors.

All this time the asylum was crowded with patients, and the income was diverted to secure personal ends. Finally in 1867 the board of management deeded the property to the State of New York for one dollar, without the advice or consent of any one. From that time a series of misfortunes followed, during which seven superintendents were in charge in eleven years. Then the State changed the asylum to an insane hospital, and a political governor, in justification of the act, called the inebriate asylum a failure. Notwithstanding the conflicts of public opinion, and the changing methods of treatment by inexperienced men in charge, large numbers of persons went away permanently cured, as was clearly shown by statistics gathered the last years of its existence as an inebriate asylum. The enthusiasm which had centered about this work at different times faded, and the idea of failure and condemnation of asylum treatment for inebriates was spread far and near.

Had the physical treatment of the inebriate been a theory, this would have been its final death. But, like all other great enterprises of the world, the death of Binghamton Asylum marked the birth of a large number of similar asylums, some of which are doing grand work in the world. The great fact that inebriates were diseased, requiring positive hospital care, was demonstrated to the world by Binghamton Asylum beyond all question.

The advent of Binghamton Asylum was felt all over the world; even in far away Australia, an asylum was opened in 1859 that is still in existence. In Europe many small asylums began, although opposed as bitterly as in this country; yet they soon came under church control and gave great prominence to the moral and ethical side, and thus escaped the criticism others received. Long before Binghamton Asylum disappeared, a number of embryo institutions came into existence, many of which died from weakness and inability to bear the shock of opposition. Others struggled and are living to-day. One of these early asylums was the Washington Home of Boston, which began in 1857 as an inebriate lodging-house in the center of the city of Boston.

After years of opposition and serious trials it came under full medical management as a scientific hospital, and is now the oldest asylum in the world. Its late superintendent, Dr. Day, has had the largest experience in the management and cure of these cases of any person living. This hospital has had its wild storms of criticism and persecution incident to every new advance of science, but now receives about four hundred patients yearly. The second large asylum in the world that began in those early days and is doing good work, is Kings County Inebriate Home, of Brooklyn, N.Y., Dr. Blanchard, superintendent. This was opened in 1867, and, from small beginnings, has gone on to be a magnificent hospital crowded with patients. The disease of inebriety and the need of positive restraint and medical cure are the cardinal points of its management.

The Chicago Washingtonian Home was opened in 1867, and has been in successful operation up to the present.

The Franklin Home of Philadelphia, Pa., was opened in 1872, and is receiving a large number of cases every year.

The Walnut Lodge Hospital at Hartford, Conn., was opened in 1878 as a private corporate asylum, and has become prominent, although smaller than the rest.

These five are the largest hospitals in the world for the treatment of the inebriate. Over a thousand patients are received and treated yearly at these institutions.

The Washingtonian Home of Boston; the Kings County Asylum of Brooklyn, N. Y.; and Walnut Lodge at Hartford, Conn., regard the inebriate as diseased, and treat such cases on broad scientific principles.

The Chicago Home and the Philadelphia Home and some other asylums believe in the prayer pledge and moral influences as the most valuable of all means and remedies. Also that a short residence in the hospital is better than long treatment. Medicines are only used for temporary purposes.

These two classes of asylums represent the same old battle which greeted the first asylum at Binghamton, only less violent. The question of vice

and disease, as a compromise of half vice and half disease, is still the center of controversy. The first three asylums and a rapidly increasing number of small private homes and hospitals retain the principles and approximate to the plans of treatment laid down at Binghamton in 1864; while the others have no fixed scientific conceptions of the nature and needs of the inebriate or his malady.

Notwithstanding the misfortunes of the first hospital and its founder, a large number of similar places have been organized and managed with success.

As in all new enterprises, many of these hospitals must suffer from non-expert management and be organized on some theory of the nature and treatment of inebriety not founded on correct study and experience. After a time they are abandoned or changed to homes for nervous cases and insane. Over fifty different hospitals for inebriates have been established in America. More than thirty of this number are in successful operation; the others have changed into insane asylums, water cures, etc. Three large buildings or institutions are practically "faith cures," where all physical remedies and means are ignored. Several asylums are called homes for nervous people, to conceal the real cause, and thus protect the patients from the supposed stigma of inebriety. Others are literally lodging houses, where the inmates can remain a few days and recover from the effects of spirits. Several places make a specialty of opium cases; in some the treatment is empirical. In only a few of these hospitals is the disease of inebriety studied and treated on a scientific basis; the others are passing through the ordeal of "elimination and survival of the fittest" incident to every new advance of science. In many of the States large public hospitals are projected and awaiting pecuniary aid from the State or from other sources.

Of the forty asylums in operation in Great Britain to-day, only a very small number are conducted on scientific principles; the others are church homes and charitable retreats where temporary care is given for immediate necessities. A thorough scientific hospital has been doing grand work in Melbourne, Australia. Another has been organized in New Zealand under a competent board of medical men, and both of these hospitals are a credit to the skill and judgment of the managers. Two very well managed asylums are in operation in Germany and one in Switzerland. A number of similar hospitals have been projected in Norway, Sweden and France. In the latter country the inebriates are sent to insane asylums and placed in a ward by themselves. This has become an abuse which the superintendents of asylums have strongly denounced. The inebriate asylums of Europe are nearly all private institutions or under the control of churches and temperance societies. The Dalrymple Home, near London, is one of the largest and best equipped in Europe.

All these places, both at home and abroad, are yet in their infancy; not one of them are able to do the work that should be accomplished, because of the unjust criticism and obstacles which they have to overcome. The results of treatment in the few scientific hospitals for inebriates are most encouraging. The first statistical study was made at Binghamton Asylum in 1874. The object was to find out how many persons who had been under treatment continued temperate years after. Accordingly, 1,600 circular letters were addressed to friends of patients

who had been under treatment five years before, asking the present condition of the patient. The answers indicated 62½ per cent. as yet temperate and total abstainers. This result, after an interval of five years, was clear evidence that a large per cent. would, in all probability, remain cured during the remainder of life.

Dr. Day of Washingtonian Home, made a similar study of 3,000 cases who had been under treatment ten and more years before, and found over 32 per cent. yet sober and temperate.

Dr. Mason of Kings County Inebriate Home, examined 2,000 cases who had been away from the asylum for ten years, and found 34 per cent. of all cases yet cured. He expressed great surprise at this result, as most of the cases were considered incurable at the time of treatment. Other observers have made studies of a smaller number of cases with similar results.

The most careful authorities of this country and Europe agree in the statement that fully one-third of all cases who come under treatment for periods of three months or more are permanently restored. Other institutions where inebriety is treated as a vice, or by empirical methods, claim 80 and 90 per cent. of recoveries. It is needless to add that all such statements are not supported by published statistics. In view of the chronic character of these cases and the imperfect means of treatment, the results so far are encouraging, and indicate great possibilities in the future from a better knowledge and control of these cases.

Such is an outline view of the history and present condition of asylums in this country. The rampant empiricism which is so prominent to-day is indirectly rousing up a new interest in all asylums for inebriates. The increasing crowds of relapsed cases whose faith in the gold cure specifics has been misplaced, are rapidly filling up all asylums, and come in a measure prepared to accept physical treatment and to appreciate the need of means and remedies. There are ideals of the coming means and appliances essential for the successful treatment of inebriety towards which a few institutions are struggling. Each year's experience brings larger and clearer conceptions, and each institution is becoming more adapted for scientific work in this field.

An outline of the scientific treatment of inebriety in asylums in America will describe some part of the treatment common to each, but not yet attainable in its entirety, because of the numerous obstacles and want of support from public opinion and other conditions.

The situation of an asylum in the suburbs of a city or in the country near large centers, with ample grounds for retirement and quiet living, are essentials. A proper building, equipped with baths and all the appliances for comfort, with means of amusement, joined with ample legal power to hold the patient a year or more, are equally essential. They should be called hospitals, not only in full recognition of their physical disabilities, but as places where every condition of life can be regulated and every surrounding can be made to aid recovery and restrain. Literally a quarantine hospital, where isolation and removal of all the exciting causes, combined with appropriate treatment to build up and restore the deranged functional activities of the organism, can be obtained. The time of treatment should be from

six months to two years, and be governed by the condition of the patient and extend to a legal control on parole for a long time after leaving the asylum. In Connecticut the law gives control over all committed cases for three years, whether on parole or otherwise in the limits of the State.

The hospital should provide exact military restraint with duties and responsibilities, rewards and punishments suited to the condition and capacity of the case; also work, amusement and occupation, both mental and physical, as medicinal agents. Every condition of life should come under exact military control: baths, exercise, sleep, food and medicines all to be regulated and applied uniformly. Each one should be treated as suffering from profound disease of the brain and nervous system requiring long rest and building up. The general treatment should begin with an examination and inquiry of the facts concerning his past life and present condition. These examinations should be repeated every few weeks, because of the rapid changes and errors which are impossible to guard against in the first and later examinations. The use of spirits should generally be abandoned very early in the treatment, and the return of the drink paroxysm anticipated by the use of drugs, baths, exercise and special control.

Many of the paroxysmal drinkers are practically epileptics and require similar treatment. They are suffering from grave disturbances of the physical centers, and physical remedies are required in addition to other means. Other cases are delusional maniacs and paranoiacs out of harmony with every condition of natural, healthy living, and unable to correct and adjust themselves to such conditions. In others, nerve exhaustion is at the bottom of the drink impulse; inherited tendencies, reflex irritations, and many complex conditions which can only be discovered and treated in hospitals. When these are treated the causes are removed, and the alcoholic soil is exhausted and dies away.

States of poisoning from stupor to full delirium are made the subject of special treatment, according to the experience and theories of the physician. These acute symptoms followed by chronic conditions, require equally special remedies and means.

These are some of the general ideals in treatment to which every scientific asylum is moving. All asylums suffer for want of ample legal authority over their cases for sufficient time to secure permanent results. Public opinion regards asylums as of only temporary, and in most cases of doubtful value. The theories of their work are openly termed "fads," and supposed to be founded on some mercenary or selfish purpose. The pulpit, press and ultra reformers pass by on the other side, like the Levite. Public patronage is withheld, and most all asylums depend entirely on the income of patients for support. Hence they are more or less crippled in every way. Many asylums suffer from poor location, bad buildings and surroundings, inability to classify the inmates and apply special treatment to each one. In many places baths and systematic exercises cannot be secured. The nutritive, hygienic and passive treatment can not be carried out on the details of the managers; hence many asylums are using the means within their power in anticipation of looking forward for larger and more perfect facilities.

The treatment of inebriety not only includes

everything found valuable in hospitals for the insane, in reformatories of the most advanced type and in the modern sanitarium and homes for neurasthenics. The essentials for treatment in each of these classes are required for the inebriate. The asylum managed on the scientific plan of providing for the requirements of each case, must have the power of control, and special buildings the same as to the hospitals for the insane; the discipline and management of the modern reformatory and the appliances of the best sanitarians and private homes; then it can approximate to a measure of success in the treatment, that at present is only in outline. American asylums are leading the world in these directions of practical work, and while no one has combined only in the crudest way these appliances, many asylums are approaching it yearly. Asylums all over the world are at the beginning and infancy of their existence. A great deal of preparatory work must be done before they can reach the first stage of scientific work. The moral remedies by appeals to the will power and morals of the case must pass away. The delusions and palsy of the higher brain centers must be recognized, and dissolutions beginning in the ethical centers extending down to all the lower faculties must be studied. The great fog banks of metaphysical theories of free will, moral depravity, vice and wickedness, must disappear from all conceptions of inebriety, and its practical management in asylums. Asylums and managers who act on the theory that the inebriate is half wicked and half sick are crippled. Asylums and managers who attempt by drugs or moral appeals to restore and cure the victim are still far back in the stage of credulity. The specific vaunter, who professes to break up the symptom for drink as if it were the disease itself, is an empiric, either ignorant or by design. Asylums and managers who teach dogmatically the nature of inebriety and its only true remedies, are not very far along in their scientific work. Asylums who claim large percentages of cures from certain means and remedies are not worthy of confidence.

Inebriety is found, when carefully studied, to be the most complex neurosis of modern research, dependent on heredity and many physical causes, also physical condition and environment that are not clear to the most minute study. Asylums for treatment so far, by isolating the patient place him in the best condition for study of conditions and applying means for relief.

The more thorough this study, the wider the range of causes appear, together with the means and methods of relief. The most advanced asylum of to-day follows a general prospective plan of treatment, and has no specifics or no special theories that are not open to change and re-adjustment. Beside a few general facts, which stand out like mountain peaks in a new land, all the intervening space is unexplored. No one can speak dogmatically as to where inebriety begins and what the exact causes may be. No one can explain the varied phenomena of drink storms, of the action of spirits on the brain, of the power of heredity, of the brain condition which demands relief by the craving for narcotics, of the sudden cessation of this drink impulse under unusual circumstances, of its equally sudden outburst from causes unknown. Even in asylums the same uncertainty exists. Cases that

seem restored relapse, and others that are considered incurable become restored, showing that our present knowledge is very imperfect, and the known is comparatively nothing in contrast with the unknown.

Running through all this phenomena of inebriety is an outline of a uniform movement of cause and effect: of events following each other according to some law; good examples are the periodicities of the drink impulses, and the outbreak of such impulses from the presence of certain conditions that can be foreseen and studied. Patients under care in asylums present a remarkable uniformity of symptoms and progress that is often startling to the student. Not unfrequently such cases can be anticipated and the results of treatment known far in advance. The drink symptom is dependent on some conditions of brain degeneration and changes. It will suddenly die out and disappear under the most adverse conditions and surroundings. Examples are numerous of persons who become temperate, sign pledges, and stop all use of spirits under the most unfavorable circumstances. Every temperance and revival meeting furnishes illustrations of persons who are restored permanently, although the same means have been used many times before with no results.

Persons are known to stop drinking from the slightest supposed reasons, and in all these cases the last means used are credited with being the active causes. The true explanation in all these cases is that some change or evolution of brain function has occurred and the drink symptom has died out. It is not the last prayer pledge or solicitation of others, or the last drug or remedy of special means used that has caused this change. Other and more obscure causes are at work, and the time comes when their action is apparent in the cessation of the drink impulse. Physicians in charge of asylums recognize this fact, and realize that their best efforts are in building up the brain and nervous system, and placing the organism in the best possible condition for both organic and functional change. Remedies directed to the drink symptom are never curative; a dose of mercury acting on the liver is a rational method, more so than bromid to check the drink impulse.

Asylum study of these cases show that inebriety is often a symptom or phase of a neurosis which may break out and change to some other form. General paralysis, melancholy, and many forms of insanity, together with tuberculosis, and various neurotic affections follow frequently on the subsidence of the drink craze.

The statement that the gold cure specifics are followed by an increased number of insane among those who have used the treatment must be a literal fact. The proof of such a statement is found in the experience of every asylum, and the general principles of neurotic diseases. The number of such persons can not be easily determined, but the more powerful the narcotic used to stop the drink symptom, the more certain insanity and profound degenerations of the brain centers will follow.

All asylums for inebriates suffer from the large number of incurable inmates. Persons, who, after an uncertain course of treatment go away, relapse, and condemn the asylum for their failure. Much of the current opinions concerning asylums are formed by the irresponsible statements of incurables. Such persons seem to take pleasure in denouncing asy-

lums in every place, and castigating themselves and their inmates. On the other hand, persons who have received substantial benefit from their treatment, and their treatment and residence in an asylum. The result is that all institutions are judged by the unthinking public from the statements of those who have failed to receive any benefit from its work. Unthinking physicians who suppose that the control of the drink craze is the central object of treatment often lend their influence to unfavorable criticism of asylum work. This, joined with later condemnations of moralists, complicate and increase the difficulties of every practical asylum, trying to understand scientifically this new field of medicine.

American asylums have many advantages over all foreign institutions, in freedom of caste and prestige; also in ability to follow independent lines of work and rise above the prejudices and opposition of those who dread change and advance. Some general conclusions may be stated as follows:

1. The asylum cure and treatment of inebriates began first in this century, and has grown and extended to all civilized nations of the world.

2. American asylums have developed the disease theory and the practical character of physical treatment in institutions, beyond that of any others in this field.

3. Asylums in this country represent nearly all stages of development and early growth, from infancy and childhood, with its feeble conceptions and infantile efforts, to the boastful assumption and over confidence of youth, on to the dawning truth of early manhood when reason and judgment begin to reign.

4. A few of these asylums discern some great outline truths which may be stated with confidence as ideals towards which there is a rapid movement.

5. Inebriate hospitals must take the place of jails and station houses.

Such places are dangerous in their mental and physical surroundings by intensifying the degeneration and removing the patient beyond hope of recovery. They are in many cases literal training stations for mustering armies of chronic maniacs that never desert or leave the ranks until crushed out forever.

6. Inebriate hospitals should receive the incurable inebriates and make them self-supporting, and build them up physically and mentally.

They would relieve the taxpayer and relieve society of untold burdens of sorrow and misery.

7. Inebriate hospitals should receive the recent cases and place them in the highest conditions of enforced health and vigor, and thus return a large number to health and society again.

8. Inebriate hospitals can and should be self-supporting when once established. They should be managed on scientific business principles, like military training schools.

9. Inebriate hospitals should be built from money raised by taxes on the sale of spirits, on the principle that every business should be obliged to provide for accidents which grow out of it.

10. These are the realities which every inebriate hospital is approaching and which all experience points out as practical and literal in the near future.

11. The inebriate hospitals of today are only in the infancy of their work, contending with great opposition and prejudice, misunderstood, condemned, and working against innumerable obstacles.

12. Lastly, there is an intense personality in inebriate hospitals to each one of us.

They may bring salvation and restoration to some one near and dear.

They may be fountains of healing whose influence shall cross and influence our pathway in many ways.

13. Inebriate hospitals and their work are the great new lands which only a few settlers have reached. They are calling to us to come up and occupy, and thus help the race on in the great march from the lower to the higher.

Dr. J. K. KING, Watkin's Glen.—The essayist deserves great praise and credit for his long and patient work in this often unthankful line. The doctor stands eminent in this line of work. I have had opportunity to watch him very closely many years, and I consider him probably the best representative in this country on the view of inebriety being a disease. I do not know how many of us would go as far as he does in that line, but certainly he has done advanced work and has brought out that side. I have had a good deal of experience myself with these cases in various forms of treatment, and I seem to recognize in them two great elements: one is the element of disease which is a form of neurasthenia, and the other is the element of habit. I recognize habit as entering very largely into this thing, and there is no question but that habit after a time may become a disease. Now the methods of treatment lie in two lines: one is that of public inebriate asylums and the other of private institutions. The question is which is to take the advance. The public institutions are always subject to the danger that Buffalo and Binghamton have met; that is, getting under the influence of politics and following the unfortunate history of the asylum of which Dr. Dewey was the head. Private institutions lack one great quality of the public; that is, the ability to hold and retain the patient for a long time. The doctor has mentioned the length of time, and it seems to me from my experience that time is a great element in these cases. I have never found much difficulty in breaking up what you might call the disease. Turkish baths and other things, building up the system, etc., answer that purpose; but the difficulty is to retain them long enough, until the habit is broken off and until the moral character and the physical strength are established sufficiently for them to stand and let it alone. There lies the secret. When we can solve that question, we will have no difficulty in curing a great many; but the difficulty is to retain them long enough. Just as soon as a man who is accustomed to drinking gets fairly over it, his spirits rise at once and he thinks he is a free man and he is capable of going anywhere and having no trouble in the future, and he again rushes into temptation, and before he knows it is drinking. The fact is, the institutions do not retain the patients long enough to establish their physical and moral character. The doctor's idea of a State institution supported out of the funds that come from the sale of liquor is a very good one, but the question is, how long before it can be carried out? It reminds me of something that I saw when in Oklahoma last fall. In one of the principal streets in Oklahoma city there was a very large saloon where everybody seemed to go, and right overhead was a Keeley cure, so they went right together; they got finished up downstairs and went upstairs to recover. So I am afraid it will be in this question of establishing asylums out of the money that is received from the sale of liquor.

Dr. J. G. KIERNAN.—The history given by Dr. Crothers is exceedingly interesting, and he mentioned some matters which were not worthy in regard to the New York experience. He did not, however, call attention to one of the most peculiar performances under Tweed and the régime, which

was the attempt to reform an inebriate physician by placing him at the head of the inebriate asylum of Binghamton, the gentleman being imported for that purpose from Chicago. I may say here that the Washingtonian Home in Chicago is a theme of ridicule. It is notoriously only a sobering up place, but so delightfully conducted that little arrangements of this kind crop up now and again; the inmates go off on a spree and their absence is first discovered in the police station. No attempt is made at treatment, except a certain amount of moral suasion and the medical agency of the miraculous pre-Raphaelistic chart which the head of the institution has hanging on the wall, and which he descants on to the admiration of the inebriates.

Dr. Crothers ignored one fact, i. e., that between 1864 and 1882 there existed what may be very well called the Philistine era of American psychiatry. That was the era when every bit of insanity was crammed into a very short Procrustean bed, and medical societies seemed the mouthpieces of mobs to enunciate certain lynch law doctrine with regard to the insane. It seems to me not a few of those blind sprees resemble in a great many of their characteristics the period of stupidity that occurs in many epileptics. The reference to certain cases healed by prayer, etc., brings into consideration another element the doctor did not take into account. Every one knows that under certain conditions, while the subject is not hypnotized, he is in a peculiar state of mind and peculiarly liable to suggestion. That suggestion, that conception, coming under those conditions, dominate the man when nothing else will. With regard to the legal status of the question, it is the same as with the criminal. The inebriate can not be properly taken care of any more than the habitual criminal, until he is regarded on the same level as the insane. Under our law in Illinois there is one very curious anomaly. The inebriate is not for custodial purposes an insane person, while civilly he is, because when a man becomes an habitual drunkard you have a guardian appointed just the same as over an insane person or minor. In other words, the disease theory, and it can be regarded as nothing else, is taken into account in what might be called the civil aspect of the subject, but in what might be called the criminal aspect it is totally ignored.

Dr. CLARK GAXEN, Omaha, Neb.—I would like to say a word in regard to the suggestion of police control in these cases. I am fully and heartily in accord with the doctor that this subject should be regarded and treated as a neurosis. I think I can go as far as any one in the acceptance of that theory. In my mind it is simply a vaso-motor neurosis usually induced by long continued use of alcoholics, but sometimes the neurosis occurs without such influences, and seems simply to spring up; but I think that especially should there be a different control in cases of this kind from ordinary police cases. Washington is the only city in the country that has adopted that police control. The superintendent of police there takes this view of it, and has arranged and equipped his department with reference to the management of those cases outside of the police station. He does not take those cases to the police station unless it is absolutely necessary and the individual has no other place to control him temporarily. As to the view that Dr. Kiernan has just expressed, I think that is simply deficiency in the law; the law is simply behind science in that respect. Chronic inebriety, that is this special form of temporary insanity, should for all purposes of control be regarded entirely as other forms of insanity are.

Dr. J. E. EMERSON.—I have one criticism to make. It seems to me the doctor is in error in saying that there is such a disease as the drink disease. I think it would be much more correct, judging from my own observation, to say that the tendency to drink arises from a variety of morbid condi-

tions, of conditions of imperfect development, which manifest themselves in some form of tendency towards indulgence in narcotics, not necessarily a disease, but resulting from various conditions. I do not think we can yet say that there is a disease. One man has spasmodic paroxysms of drink, another man simply has a feeble will and falling in with boon companions, gets to drinking. I think they should be classed as an entirely different condition. Still I think we must all agree that there is a physical basis, either in imperfect development, or you may say in a condition of partial degeneration of the general nervous system, lowered tone, at least a physical basis.

As regards the possibility of restraint which has been spoken of, our laws in Michigan provide for it, but in a very peculiar way. They provide for the appointment of a guardian on the application of any near relative, any blood relative or husband or wife; this guardian under the order of the judge of the probate court may send such patients to any hospital, asylum or sanitarium for treatment, to be retained there at the option of the guardian, with the proviso that the guardian must make a report whenever called upon by the judge of probate who sends the case, or at stated intervals of six months. I have in very many instances endeavored to get friends to place their relatives under the provisions of this law, but have never yet succeeded, although I have recommended it in many instances. The judge of probate has been invoked and has simply said he could not carry out the provisions of the law. Why, I never could find out.

DR. JOHN G. REED—I have been very greatly interested in Dr. Crothers' paper and almost as much so with the comments upon it. For some time I have been giving some extra attention to this department of neurology, and it is very singular how one changes his mind as he comes in contact with men. I, at first, under perhaps the influence of enthusiasm, supposed that I had established some principles that would be abiding, and when I came to test them by the opinions of others, I was disposed to change them a good deal. It reminds me a good deal of the saying that the friend of to-day is the enemy of to-morrow and the enemy of to-day is the friend of to-morrow. It brings up the idea that this department of neurology is in a formative stage and that we hardly have any well defined principles of general application except in theory and those not well tested by clinical data. The gentleman on my right, taking exception to saying that we have the drink habit disease, or that the drink habit should be called a disease, seems to me to be somewhat in error. I hardly know how you will avoid using the term in the investigation of so broad and deep a subject. It seems to me that the multiple conditions are those of constitutional or congenital deficiency, which finally blooms out in inebriety, and that this should as much be called a disease as those conditions which produce epilepsy and other classified neurotic conditions.

DR. W. H. WELLS, Marshfield, Wis.—The paper just read is very interesting and very important to us all, and there are two views that might be taken of the neurosis side of the question, as to whether the neurosis is primary in the majority of cases, or whether it is acquired. Now I think there are two classes that we have; one in which the neurosis is primary and a still larger class in which it is acquired from the constant habit of drinking. As one of the members, in advocating the neurosis and sanctioning that view said, in the majority of cases it is brought on by the habit of drinking. I think it is well established that this habit of drinking can be acquired, and the constant habit then does produce a neurosis. The habit of drinking we can acquire the same as we can acquire habits of eating. We can acquire a taste for articles of food that when we first begin to eat are

very disgusting, and it seems to me that in the majority of cases the habit and the neurosis are acquired rather than that it is a primary neurosis. You take the child born of drunken parents and the disease may be direct, primary and hereditary, while another boy may start out being healthy in all respects and thrown in the company of drunkards and the habit gradually fixed upon him, although he begins in a perfectly normal way and having no desire for it; but the desire is acquired and finally produces a neurosis that perhaps would require constant treatment in order to cure.

DR. WILLIAM THOMAS BISHOP, Harrisburg, Pa.—I began to be a temperance reformer on the reform idea. After a while I came to the good, sound, sensible idea that drunkenness was a form of insanity as much as horse-stealing or any other similar disease, and I think the mistake that they make is simply trying to get away from the fact and trying to make a compromise. I think that there is where the whole foundation is and the nearer you get back to it as medical men and recognize it as a fair and square issue, that it is a disease and that it is a form of insanity, that the law which governs it is the same as any other phase of insanity and the restraint the same, the nearer you will come to accomplishing what you want. Another thing; drop this indiscriminate use of the words, asylum and hospital. I have a great deal of fault to find with our brother about that; he straddled from one side to the other; an asylum might be a place for those that are chronic. Our State of Pennsylvania is just building an institution for the chronic insane; that would be an asylum; but as long as there is any hope, as long as this disease can be treated with a likelihood of cure then the term should be hospital. I think the idea of having the hospitals or asylums supported from the revenue from intemperance is all nonsense. Make the State realize the responsibility they have for the protection of these people and the protection of society. There is no question but that some people are natural perverts just as much as they are natural horse thieves, while others acquire it. One thing must be kept in mind; that is, the continued use of alcohol or any other stimulant will cause an absolute breaking down of the tissue just as much as the injury of a hand in coupling on the railroad or any other injury; it is a permanent thing and you can not get away from that. You can only restore them the part that is left; you can not re-create, and the quicker we realize that it is a form of insanity and needs the same restraint and needs the same obligation on the part of the State for the same support, the nearer we will be to accomplishing what we need. Take a man insane on any other subject and try to develop in him a certain degree of moral responsibility. I went not long ago to a church service in an insane hospital; there were several hundred there. An epileptic was seized with an attack and wanted to fight and there was an old soldier next to him who had been in the English army who became very enthusiastic and did not want to see this friend of his abused. I said to him, You would not fight an old soldier, would you? and he quieted right down. That will work, but you must remember that it is a disease and that the other is only an incident.

DR. T. D. CROTHERS—I am glad to note such a general interest in a topic practically unknown. You may theorize for a long time and not get at practical facts. However, I will say that disease seems to be the only word that will explain the phenomena which appear in all these cases, although it is to be deplored that we insertibly associate these vague terms, such as habit, vice and free-will in the most indefinite way with these cases. More error confessed adds intensely to the disorder. This is a new phase of neurasthenic disease that will have a very large future and we can only be investigators. We should not theorize and think by so doing we have accomplished the highest good in this field.

SARCOMA OF THE PIA AND BRAIN, SIMULATING BRAIN TUMOR; MONO-SPASM AND MONO-PARESIS; OPERATION: DEATH ON THE THIRD DAY.

Read by title before the Section of Neurology and Medical Jurisprudence at the Forty-fourth Annual Meeting of the American Medical Association.

BY J. T. ESKRIDGE, M. D.
DENVER, COLO.

E. T. P., male, aet. 50, Iowa merchant, was referred to me by Dr. W. J. Rothwell. His family history is excellent. His health during childhood was good, with the exception of headache, from which he suffered considerably during attendance at school. After he left school his headache ceased almost entirely. He denies more than occasional use of alcohol, or excess in venery. During his twenty-first year he contracted a hard chancre and a few months later he lost most of the hair on his head. There were no other secondaries. About seven years after the initial lesion of syphilis he married. His wife lived nineteen years, and during this time she had several miscarriages, none of the children reaching full fetal development. The wife died a few years ago with brain trouble (probably syphilitic). Mr. P. seemed to continue in first-rate health until the summer of 1889, when he began to suffer from uncomfortable feelings in the back of the head. These sensations at first did not amount to pain, but as time went on he had occasional attacks of headache. Two years after the first appearance of the head symptoms, or early in the morning of July 8, 1891, while he was feeling quite well, without any aura, he was seized with a general convulsion which lasted three or four hours. He remained in an unconscious condition four days. The attack was not immediately preceded or followed by headache. During the next two months he felt nervous, his face was flushed, and he became sleepless, languid and lost flesh. He did not suffer with a distinct head pain, but he experienced an apprehensive and confused feeling.

In September, 1891, he experienced a seizure, during which he did not entirely lose consciousness. The attack began by a sensation which he likens to the imaginary feelings caused by one inhaling some deadly poisonous gas with a vague, indescribable taste. There was no distinct odor or taste. Immediately following these sensations he felt a nauseated sensation at the stomach, and a peculiarly indescribable sick feeling in throat. There was an increased flow of saliva, slight drawing of the face to the left, and he seemed to himself dazed.

From October, 1891, till the time of his first visit to me (June 30, 1892), there has not been a day during which he has not experienced one or more of what he calls "nervous discharges." The attacks are said to be similar in character. They have all been attended by a profuse flow of saliva.

He has just had an attack in my office.

He shakes all over, as if suffering from a violent chill, turns pale and moans. There is slight twitching of the muscles of the left side of the face, increased flow of saliva on left side, the left thumb is drawn down into the palm of the hand, with slight flexor contraction of the fingers of the hand. There is a loss of consciousness. Immediately after the attack, which lasts only a minute or two, there is paresis of the left hand, wrist and face muscles, with

slight ptosis and wrist drop. Left pupil widely dilated. He describes his sensations as oppressive breathing, a sick feeling in throat, with intense chilliness, a peculiar taste, which he describes as an "electric taste." On questioning him further to ascertain if the sick feeling is not experienced in stomach instead of throat, he affirms that the sick sensation is in throat and left side of face. He says at times he feels as if the entire left side of body were on fire.

Examination, July 1, 1892.—Gait is somewhat halting, the left leg being used more awkwardly than the right. On closing eyes and walking backwards and forwards the disparity between the legs is more marked. There are no distinct ataxic movements of legs, trunk or arm muscles. Right leg muscles are much stronger than the left. Dynamometer: R. 150; L. 142. Knee jerks: R. nearly normal; L. sluggish, but variable, and increased by reinforcing. Deep reflexes of arms, increased, and nearly equal in each arm. Plantar reflexes, absent on both sides, although stroking the plantar surfaces causes some contraction of the leg muscles. Cremaster reflexes, present and about equal. Lower abdominal and epigastric reflexes, absent. The abdomen is very large, and covered with a thick layer of adipose tissue. He has double inguinal hernia. All sensory phenomena normal on right side. On the left side all sensory phenomena blunted, but not abolished except in parts to be noted. In left leg temperature sense is most affected. Cool substances are readily recognized as such, but warm substances make no impression as such until they have been in contact with the limb a few seconds, and then the impression is much less distinct than that made by the same substances in contact with right leg. Touch, pressure, posture and localizing senses seem to be slightly lessened in right leg. Pain sense is normal, or nearly so. On the trunk, little or no difference is recognized in the sensory phenomena of the two sides. On the index of the little finger of left hand he is scarcely able to recognize two substances as such even when held three times the normal distance apart. In other portions of the left hand, in left arm and face, there is only slight blunting of the sensory phenomena, less than is found in the left leg. Smell, normal. Taste, nearly normal, except on the left side, just immediately after an attack, when it is temporarily, nearly lost. Hearing: R. 1-12; L. 1-12. Tuning fork is heard about equally distinct in each ear.

Eyes: R. v. 20-40. All fields slightly narrowed. Pupil normal in size, and reacts to light and accommodation. Some whitish atrophy of optic nerve. Arteries nearly normal in size, veins full and slightly tortuous. L. v. 20-200. Yesterday just after one of his attacks, the pupil was dilated to three times the size of the right, and it did not react to light or accommodation. To-day the pupil is normal in size, and reacts well to accommodation, but slowly to light. Fields all lessened; temporal absent. Nerve very white, and shows distinct atrophy. Some drooping of upper lid.

He is ordered ten grains of potassium iodid thrice daily, and the dose to be increased five grains each day.

July 3, the medicine has not been given regularly. On the night of the fourth, he has a convulsive seizure, beginning in the left side of the face and extending throughout entire left side of the body and limbs, and three attacks of like character on the night of the fifth. During these seizures he is unconscious. July 6, he is taking thirty grains of potassium iodid thrice daily, and one-sixteenth of a grain of the bichlorid of mercury is given with each dose of the potassium. At 6 p. m. I find his face of a purplish color, he is very weak, and left side of face paralyzed. Dyn.: R. 120; L. 37. Saliva is constantly flowing in great quantities. Speech is thick, but he has no aphasia. Memory very poor. During the day he has had several convulsive seizures limited to the left side of the face, but consciousness has not been lost. On the seventh and eighth he has had three or four convulsive seizures in left side of

face, but no disturbance of consciousness. Immediately after an attack speech is impossible, and the muscles of the entire left side of the face are paralyzed and remain so for some time after the muscular twitching ceases. The aura preceding the attacks are electric shock-like sensation in left side of face, with a flat or stale sense of taste, and great burning in left side of face. On the ninth he has several somewhat similar attacks, one of which I witness, and it may thus be described: he shakes himself as if feeling chilly, complains of an intense and disagreeable cold sensation running up the upper portion of spine, and almost immediately the muscles of left side of face began to twitch. The left masseter seems to be the first muscle affected, then the left eye becomes convulsively closed and opened, followed by tonic closure of the eye; left side of forehead is next corrugated and drawn to left; mouth is now drawn well to left with clonic twitching of the muscles, and immediately following this, the left masseter and platysma myoides muscles begin a series of clonic convulsive movements which are kept up several minutes. Finally the left trapezius and left posterior neck muscles become tonically contracted and draw the head backward and to the left. The sterno-cleido-mastoid muscle does not seem to be affected. The left masseter and platysma muscles keep up a clonic contraction several minutes after all the other muscles cease to be affected. Within a minute after the convulsive movements begin, the left hand drops, and the left wrist and hand muscles are completely paralyzed. I ask him to raise his right hand and arm. He does this without hesitation, but is unable to move the left hand. The paralysis of the wrist and hand passes off before the platysma and masseter muscles cease to twitch. During the attack there seems to be some spasmodic action of the muscles of the pharynx and larynx, most marked on left side, but affecting the muscles of the right side to some extent. At the height of the seizure the right masseter muscle occasionally twitches. The seizure lasts about ten minutes and during this time he is unable to open his mouth. After the attack the muscles of the left side of the face are completely paralyzed and flaccid, and remain so for several minutes. This side of the face is paretic between the seizures. He remains speechless for several minutes. When he is able to talk, he tells me that "at the commencement of the attack he experiences an electric shock, which seems to shoot through the entire left side, including arm, trunk and leg as well as the face."

July 10. He is now taking seventy grains of potassium iodid thrice daily, and has had three attacks similar to the one described, but he thinks they are less severe.

July 18. He is now taking 110 grains of potassium iodid thrice daily, and has experienced no convulsive movements for three or four days, although he still has chilly sensations in back of neck three or four times daily. Vision has greatly improved. Right eye, $v-\frac{1}{2}$, with nearly normal fields; L. $v-\frac{3}{4}$. All fields except temporal, which is lost nearly up to median line, nearly normal.

Aug. 1. No convulsive movements of any muscles since July 15, but he experiences what he calls "explosive cold spells" two or three times each day. The cold sensation, which he says is intense, begins in left cheek, and spreads over left side of face,

down spine and over left side of body. There is constant tremor of the left depressor anguli oris. During last two days he has had headache for an hour each day.

Sept. 1. Only slight change in symptoms since last record. It has now been six weeks since he has had any convulsive movements. The tremor in the left depressor anguli oris still continues. About two or three times each day he has a "deathly" sick sensation arising from stomach, and almost instantly he experiences a cold or freezing feeling, which begins in left side of face and passes down left side of trunk. He is now taking 125 grains of potassium iodid and one-twelfth of a grain of corrosive sublimate thrice daily, and seems to have but little inconvenience from these agents. He has gained considerably in flesh.

The diagnosis is tumor in the lower Rolandic region, and an operation has been discussed, but owing to the probable syphilitic nature of the lesion it is discouraged in favor of continuing the anti-syphilitic treatment. General sensibility, including tactile, temperature, pain, muscular, posture and localization senses, normal.

Early in September (1892), he becomes mentally greatly depressed; is apprehensive and says that he is losing his memory. There is no decided headache, but a dull, confused sensation in the head is constant. There are no convulsive seizures, but he still experiences the "cold sensations." He now becomes urgent for a surgical operation, and says that he would rather be dead than endure the mental suffering that he has to undergo. He fears, if something is not done to relieve him, that he will commit suicide. After explaining to him the unsatisfactory results following operations for the removal of syphilitic growths of the brain, owing to the tendency of the disease to involve adjacent portions of the brain and membranes, he decides to take the risk, saying if he could not get relief he is determined to die. The entire left side of face still remains paretic.

On Sept. 10, 1892, Dr. Parkhill, after employing thorough aseptic measures, makes a trephine opening in the skull one and a half inches in diameter, with the center of the trephine over the lower extremity of the fissure of Rolando. The bone is quite thick and very hard. On exposing the dura its external surface seems normal. There is undue tension of the membranes and no pulsation is discovered. On applying the poles of a faradic battery over the exposed membrane no contraction occurs in any muscle. The dura is opened and considerable watery fluid escapes. Feeble pulsation of the brain is now observed. The pia is opaque and greatly thickened, so that the convolutions of the brain can not be seen through it. Portions of the pia are from one-quarter to one-third of an inch in thickness. On applying the Keen double-electrode, attached to a Flemming faradic battery, to the exposed brain substance, and using a current sufficiently strong to produce smart muscular contraction when applied to the hands, no muscular contraction takes place. The trephine opening is enlarged in all directions, and the same opaque and thickened condition of the pia is observed. A small incision is made into the brain substance, but nothing abnormal is found except brain substance is darker and firmer than normal.

With the thickened condition of the pia it is thought best not to explore the brain farther.

The patient stands the operation fairly well. The parts are dressed antiseptically and he is placed in bed, carefully surrounded by warm bottles.

Before the operation he made me promise that I would not let him suffer much pain after the operation, and that he should have sufficient morphin to make death painless should his case prove incurable. The operation was finished about 1 P. M. He sleeps until 5 P. M., when he awakes and complains of agonizing pain in the head. He is given one-quarter of a grain of morphin hypodermically. The same dose has to be repeated once or twice during the night, as he insists that his suffering is unbearable. The day after the operation his pulse, which had been about 100, increases to 120, his temperature arises to 101 degrees, and he is restless and complains a great deal of pain in the head. He refuses food, and it becomes necessary to force nourishment upon him. Two or three hypodermic injections of morphin, one-quarter of a grain each, are necessary to quiet him during day. On the morning of the second day after the operation he is evidently failing rapidly. During the night he has had several convulsions limited to the left side of the face, and one which involved the whole of the left side of body. As the forenoon wears on he sinks into a stupor, and by the afternoon he is profoundly comatose. He died quietly at 6 P. M., about fifty-three hours after the operation.

Section cadaveris, three hours after death. The brain only was examined. On removing the dressing the wound was found to be free from pus, and no evidence of inflammation was present. The dura was not abnormally adherent to the skull cap. The veins and sinuses of the dura were distended with fluid blood, but the external and internal surfaces of this membrane presented no macroscopic pathological changes. On removing the dura, the pia over the greater portion of the right frontal lobe, over the right Rolandic region and over the right temporo-sphenoidal lobe laterally, appeared opaque and thickened. The greatest thickening of the pia was over the lower Rolandic region, where it was at least one-quarter of an inch in thickness. The pia, over the entire surface where it was opaque and thickened, was abnormally adherent to the brain substance, and in some places, in endeavoring to detach the pia from the brain, portions of the cortex came off with the membrane. On carefully sectioning the brain no gross lesions were found, except in the lower Rolandic region, especially in the lower face center, where the cortical substance seemed abnormally dark. The incision into the brain substance, made during the operation, was found to be in the lower portion of the ascending frontal convolution, on a level with the lower end of the fissure of Rolando. Portions of the thickened pia and of the cortical substance of the brain, immediately beneath this membrane where pathological change seemed the greatest, were hardened in Müller's fluid for three months.

Microscopical Appearances.—Pial membrane thickened, in places fully an eighth of an inch (one-fourth to one-third inch in fresh state).

"This thickening is due to small round cells in a delicate gliomatous tissue. Blood vessel walls thickened, intima thicker than normal, complete occlusion of some vessels. The tissue takes the stain very readily.

Diagnosis.—Sarcoma (small round-celled). Glioma tumor mass in membrane.

"Sections show a delicate capsule of connective tissue, covered by endothelial cells. From the capsule delicate

hands of connective tissue run into the mass, forming lobules which are in some parts quite large. In other parts of the tumor no lobular arrangement is found, but the tiny threads of connective tissue run in and about the cells.

"The cells are small, round and nucleated.

"In a few places near the center of the growth the connective tissue is somewhat condensed, forming rings. In these rings of connective tissue are found large, round, yellowish masses, typical of psammoma. Under a high power ($\times 450$) no cellular arrangement can be made out, but a center with fibrillated rings about it can be seen. Many of the spaces in the center of the tumor contain nothing, but obviously they contained before section more of this psammomatous material.

"In and around the mass of small round cells are large, round, well stained plates of material, the nature of which is doubtful. No cell structure can be made out. They may represent the first stage of the psammomatous change.

Diagnosis of tumor mass.—Sarcoma of the small round cell variety, with gliomatous tissue and psammomatous change.

Brain.—Every section shows round-celled infiltration, extending through the gray matter into the white. This infiltration is especially marked along the line of the blood vessels. The stroma of gliomatous tissue is well seen.

Diagnosis.—Sarcoma (glioma).

"E. R. AXTELL,

"A. S. LOBINGER."

May 10, 1893.

A few points in connection with the clinical history of the case and the results of the autopsy and microscopical examination are worthy of comment.

If a person who is suffering from symptoms of tumor of the brain gives a history of syphilis, we feel justified in looking upon the growth as being of syphilitic origin; further, should a trial with anti-syphilitic agents result in great improvement, we feel almost certain that the tumor is syphilitic in nature. We have long since learned in the treatment of growths of the brain that if improvement does not follow the use of potassium iodid and mercury, it is no proof that the growth is not syphilitic. In the case under discussion there was a distinct history of syphilitic infection, and on placing the patient on large doses of potassium iodid in connection with mercury decided improvement followed, so that for several weeks prior to the operation no convulsive movements of the voluntary muscles occurred.

The aura that preceded each attack were limited to the left side, and mostly to the parts on this side affected by the pial lesion on the opposite side of the brain. The aura connected with the sense of taste was one of the first manifested in the history of the case, and may be accounted for by the pial thickening extending over a portion of the right temporo-sphenoidal lobe.

Is it possible to determine in a case of tumor of the cortical substance of the brain whether the pia is extensively involved? When the pia is infiltrated with the growth one would expect to find severe and persistent headache, but in the case just reported headache was rarely present, and it was never severe. The most important diagnostic symptom, it seems to me, pointing to pial involvement is the presence of two or more auras occurring with or without convulsive movements. Multiple aura, occurring regularly and at about the same time, are suggestive of extensive cortical irritation, involving numerous brain centers; a condition that is probably rarely met with in tumors limited to the brain substance. It is not probable that tumors of the pia can be removed with safety to the patient, on account of the extensive infiltration of the membrane in such cases.

There are several other features recorded in connection with the case reported in this paper worthy

of discussion, but I will at present only refer to one. During the irritative stage of the growth before paresis became permanent, disturbances in sensory phenomena were well marked, most affecting heat, next tactile, and least of all, pain sense. The sensory impairment was always most distinct immediately after an attack. As infiltration of the cortical centers for the face and arm progressed, and paresis of the face became well marked, all sensory phenomena in these parts became normal, except for a variable period following an attack. One explanation of this condition might be found in attributing to the cortical substance an inhibitory influence over the "sensory centers," whose inhibition is lost when paresis or paralysis results from destruction of the cortex. Another interpretation of the phenomena may be found in supposing that other portions of the brain cortex may perform the functions of disabled areas.

CEREBELLUM CYST—ANTE-MORTEM DIAGNOSIS.

Read in the Section of Neurology and Medical Jurisprudence, at the Forty-fourth Annual Meeting of the American Medical Association.

BY WILLIAM C. KRAUSE, M.D.

BUFFALO, N. Y.

For the history of this case and the pleasure of having made the observation, I am indebted to my friend, Dr. Linus T. McAdam of Buffalo, N. Y.:

Name, Jacob M.; age, 36 years; height, five feet seven inches; weight, 170 pounds; complexion fair; constitution robust, well developed. Antecedents, nothing of particular note was elicited; family history good.

Early History.—The patient passed through infancy and adolescence, without any serious illness; never contracted syphilis or gonorrhea. Some years ago he suffered a slight attack of insolation from which, however, he seemed to have fully recovered.

Present History.—On October 23, 1892, the patient consulted Dr. McAdam for pain in back of the head, dizziness, nausea, peculiar revolving sensations in his head and on standing or while walking an inclination to be drawn backward. So strong were these last sensations that while the patient was in bed he would be compelled to turn on his right side, his head deep in the pillow, or while working in a stooped position he would suddenly fall backward, and on several occasions received quite severe knocks on his head. Along with these symptoms there coexisted a sub-normal temperature, slow pulse, furred tongue, loss of appetite, sallow complexion, discoloration of the conjunctivae and constipation. The patient was administered hepatic stimulants, but without obtaining any alleviation of the distressing symptoms. A few days after this first visit he again consulted Dr. McAdam and complained of great thirst and gave a history of polyuria. On examination the urine was found to contain sugar in abundance and on measuring the urine it was found that he passed sixty to seventy ounces daily. About this time (Nov. 7, 1892), he experienced considerable difficulty in walking and was obliged to discontinue all work and remain at home. With assistance he was still able to walk about the house but his gait was unsteady, staggering, with a marked tendency to fall backward and to the right.

With the exception of the glycosuria and polyuria which subsided under careful treatment, the remaining symptoms gradually became more and more severe and a consultation was held. The disease was diagnosed as of cranial origin but no definite diagnosis was reached. All methods of treatment proving unavailing and desirous of further counsel the writer was called to see the case on January 17, 1893, with the family physician, Dr. McAdam.

The patient was found lying upon a couch complaining of intense occipital pains radiating toward the vertex. On sitting up he felt dizzy, nauseated and as if his head were being pulled backward. On attempting to walk his gait was staggering, with a desire to fall to the right and backward.

Psyche.—His mind seemed to be clear and unaffected; sleep, fair.

Vision.—The strength of the muscles of the extrinsic eyes was diminished but no more than the motility to which he was subjected would warrant.

Patellar Reflex.—The patellar tendon reflexes were slightly exaggerated. All other superficial and deep reflexes were normal.

Sensation.—There existed no disturbances of the sensory nerves; trophic and vaso-motor disturbances were likewise wanting.

Ocular Signs.—Unfortunately the fundus of the eye was not examined, due perhaps to the fact that no ophthalmoscope was present. An ophthalmoscopic examination was, however, promised but failed eventually to materialize. No abnormalities whatever of the special senses were discernible.

To me it seemed clear that we had to deal with some cerebellar neoplasm, but what its nature or origin I could not say. The characteristic symptoms of cranial tumor, such as intense cranial pain, obstinate vomiting, vertigo, coupled with symptoms which we are wont to denominate cerebellar, as staggering ataxic gait, inclination to fall backward, occipital tenderness, etc., warranted the diagnosis arrived at.

Not receiving the desired promise of speedy and certain recovery, the patient sought other advice, and the history or the course of the disease was unfortunately interrupted. On the evening of March 15, Dr. McAdam was hastily called and arrived in time to see the fatal termination. Inquiry elicited the fact that for two or three weeks previous the patient developed a slight fever with occasional chills. No convulsions were noticed at any time.

An autopsy was made the following day by the writer, assisted by Dr. McAdam, with the following results: the calvarium was rather thick; dura somewhat adherent. The pia was clear, vessels not markedly injected, Pacchionian bodies small and sparse. The convexity of the brain appeared healthy, the convolutions were not flattened and the fissures were of usual depth. The cerebrium was removed; beginning cephalad, the basilar structures carefully severed, and on cutting through the right side of the tentorium cerebelli, a clear amber-colored fluid flowed into the cerebral cavity. The cerebellum was carefully removed, and in the inferior occipital fossa was found about one to one and one-half ounces of amber-colored fluid. On closer examination, the right lobe of the cerebellum was found to be flattened, boggy and considerably smaller than the left lobe. This condition was quickly explained by the presence of a large cavity in the right lobe, the walls of which had collapsed and the fluid had escaped during removal of the cerebellum. The entire right lobe appeared to have been undermined, and virtually was nothing more than the walls of the cyst. During the dissection and examination of the cerebellum the undertaker thoughtfully and thoughtlessly sponged the cranial cavity, thus depriving us of any of the cystic fluid for a more careful microscopic examination. It is therefore impossible to say just what the character of the cyst was; whether it was the result of hydatid disease, or of inflammatory or hemorrhagic origin.

My object in publishing the details of this case is not because it is an extraordinary one, or because the diagnosis was verified by the autopsy, but rather to prove that the symptom-complex of cerebellar disease is distinct enough to permit of more radical surgical procedure. The writer is not aware that much has been done in this direction; and certainly in this case much might have been gained through surgical interference.

The tendency of the patient to fall to the right and backward, and the discovery of the cyst in the right cerebellar lobe, would impress one with the idea of connection between disease and symptoms, both pertaining to the same side. Whether this law holds true in every case, I do not pretend to say. Another interesting fact was the temporary glycosuria and polyuria, its sudden appearance and its more sudden demise. Whether this was the result of pressure, or whether it was merely accidental, must be left unanswered, although I believe the former to be the more plausible.

382 Virginia Street.

SPECIAL INFLUENCES OF ALCOHOL ON THE BODY.

Read in the Section of Neurology and Medical Jurisprudence, at the Forty-fourth Annual Meeting of the American Medical Association.

BY T. L. WRIGHT, M.D.

BELLEFONTAINE, O.

In discussing the nature of inebriety, and the magnitude of its influence on mankind, it will be necessary to observe the effects of alcohol upon the physical body, upon the mind and upon the moral attributes.

And first, let us consider some of the effects of alcohol upon the material organism.

The influences of alcohol upon the human body are of a nature so intricate, so distracting and often so apparently inconsistent with each other, that it is difficult to classify them in a clear and satisfactory manner.

These influences might be arranged into groups representing on the one hand, drunkenness, its relations and phenomena; and on the other representing physical degenerations, with their various connections and dependencies. Perhaps as comprehensive a division of the subject as any would be as follows:

1. The effects of alcohol upon the nerves;
2. Upon the blood; and
3. Upon the physical integrity of essential organs and tissues.

This classification might no doubt prove to be defective; and the several lines and boundaries of distinction between its component parts will be, in many places obscure, or possibly lost altogether.

1. In speaking of the effects of alcohol upon the nerves, it will be proper to advert to the impression of that agent upon the muscular sense. Alcohol is carried everywhere by the circulation, and in drunkenness the functions of the muscular system are hampered and deranged. This fact arises in a great measure from the peculiar property of alcohol, which imposes a degree of paralysis upon the nervous system, in all its several parts and qualities. There is loss of muscular power, and also disorder in the functions of muscular coördination. Movements are out of proper relationship with each other. Partial paralysis from causes other than alcoholic, present when of wide application, similar appearances and defects. Take a case of general paralysis of the insane—partial, however, in degree. "This disorder," says Dr. Tuke, "is marked by loss of coördinating power over the muscles, especially those of speech and locomotion. Precise coördination of movement, such as is necessary for writing, sewing, playing upon a musical instrument, and like acquired and auto-

matic acts, is much impaired, or quite lost." This is in every particular an exact description of the muscular disabilities of a person who is drunk. The movements assumed in walking will betray the condition of a person, even when slightly intoxicated. The feet are not raised fairly and clear of the ground, and there is frequent scraping or slipping of the shoes upon the pavement.

It has been said that "the commencement of intoxication was flushing of the face, indicating that the cervical sympathetic was becoming paralyzed."¹ This is probably true in most instances. But especially in neurotic periodical drinkers, there is a remarkable deviation from this rule. When the dipsomaniac, after a season of rest begins to swallow large quantities of strong liquors, "the vaso-motor centers in the bulb and cord" do certainly show indications of the toxic action of alcohol. But they do not consist of flushing the face through paralysis. The exhibition is rather that of spasm and rigidity, not only of the muscular system at large, but of the capillary blood vessels also,—their caliber being apparently diminished.

The beginning of a season of drunkenness in the neurotic is commonly marked by paleness of the face. The features are sharp and contracted. The nose is pointed, cold and colorless. The eyes are *not* rolling and without expression, as in ordinary drunkenness. On the contrary they are steady, although quick in movement. They also are bright and penetrating. The speech is *not* inarticulate, stammering and disconnected; but words are clear cut, perhaps "clipt," and evidently of spasmodic utterance. The muscular movements although somewhat constrained are not staggering, incoördinate and uncontrollable. In fact, while large quantities of alcohol may have been consumed, the appearances of intoxication which are the outcome of paralysis, are not always speedily developed. The paralytic stage of drunkenness may not appear for many hours in the neurotic drinker; though of course that is not the rule. The primary effect of alcohol upon the neurotic inebriate may be that of shock. This alcoholic condition is not without its important bearings upon the question of inebriate responsibility; for as long as it continues there is danger of violent and unreasonable outbursts of rage and hate. The consequences may be tragical; for there is an unnatural exaltation, both in the power and disposition to wreak vengeance for fancied wrongs. Dipsomania has been described as an insane exhibition among a group of insane exhibitions—all symptoms of a central disease. "The opinion which would make of dipsomania a separate disease, can not stand against a complete study of the facts. It is a detached page in the history of the patient's disease which can not be understood if studied by itself."² Another authority says: "It seems to me more correct to regard dipsomania as a symptom belonging to a general disease."³

The action of alcohol upon certain peripheral nerves marks it as a poison. A long and persistent course of drinking is liable to produce neuritis in one or more localities in the organism. This may prove destructive to the integrity and life of the special nerves affected. Herein alcohol acts in a manner similar to other tissue poisons—similar for instance, to lead and arsenic. The plantar nerve, the poplit-

¹ Buzzard

² Magnan.

³ M. Foville.

en), the musculo-spiral, the tibialis anterior, are some among the nerves for which the alcoholic poison displays its peculiar affinity. When the drinker loudly complains of pains in his legs and feet, and talks of rheumatism and neuralgia, the probability is that he is suffering from alcoholic neuritis in his lower limbs.

Among the larger and more prominent nerves which may come under the toxic influence of alcohol, are the phrenic nerve and the pneumogastric.

To the evil influence of alcohol upon the vagus, is attributed serious irregularities in the heart's action. Chronic pulmonary catarrh also, with paralysis and stagnation in the smaller and more remote bronchial tubes, may be referred to a kindred origin. It is believed moreover, that the fatality of pneumonia so remarkable in the drunkard, is largely owing to the injury inflicted upon the eighth pair of nerves by the alcoholic poison.

The first indication of alcoholic neuritis is change of sensibility—there frequently being severe pain. But the morbid feelings may vary. It is possible that they may become sources of troublesome hallucinations and of true insanity.

The destructive effects of the alcoholic poison in neuritis may be seen in the condition of the nerve after the disease has run its course. One description declares: "The lesion of the nerves consisted of granular degeneration of the myelin, then partial removal of the products, causing varicosity of the nerve fiber, and lastly, complete disappearance of the degenerative debris, with collapse of the sheath."

The alcohol of wine it is said, does not produce the nervous degenerations herein described. Since the discovery of distillation, and the enormous consumption of distilled spirits during the last two hundred years, wine has lost the position of respectability once accorded to it by many of the ancient writers. It is now looked upon with suspicion as a substance capable of leading the unwary into habits of vice and profligacy that were impossible before the discovery and use of the concentrated alcohols of modern days.

The disturbing influence of the paralysis of alcohol upon the normal display of the inhibitory nerve functions is generally recognized. Still, the facts and evidence on that subject are something obscure and incomplete; and they will not justify any labored effort towards detailed and specific description. The paralyzing (anaesthetic) influence of alcohol upon common sensation appears to have been known in the most remote periods of time. This is, in many circumstances exceedingly seductive; and yet, in its effects upon the mental and moral attributes it is often of very great injury.

2. In discussing the several divisions of our subject, a very brief synopsis of the more obvious effects of alcohol upon the blood is all that can now be offered in that connection.

A striking effect of alcohol upon the circulating fluid, is the production of changes in the appearance of its red corpuscles. They suffer shrinkage, and often a material change of form. Their color too, is affected, and they become darker under the alcoholic influence. When alcohol is mixed with blood, the red portion of the corpuscle may escape from that body altogether. The globules are deprived of their power to perform their functions completely and physiologically. They are incapable of absorbing

and distributing the amount of oxygen necessary for the healthful supply of the bodily structure. In other words, "the blood globules when impregnated with the toxic spirit, have lost the property of transforming all their hemoglobin into oxy-hemoglobin." Alcohol displays undoubted power over the white globules also; but the insignificance of its effects are not so readily demonstrable upon them as upon the red bodies.

One of the consequences of the toxic influence of alcohol upon the red corpuscles is the undue collection of carbonic acid within the organism. The retention of a portion of this acid is the subject of various hypotheses and explanations. It is said, for example, that a part of the oxygen inspired combines with free alcohol in the circulation, converting a portion of it into acetic acid.* This leaves an insufficiency of oxygen to properly change the character of the blood corpuscles from venous to arterial. The theory, however, does not account for the shrinkage, and other structural changes which occur in the red globules when brought strongly under the influence of alcohol. It is not therefore, simply a matter of defective balance, or of deficiency on one side or the other, but the influence of alcohol upon the red blood corpuscles appears to be really that of a poison.

The harmful retention of carbonic acid in the human body when it is under the alcoholic influence, depends upon more causes than one. The operations of alcohol are always complex. The elimination of carbonic acid by the lungs is impeded by overcrowding the capacity of those organs. The enforced exhalation of alcoholic vapor interferes with the normal ability of the lungs to expel the poisonous acid. The toxic qualities of the retained gas produce general uneasiness and also special distress. The headache which follows alcoholic intoxication is peculiarly violent; for the blood vessels of the brain are loaded with effete and noxious material. But a very serious complication that may arise from the influence of alcohol, consists of the accumulation of large quantities of fat in different parts of the organism. This may be owing to the fact that the constituent elements of alcohol, as well as of the waste and effete material in the blood, may undergo certain slight changes which result in the formation of fat. In the chronic inebriate, fatty degenerations of the liver, heart, and elsewhere, are liable to appear; and these in many ways provoke functional irregularities.

A deficiency of oxygen in the system may favor the establishment of the gouty or the rheumatic diathesis. "There is no possible chance of relief to those who are inclined to the lithic acid diathesis, if they arrest oxydation by the use of stimulants and narcotics. Arrest that oxydation by the use of alcohol, and you add to the amount of unhealthy waste which has to be removed. Lithic acid can only be removed by oxydation."

Intimately associated with the deficiency of oxygen in the blood of the drunkard, is the low temperature of his body. While alcoholic paralysis exerts—no doubt by its inhibitory force—an influence in the reduction of animal temperature, the incapacity of the red globule to absorb oxygen and to eliminate carbonic acid, exercises an unquestionable tendency in the same direction. In profound drunkenness heat has been known to fall as much as 3° F.; and it has been shown that in some instances the normal tem-

* Madden.

* Beaumont.

* Beaumont.

* Alfred Carpenter.

perature has not been restored for three days. The complaints of the drunkard himself (upon emerging from his condition of anaesthesia) indicate very uncomfortable sensations of cold. When the inebriate begins to arouse from his torpor and stupidity, he is invariably chilly and shivering. He draws towards the fire, or hastens to protect himself with an abundance of bed clothing.

It appears to be a fact that alcohol may reduce temperature through the force of its paralyzing and anæsthetic properties. It is a question with some whether the reduction of temperature through the establishment of toxic and pathological states of the blood is not probably as injurious in one direction as it may be beneficial in another. In the high temperature and nervous irritation of typhoid fever, the effects of a topical application of alcohol (diluted) are sometimes of great value. The application should be quite extensive over the abdomen. The local anaesthesia will not only quiet superficial nervous excitement, but it apparently extends to the subjacent tissues. Under this treatment the morbid temperature will materially abate. Diluted alcohol may also be applied to the aching head and to the burning feet and hands. This procedure may accomplish valuable results without interfering with the normal functions of the blood globules. Should a degree of intoxication be induced, it may be remembered that abstractedly, intoxication may exist without a poisonous impression affecting the essential constituents of the blood; which fact in the reduction of morbid temperature is a point of no small importance.

In the hard drinker a portion of the alcohol finds its way into the blood and remains uncombined. It has a powerful affinity for water. It is speedily found in every part of the bodily structure. Of course much of it enters the system through the portal vein and the right side of the heart. But alcohol also seems to *diffuse* itself throughout the organism directly. It is in the breath immediately. Emesis shows that it remains in the stomach for a very brief season indeed; while giddiness, confusion of thought and movement—in short, *drunkenness* shows that alcohol mounts at once to the brain.

When there is a certain excess of alcohol in the system, the movements of elimination may proceed with a good deal of vigor. But when the excess is removed, there remains a portion apparently in a kind of static condition. At all events purgatives, diuretics, diaphoretics, the lungs themselves, appear to exercise a limited power only in its final disposition. It is not unlikely that certain structural degenerations may be connected with this state of facts; and especially fatty accumulations and other hyperplasias.

Delirium tremens is indicative of a brain saturated with alcohol. The natural wetness of the brain, containing as it does a very large proportion of water, probably invites the presence of alcohol more urgently than is the case with many other organs. However that may be, it is an opinion widely held that in delirium tremens there is a direct poisoning of the system at large, and especially of brain tissue, with alcohol pure and unchanged.

3. Alcohol has been called the "genius of degeneration." Some of the prominent changes in the structure of important organs, when the outcome of alcoholic impression, are indeed of great interest, and

a brief notice of them will not be unprofitable. And first of the heart:

The heart of the inebriate at first is made tense and full by alcohol, but is easily depressed. Under this depression, however, the circulation becomes of a character that has been termed *rotten*. The continued use of alcohol tends to permanent enlargement and dilatation of the heart, with stretching of the valves—especially the semilunars. There is also distension of the arterial system throughout, leading to loss of elasticity. There may be a feeble, large heart, dilated arteries, enlarged and bulging veins. The corporeal mechanism of the heart is, in fact, changed altogether. Such a condition of the circulation would necessarily occasion much uncertainty both of the mental and bodily functions."

Again: In the fatty degenerations common in alcoholic inebriates, both in the light daily drinker and in the habitual drunkard, the heart is frequently implicated. The substance of the heart is permeated with fat globules, and its strength and endurance are impaired.

It is believed, moreover, that the structure of the heart may be seriously affected in consequence of alcoholic degeneration of the eighth pair of nerves.¹⁰ The muscular tissue of the heart, it is supposed, may undergo shrinkage and atrophy from this cause, in a manner similar to the shrinkage of the leg from the toxic influence of alcohol upon the nerves there distributed.

The heart may also become exhausted through its too frequent and irritable pulsations in the daily drinker. The physiological rest between the heart beats is not permitted to take place. In this as well as in the several degenerations already named, there is incapacity of function, and heart prostration is, to some degree greater or less, always impending.

Degenerations due to alcohol very often affect the liver. They present a variety of aspects. Fatty degeneration is the one most commonly met with. The liver is enlarged in this affection, and it is loaded throughout its whole extent with fat.

Another prominent form of hepatic degeneration is cirrhosis, producing the so-called "gin liver." The gland presents a contracted and solidified appearance with a rough surface, from which it has been also designated the "hobnail liver," "nutmeg liver," etc.

The kidneys may likewise become the seats of fatty deposit, and they too are liable to undergo the characteristic changes in structure indicative of fibroid degeneration.

A remarkable property of alcohol is sometimes displayed in its influence upon the connective tissue of the organism. There may be hyperplasia and considerable enlargement of this substance. This is not simple hypertrophy, however. It is a consequence of the toxic impression of alcohol. The tissue implicated in this alcoholic hyperplasia is invested with properties quite different from the fibrous tissue in its physiological state. After a season of enlargement, it takes on a process of contraction. This movement is so marked that entire organs are misshapen, indurated and radically impaired in function. The fibers of the shrinking mass enclose the substance of the liver, or kidneys, or other organs in their embrace; and the outcome is the gin liver, the kidney with interstitial nephritis, and the like disasters elsewhere. These phenomena are the direct re-

sults of the poisonous qualities of alcohol—there is nothing normal nor physiological about them.

The drunkard's brain has an abnormal amount of serum in it. This is owing, in part at least, to atrophy; and it "resembles in this particular the brain of the senile condition—of old age. The convolutions look small, the sulci deep, and in most cases the pia mater is easily removed."

The membranes of the inebriate brain, including the dura mater, are often thickened, and they may display other indications of organic disease. "The structural lesions of the brain show patches of sclerosis and other evidences of injury that are due to alcohol; and, in fact, these may resemble the changes that are found in the brains of paralytics." It is true, however, that these degenerations are absent from a very large proportion of inebriate brains.

The relations of alcohol to paralytic dementia have been the subject of much controversy. There is one point, however, upon which all seem to agree in regard to that question, namely: Alcohol may become an exciting cause in the production of paralytic dementia in certain constitutions; as, for instance, when great mental labor has been forced upon a brain incapable of sustaining the strain necessary for its performance. The principle has been expressed thus (the alcoholic habit being present): "Enforced functional strain with incapacity to bear it, or disproportion between functional activity and power of resistance, may end in paralytic dementia." To this extent, at least, alcohol may be classed among the causes of paresis, and of the physical degenerations found in the brains of the paralytic insane.

Enough has now been said of the effects of alcohol upon the physical organism to indicate the nature and extent of their application. It is comparatively easy to investigate the bearings of the facts presented upon the mind and upon the moral constitution of the inebriate.

ON THE CARE OF EPILEPTICS.

Read before the Section of Neurology and Medical Jurisprudence, at the Forty-fourth Annual Meeting of the American Medical Association.

BY FREDERICK PETERSON, M.D.

NEW YORK CITY.

Professor of Nervous Diseases in the University of Vermont; Instructor in Nervous and Mental Diseases at the College of Physicians and Surgeons, New York; Attending Physician to the New York Hospital for Epileptics; Pathologist to the New York City Asylum for the Insane.

The care of epileptics really includes their medical treatment as well as all other kinds of help extended to them. But medical care, such as it is, has been given to them for some thousands of years, and yet without adding much to the happiness of individuals under treatment, or accumulating much evidence of positive value concerning medication in epilepsy. Our results have been, indeed, almost valueless: for, with all our dosing with bromids, borax, belladonna and so on through the alphabetical index of the Pharmacopœia, it is extremely doubtful if in ordinary practice 1 per cent. of the cases of idiopathic epilepsy are cured. Besides the practical incurability and hopelessness of the disease, its victims have suffered untold sorrows in the way of negligence and ill-treatment at the hands of the communities in which they live.

It is a peculiarity of this disease that the seizures may be momentary or may last for a few minutes

only, recurring sometimes frequently, sometimes daily and sometimes months apart, thus robbing the sufferers of their consciousness and faculties for brief periods of time at long or short intervals. Between the attacks they may be as rational and as well qualified for all the vocations, duties and social privileges of life as any other human being.

These facts do not concern only a few members of the community. Epilepsy is a widespread disorder and it has been calculated that one person in five hundred is thus afflicted. Thus there would be in the neighborhood of one hundred and thirty thousand such unfortunates in the United States alone, and over twelve thousand in the State of New York. Even supposing this percentage to be exaggerated to a very great extent and that the actual ratio were one to one thousand, the number of epileptics would still be enormous and would constitute a large part of our defective classes.

Outside of the efforts, thus far comparatively futile, of physicians to alleviate their purely physical infirmities, and to reduce the number and severity of the attacks, nothing has been done until late years to provide for their mental development and to meet the peculiar conditions of life which they are called upon to endure. Thus, no general hospital will receive such cases for treatment, because of the incurable and unpleasant nature of their malady. While much of the time thoroughly capable of acquiring an education, they are debarred for obvious reasons from the schools; the churches are closed to them; very few care to employ epileptics in shops, stores or offices or are willing to teach them trades. Few epileptics are at liberty to enjoy the companionship of their fellows, who are rather inclined to shun their unfortunate brethren. Thus, every avenue for mental or moral development, for occupation, for association with the rest of mankind is closed to them. They are even burdensome to their families. It is little wonder, then, that many of them grow up dull and ignorant, intellectually feeble, morally depraved, irritable in temper with tendencies to retrogression and degeneration rather than to advance. A few of them become insane and are sent to insane asylums. Others are not insane, but, ill adapted for existence under such miserable conditions, drift to the only homes offered to them, the almshouses. The almshouse and the asylum are the only refuge when abandoned by their friends. In the State of New York, for instance, where there are twelve thousand epileptics, some four hundred or more are in insane asylums, and some six hundred in the county poorhouses. The rest of them are scattered throughout the State in their own families, among the rich and the poor, in ratio to the population and to the relative proportion of these classes. Many are so slightly affected that they are able in spite of their seizures to pursue some of the ordinary vocations of life. Thus, I know personally of a doctor, clergyman, several bookkeepers, a bank president, a stockbroker, several clerks, some dress-makers, shoemakers, masons and a telegraph operator, who are epileptics, and yet able to carry on useful pursuits, albeit under adverse conditions. To all of us are familiar certain well-known historical or literary characters in whom epilepsy failed to restrict the development of their genius, such as Cæsar, Napoleon, Molière, Petrarch, Dostojewsky and others.

It would seem, therefore, from the above facts that, although there is such a thing as epileptic insanity, the proportion of insane epileptics to sane epileptics is very small, much less than 10 per cent., taken at the utmost, and that this ratio may be reduced by affording these unfortunates such opportunities for mental and moral development as are enjoyed by other and more happily situated citizens; and not only may the percentage be reduced, but the comfort and prosperity of all epileptics be increased by proper provision on the part of the State or through private channels such as institutions of a peculiar character adapted to their peculiar needs. A large public hospital is very far from meeting their requirements; for as has already been shown, medicinal treatment is uncertain and unpromising. Insane asylums should receive but very few, and almshouses none at all. What is demanded is an institution on the community or village plan, where medical treatment (such as it is) may be given to every member and where every sort of education, employment and social privilege commensurate with his needs and conditions may be extended to every beneficiary.

The colony system only can attain this object. A colony for epileptics is not an impracticable scheme proposed by visionaries. It is already an accomplished fact. The Bethel epileptic colony at Bielefeld in the province of West Thalia, near Hanover, Germany, was founded by Pastor von Bodelschwingh, over twenty-five years ago. He purchased a small farm with one house, and with four epileptics as a beginning established a charity which for nobility of conception and success in its results has nowhere an equal. It seemed to its beneficent founder, feasible to create a refuge where sufferers might be cured if curable, might have a home if recovery were impossible, might learn trades and the great majority become educated, useful and industrious citizens. From that small beginning there has been a gradual evolution of his idea, until now there are over one thousand epileptics, resident in some sixty or more houses, scattered irregularly but picturesquely over a large farm. Every one who visits this unique colony is deeply impressed with the happiness, contentment and prosperity everywhere apparent among the inhabitants of this little epileptic world. He sees that it is no longer an experiment and the previously unanswerable objections to such aggregations are by its success answered and silenced. At the time of my visit to Bielefeld, in 1886, there were but eight hundred and twenty-five epileptic patients. The employments were numerous and varied. A school provided instruction for some one hundred and fifty pupils of both sexes. All branches were taught. The dairy and the farm and garden occupied the attention of the greatest number of the patients, especially as a large trade in vegetable and flower seeds was carried on by the colony.

Among the shops for epileptic workmen were those for cabinetmakers, painters, varnishers, printers, bookbinders, blacksmiths and foundrymen, tailors and shoemakers; and among the stores, were a grocery, pharmacy, bookstore and a seedstore. The carpenters aided in the building and furnishing of new houses. Plans and drawings for new buildings were made in the architects' room. Epileptics were employed in all the departments of industry relating to building. Books were printed and bound and

sold here, especially works for moral and religious instruction. The illumination of mottoes for hospital wards and schoolrooms, and the coloring of picture cards were features of the work performed; washing, cooking, knitting, sewing and fancy work employed many. A bureau had been established for the collection and sale of museum objects, such as antiquities, articles of ethnographic and historic interest, autographs of distinguished people, coins, stamps, bronzes, gems, engravings, etc., and specimens from the animal, vegetable and mineral kingdoms. For men alone there were over thirty different callings.

The houses presented great diversity of architecture and position. They were well separated, generally enclosed in individual gardens, surrounded by fences, hedges and many trees, and altogether exhibited the homelikeness of a country village with little or nothing to suggest the restraints or discomforts of large institutions. There was one small cottage set aside for such cases as should be mildly insane, but bad cases of actual insanity were sent to insane asylums. Everything had been thought out carefully for the perfect evolution of this little social world; not only the multiplicity and details of occupations which would give each member of the community his choice of callings, but even the avocations, games, amusements and entertainments that might tend to divert his mind from the contemplation of his misfortune. And since my visit the colony has continued to expand, to develop new and valuable features and to confer its blessings upon large numbers of persons afflicted with this disease.

Taking Bielefeld as a model, nine other similar epileptic colonies have been established in Germany, one in Zurich, in Switzerland, and one in Holland. Most of these are not conducted by the State, but are under the jurisdiction of private or church charities. None of them are altogether self-supporting but some of them approach very near to it.

It should be stated that before the founding of the Bethel colony at Bielefeld, a somewhat similar institution, though on a much smaller scale, was begun in France in the village called La Force, near Lyons. Over forty years ago a noble clergyman named John Bost established this institution and it is in a flourishing state, doing a vast amount of good and redounding to the credit of its creative genius.

It has been found in all of these colonies that no harm is done by bringing epileptics into contact with each other. They feel on an equality with their fellows in such a place, losing that sense of isolation and singularity which they can not but observe in the ordinary world as separating them from the rest of mankind. They enjoy caring for each other and being kind and helpful to their fellow sufferers. It has been noted, too, that the number of seizures almost always diminishes upon entering the new and hopeful and encouraging life begotten by the busy community.

Within two or three years, interest has been awakened in other countries in the matter of provision for epileptics, notably so in America and England, where their peculiarly sad condition had neither been noted nor considered. In 1890 Ohio took steps toward the establishment of an institution for epileptics, a commission, consisting of Messrs. J. L. Vance, C. C. Waite and one other having been appointed by Governor Campbell, pursuant to an act of the

Legislature to select a site and prepare plans for the purpose. Of various sites examined, one at Galliopolis seemed best adapted for the project and here a tract of one hundred acres was presented to the State by the citizens for the institution. To the writer, who was consulted upon the subject of site and plans, this seemed to be the best location offered; for, although an insufficient space for a large institution, there was plenty of land adjacent which could be subsequently added to the original tract. Contrary to the advice of the writer the architect felt obliged, probably owing to the demand of the community of Galliopolis for an institution of striking proportions, to group the buildings on a symmetrical plan, such as is frequently carried out in the public establishments for the insane. The Ohio epileptic hospital is built on the pavilion or cottage plan, a large number of these being grouped about the center or administration building. It will, therefore, not meet in this important particular the requirements of a colony for epileptics, although in respect to provisions for school buildings, shops and the like, an effort has been made to fit the institution for the particular kind of care needed by this class. The name of the institution for epileptics in Ohio is also unfortunately chosen, for it is called, "The Asylum for Epileptics and Epileptic Insane." The corner stone was laid with appropriate ceremonies November 12, 1891, an interesting address and historical review being given by General Roeliff Brinkerhoff, president of the Ohio State Board of Charities. Three of the buildings were completed and made ready for occupancy in 1892 and nine additional cottages are now in course of construction, the last Legislature having made a liberal grant for the purpose. In California, detached buildings are being erected upon the grounds of the California Home for Feeble Minded in Sonoma County, with the view of accommodating the epileptics dependent upon the State for pleasant quarters.

Active measures are being carried out also in Massachusetts, Pennsylvania, Wisconsin and Illinois for the purpose of securing State care and separate provision for the same class of unfortunates.

Next to Ohio, the State of New York has manifested the most interest in her epileptic dependants, and in the winter session of 1891-92 a law was passed by the Legislature making the State Board of Charities a Commission, to select a site and prepare plans for an institution for epileptics. The law was authoritative in requiring the tract of land secured for the purpose to be four hundred acres or more in extent, and the whole scheme of buildings to be arranged on the colony or village plan. A committee of the State Board of Charities, consisting of Messrs. Oscar Craig, William P. Letchworth, and Peter Walrath, has been busy all of the past summer and autumn (1892) in examining a large number of localities which they were invited to inspect by the officers of various counties. In their report made to their Legislature on Wednesday, January 11, 1893, the State Board of Charities unanimously recommended for the proposed colony a site in Livingston County, consisting of over eighteen hundred acres, the property of the Shakers, now known as the Sonyea Society of United Christian Believers. The Shakers have dwindled in numbers to such an extent that they decided to give up this colony and rejoin the mother colony near Watervliet,

N. Y. The land is conveniently situated in the Genesee Valley, near the town of Mt. Morris and in one of the finest regions of the State. It is exactly fitted to meet the wants of a model colony for epileptics. It is traversed by two streams. One of these, the Casabaqua Creek, flows through the middle of the land in a deep gorge, with a fall of one hundred feet. This gorge and creek give immense advantage for the complete separation of the sexes in the colony life. The supply of water is abundant and the conditions for good sewerage perfect and adequate in every respect. The Western New York and Pennsylvania railroad runs through the land, and two great trunk lines, the Erie railway and the Delaware and Lackawanna railroad are within a mile of the proposed colony. The soil is exceedingly fertile and well adapted for all manner of agriculture, horticulture, the production of berries and fruits for canning industries and the raising of garden produce and seeds of all kinds. It has some stone and brick-clay, which will prove useful in the development of certain forms of outdoor employments. It already contains scattered buildings for the accommodation of three hundred patients.

The law which was introduced at the last session of the New York Legislature embodied provisions for the purchase of this tract of land and also for the methods of management, government and admission of patients to the colony. As some of these may be useful to those interested in the establishment of similar institutions, a few of the chief points will be mentioned here:

The name of the institution is "The Sonyea Colony." Thus, any direct reference to its object is avoided in the title. The word "Sonyea," is an old Indian word, meaning sunshine, and is historical in that this point was once the site of an ancient Indian village of the same name. For the present all insane epileptics are to be excluded, but probably ultimately there will be some building for the insane, especially for such as become mentally deranged temporarily while residents of the colony, since their removal from the happy influences of the community system to an asylum for the insane would be very depressing and tend to retard rather than promote their recovery.

There will be nine managers appointed by the Governor, two of whom are to be women and two to be physicians. They are to represent the eight judicial districts of the State of New York, an additional member to represent the city of New York.

The colony is to have a medical superintendent, steward, matron and such teachers and other assistants as are necessary.

The main object of the colony is to provide for the indigent epileptics of the State, but private patients will also be admitted to an extent to be determined by the Board of Managers. Epileptics of all ages are to be received and cared for; minors are detained by authority delegated by the parents or guardians; adults are free to go or remain, as they choose, there being no deprivation of liberty of any kind by methods of legal commitment, such as are necessary in asylums for the insane. The charge for maintenance of indigent patients is to be borne by the State and a limit of \$250 per annum per capita is established by the law. But it is expected that the colony will eventually become, to a very great extent self-supporting.

Patients that become insane are to be sent to asylums in the districts from which they come, in accordance with the lunacy statutes.

A special pathologist to reside in the community and devote his sole attention to the discovery of the causes and cure of epilepsy, is one of the features ultimately contemplated in connection with this great institution.

This bill was, unfortunately, vetoed by Gov. Flower for reasons best known to himself, and the humane measures for the relief of the thousand epileptics already upon public charge in New York State is therefore postponed for a year or two.

The care of the epileptic population is then summarized as follows:

All are to be treated in accordance with the usual regulations as to diet, hydrotherapy and medicinal agencies, with the hope that in this way between 1 and 6 per cent. of them may be cured and the disorder in a larger per cent. ameliorated.

Out-of-door employment in agriculture and kindred pursuits is to be provided in abundance. All manner of trades and occupations are to be carried on in an epileptic community, organized on the village plan. Facilities for education are to be afforded to almost every extent.

Amusement and entertainment and the enjoyment of social intercourse are to be privileges from which no epileptic will hereafter be debarred.

In this way the happiness of a large number of these miserable creatures will be materially increased, in spite of the distressing disease which they are called upon to suffer, usually for the whole of their lives; and though medical agents applied to their malady may prove inefficient, their fate can never be as wretched and hopeless as it has been throughout the world heretofore.

Although it is not given to every epileptic to describe his own sufferings as Dostojewsky does in his novel "The Idiot," or to delight the world with music as did the epileptic, Handel, or with comedy as did Moliere, or with poetry as did Petrarch, or with military exploits as did Caesar and Napoleon, or with religion as did Mahomet and St. Paul, still it is a consolation to those afflicted with this malady to show that epilepsy and genius may coexist, and that the possession of the disease does not necessarily lead to mental and moral degeneration. The patient may not reach the highest position among mankind, but under the new dispensation he will not be withheld from any attainment in education, nor prevented from exercising all of his capabilities for his own support and for his own welfare and happiness.

LITERATURE.

- Peterson, Frederick, M.D., The Bielefeld Epileptic Colony, *N. Y. Med. Record*, April 13, 1887.
 Peterson, Frederick, M.D., The Colonization of Epileptics, *Journal of Nervous and Mental Diseases*, December, 1889.
 Peterson, Frederick, M.D., A Plea for the Epileptic, *State Charities Record*, June, 1889.
 Vinco, J. L., Waite, C. C. (Commissioners), and J. W. Yost, architect : Report of Commission to Select Site and Prepare Plans for the Accommodation of the Epileptic and the Epileptic Insane, to the Governor of the State of Ohio, Decem. ber 31, 1890.
 Peterson, Frederick, M.D., State Provision for Epileptics: Address of Chairman of Health Department, American State Science Association at Saratoga Meeting, September, 1891.
 Peterson, Frederick, M.D., State Care of Epileptics, *N. Y. S. J.*, Jan. 11, 1891.

Stryker, Rev. Peter, A Much Needed Philanthropy, *Illustrated Christian Weekly*, January 31, 1891.

Peterson, Dr. F., and Jacoby, Dr. G. W., The Care of the Epileptic, Report of Subcommittee of State Charities Aid Association, *State Charities Record*, February, 1891.

Brinkerhoff, Gen. R., Address on Laying Corner Stone of the Asylum for Epileptics at Gallipolis, O., *Ohio State Journal*, November 13, 1890.

Ewart, Dr. Theodore C., Colonization of Epileptics, *Journal of Mental Science*, June, 1892.

Peterson, Frederick, M.D., Outline of a Plan for an Epileptic Colony, *New York Medical Journal*, July 23, 1892.

Peterson, Frederick, M.D., The Care and Colonization of Epileptics, *Journal for Nervous and Mental Diseases*, August 1892.

Taylor, Dr. Madison J., The Care of Epileptics, *University Medical Magazine*, 1891-92.

Drs. Henry Steadman, W. N. Bullard and L. W. Baker in this country, have also contributed to the movement for better care for epileptics, especially in their State of Massachusetts.

ABSTRACT OF NOTES ON THE TREATMENT OF EXOPHTHALMIC GOITRE.

Read before the Section of Neurology and Medical Jurisprudence at the Forty-fourth Annual Meeting of the American Medical Association.

BY J. MADISON TAYLOR, M.D.

NEUROLOGIST TO THE HARVARD HOSPITAL; ASST. PHYSICIAN TO INFIRMARY FOR NERVOUS DISEASES; PROFESSOR OF DISEASES OF CHILDREN, PHILADELPHIA POLYCLINIC, ETC.

Dr. Taylor takes up the subject of exophthalmic goitre as understood at the present time; reviews its relationship to other vascular disturbances, associated with enlargement of the thyroid, as myxoedema, cretinism and acromegalia. He does not see that at present the thyroid physiology warrants any large measure of hope that we shall treat this malady through thyroid juices, as in the case of the other disorders mentioned, and yet promises to explore this field later. He confines himself chiefly to the analysis of a number of cases long under his care, some of them for many years, and most of whom are well, summarizing the means through which these were improved. The treatment of maladies which demand but little constant supervision, and yet require prolonged watchfulness, is more or less difficult and unsatisfactory because such cases wander away; will not persist in treatment; and from their nature of unhopefulness have a tendency to fall into the hands of other medical men and have their treatment changed; also the exigencies of labor, fatigue, changed surroundings, etc., make it difficult to pursue any consistent plan, even with those inclined to be faithful. He takes the ground that this disorder is capable of much more hopeful treatment than is generally thought; that most cases are enormously improved, if rightly handled; that many get well.

The question of treatment is chiefly considered from the standpoint of his own experience. This consists in:

1. Regulated rest, with carefully graduated activities as time and circumstances warrant; systematic measures directed to the upbuilding of the general health; careful attention to nutrition, recognizing the trophic elements in the disorder.

2. Careful attention to vascular conditions, which are most noticeably at fault and which demand the most constant treatment. This consists of varying measures, regulating vaso-motor activities, as well as loss of nervous force through the easily disturbed nervous balance. This is done through attention to the skin from the surface by means of carefully regulated measures from without, and next the re-

view of certain remedies which seem to exert a control over the constant tendency to vaso-motor or neuroses, both superficial and deep.

3. To search out constitutional defects and remedy these; eliminate accidental poisons, either diathetic or temporary; eliminate toxins, as of internal sewage poisoning, which has a very direct bearing.

4. The regulation of the nervous or emotional balance by careful attention to the habits and environment of the individual, carefully regulating, so far as is possible, the habitual emotional strains and the possible ones, making much of moral teachings to those whose will power and mental equilibrium are gravely at fault constitutionally, and as inevitable entanglements due to months or years of suffering and susceptibilities.

5. A careful consideration of such measures as are regarded as specific, as electricity, of which much has been made by many writers, but whose value consists chiefly in the system and encouragement which is thereby exerted over the disordered emotional states.

Finally, a summary of the cases under observation when the original paper was written in 1888, the report of a number of others seen since then, and a careful review of the symptomatology and recent means of treatment.

A METHOD OF LOCALIZING POINTS IN THE HEMISPHERICAL GANGLIA.

Read in the Section of Neurology and Medical Jurisprudence, at the Forty-fourth Annual Meeting of the American Medical Association.

BY WILLIAM FULLER, M.D.

GRAND RAPIDS, MICH.

I will present to the Section the result of my work in the line of the subject given which I think is of value, since it enables one easily and expeditiously to locate any part of the surface or internal structure definitely, and with a precision that can be arrived at in no other way. I have hardened a brain with great care so as to maintain the natural shape as nearly as possible. The lateral halves were separated in the median line and each embedded in tallow, taking care to place each half in the same positions in the boxes surrounding them. Each half was carefully sliced by a gauge so that the slices were three-sixteenths of an inch thick and perpendicular to a line in the long axis of the brain, which was seven inches in length, making thus thirty-seven slices of each ganglion. The right ganglion was cut three thirty-seconds of an inch behind the left and photographs were taken of the divided surfaces of each slice. By this means I have obtained photographs of seventy-four vertical transverse cuts of the brain. The left side of the picture seen in the album is therefore three thirty-seconds of an inch behind the right, throughout the series which I now present for your inspection.

I have here a model which is roughly made to illustrate the principle of localization. We will suppose that the slices here represented are equal in thickness; the external markings are faithfully delineated and with photographs of the sections pasted upon the sections, the entire anatomy of any point beneath any portion of the skull can be taken in at a glance. To find as near as it is possible any point within the brain, it is only necessary to draw a line from the exterior angular process to the occiput,

divide the line into an equal number of spaces with the model, and the slice of the same number on the model will disclose the anatomy of any point on the skull, or direct the position of any point required to be found as well as the relative positions of the internal structures. Prints of these photographs properly numbered would, in my opinion, be useful for the delineation of gross lesions of the brain for publication, which would be a means of familiarizing the profession with the anatomy of the brain, and would moreover assist each of us to understand the other. Suppose, for instance, that a lesion is delineated upon a certain section definitely localized by a model and extending through a certain number of sections, it appears to me that we could perhaps some time arrive at a just conception of the function of the various parts of the brain. There is little interest at present taken in the post-mortem appearance of the brain on account of general ignorance of its anatomy and from an unsatisfactory knowledge of its functions.

I have been interested heretofore chiefly in surgery; I have given some attention to the surgery of the brain, and I will take this occasion to rectify a mistake into which the profession has fallen. It is accredited to a French surgeon that he was the first to introduce surgery into the treatment of mental defects. The fact is, however, that in 1877 I made the first craniectomy for the relief of idiocy, which was published in the *Canada Medical and Surgical Journal*, of January, 1878. I not only operated upon two cases at that time, but also published a paper upon the causes of idiocy and other conditions of feeble mindedness. The publication of these cases was widespread, and the operation was ridiculed in both America and Europe in medical journals and by the press. If there is any credit in the way of priority in the procedure, it belongs to me, since it was I who was the object of the ridicule. I think, however, now as I did then, that the operation is of little benefit to the idiots or to the surgeons either, but that it is suggestive of a fact which may be of the greatest benefit to mankind, by giving material for reflection to the theologian and the educator, and for the instillation of charity into us all. When all men are practically convinced that mentality depends upon physical conditions for its manifestation, mental defects will be regarded as diseases of the body now are; proper remedies will be sought, pity will take the place of anger, science will furnish texts; the church with all other human things will perish, religion will reign in its stead, and a school system will be established upon reason; our children will then grow up into perfect adults instead of being precipitated into early graves and crowding asylums and prisons as at present. The peculiar symptoms manifested by disease and post-mortem appearances are interesting material with which to educate astute physicians; but it is a sort of cannibalism after all that one should be sacrificed that another may be great. It is for us to initiate a revolution in mental sanitation, since those to whom this duty is intrusted are too bigoted to see when facts are plainly presented for their consideration.

THE CHAIRMAN—This is a matter of very great interest. I especially commend the practical suggestion about making brain examinations. The photographs will bear careful examination. The work shows a great deal of industry and skill on the part of Dr. Fuller.

DR. H. H. DONALDSON, Chicago University—It was last winter that I first had the opportunity of seeing Dr. Fuller's preparations, and I have not seen the one which is here upon the table before. Those which I have seen are exquisite casts of preparations from the dissected hemisphere, showing the course of the white fibers and a number of points than which I have never seen any better preparation. This is an idea which, I think, has been floating in the minds of a number of people for some time, but it has only been realized as regards the brain by Dr. Fuller, so far as I am aware. There is a French model which shows an enlargement of the medulla, which has been arranged in somewhat the same way, but the model has been magnified ten diameters and the magnification is in itself a disturbing factor; and there is no doubt that the student and others interested in the state of the central nervous system would be able to derive great advantage from the study of a model of this kind. I may add that in the Anthropological Building at the Exposition, Dr. Fuller has consented to exhibit a full series of his preparation.

THE CHAIRMAN—I would like to say that these sections have interested me very much, as I have occasion to do some postmortem work in this line from time to time, and it seems to me an admirable way of localizing, and it points out the way of describing the situation even of small lesions and of the beginning and ending of larger lesions; it would be well, I think, if Dr. Fuller would publish a careful statement with the accurate reference of certain of these sections to the position on the surface of the brain where they are met. Often it is important in describing a lesion of a ganglion and particularly in the interior of the brain to have not only the transverse positions, but also the exact position and extent of the lesions. This system should be carried out in three directions, at least, to be perfectly accurate and advantageous; that is, horizontal sections and sections longitudinally and transverse sections. These would answer for many purposes. Practically the number of sections is too great for book purposes or publication or to suggest as a method of record, and I should think in the sections which include only the ganglia and certain standard sections it would be important to indicate those more thoroughly and definitely. It is certainly a valuable method, and with additions, I believe, in the directions which I indicated of taking the sections in different directions and getting the appearances, it would be of great service.

DR. HUGHES—As far as my knowledge extends, I think that this is the nearest approach to a practical method of teaching students the regional anatomy of the brain extant. I never saw any sections or anything in Europe that approximated this in completeness. These sections and the models that the doctor makes, which are models of clearness and accuracy, I have found to be exceedingly valuable in the illustration of the anatomy of the brain in connection with my teaching in a large medical college. To those of you who have not seen the other models that the doctor makes—some of which were presented last year—I would say that these, in connection with those, enable one to make the essential regional anatomy of the brain so plain to the student that there is no excuse for his failing to have a fair working knowledge of what is necessary in the treatment of brain diseases. You will find that with the use of these models the relation of the external and internal capsule and the position of the ventricle, etc., become as familiar as could be, and as plain as the regional anatomy of the liver and

idiocy, and the secretary will note it in this manner. Certainly he should have the credit for this, as it precedes the operations and suggestions of all other surgeons on this subject.

DR. FULLER—There is one thing I would like to say; when I started in on this anatomy, I started in to interest myself; but after I went to the American Medical Association last year, there was a gentleman wanted me to see if I could repeat the experiments. I went home, repeated them, and I thought I would like the benefit out of these things if I could financially, as it would cost me a great deal of trouble and expense, and I, of course, could not manufacture them myself; but tried to get somebody to do it for me. The first thing I was asked was if I could furnish protection. I could enlist capital if I could get protection. I got a lawyer to send down a couple of sets to Washington, but of course they could not see that it was a work of art and consequently, though I could take out a patent on each piece, which was so expensive a process that I could not stand it, I could otherwise obtain no protection. I consider this the same as a book or a work of art, but they could not see it in that light, consequently I have no protection on the preparations. I thought if these things could be included as works of art, if we could bring some influence upon them to look at them in that light, I could get these things out in such a manner that everybody could avail themselves of them; but as it is now I can not get any further. You will have to do something to help me out of this difficulty.

DR. HUGHES—What do they call it?

DR. FULLER—They could not call it anything. It was innumerate. It will have to be specially mentioned and brought to their notice by some special request to influence their understanding; and I know I can take out a patent if I desire, but that would be a great deal of expense. I find that the intermediary wants about all there is in it; he wants me to work for nothing and himself to charge the profession a big price, so that I am afraid that I will have to get you to assist me in some way to have this so that we can copyright it; or else I will have to keep along in the old way and try to make a living at the practice of medicine. I think there is some money in this if it could be fixed in a way so that I could do something with it, and it will be of some benefit to the profession. If you could make some recommendation to assist me in getting those things copyrighted instead of patented, I would try to do all I could to present the profession with something so that they could teach students these things easily.

THE CHAIRMAN—I do not see how we could take any steps in this matter.

DR. FULLER—Books are copyrighted; I do not see why I could not copyright this.

THE CHAIRMAN—I do not see any reason why it should not be done, but I do not know whether that matter would be helped in any way by any special action of the Association. Perhaps it is better at any rate to refer the matter to a committee than to attempt to decide it here. Certainly the Association will gladly endorse the creditable character of the work by a resolution if necessary.

DR. FULLER—The only way to get at it is to influence the authorities at Washington to give a copyright, the same as they would on a book.

THE CHAIRMAN—I would suggest that this matter should come up under the head of business; then it could be referred to a committee if it is deemed wise on the part of the Association.

DR. H. H. DONALDSON—One point connected with the latter matter: In case Dr. Fuller sees his way clear to carry this matter any further, I think it would be extremely valuable if the two types of brain could be taken, giving model forms of each type; that would be only possible, of course, in case Dr. Fuller could realize his ideal in regard to the carrying on of his work.

SANITARY NOTES AND BEAMS.

Opening Address of the Section on Hygiene, Climatology, and Topography, Pan-American Medical Congress, by the President.

ALBERT L. GIBSON, A. M., M. D.
MEDICAL DIRECTOR U. S. NAVY.

"And why beholdest thou the mote that is in thy brother's eye, but considerest not the beam that is in thine own eye?"—(St. Luke, vi., 41-42.)

These words of the Teacher of humanity which "the Beloved Physician" of the first century has recorded, are an appropriate text for the opening address in the important Section with whose conduct I have been charged in this Congress.

Time was—and that no long time—when Hygiene, the neglected Cinderella of the medical family, slunk unnoticed among menials. Now that she graces the salon her proud sisters caress her and suitors court her favor. As an old admirer of this fair mistress whose colors I have worn through youth and manhood, I may be pardoned the personal exultation that I have lived to see her suzeraine.

The ascendancy of hygiene has greated and glorified medicine without dimming the luster of any other branch, but though her cult is established, her mission is not ended with the recognition of her supremacy and the faithful following of her own ilk. To-day she turns to the people and their rulers outside the medical fold and demands the place in their councils that is hers of right. A make-shift share in the administration of the sanitary interests of the country has been grudgingly allowed, but the inexorable demands of modern enlightenment can not be satisfied until the conservator of the public health shall sit a peer among the rulers. The minister of war may build mighty engines for destruction and defense and muster vast armies and navies, which disease can disperse with a weapon so tiny that the eye can not discern and no mere military expedient antagonize. The minister of finance may fill his treasure-houses with gold and silver by the ton, which can buy human souls—honor, virtue, independence—everything but the boon of health, God's free gift to man, through which alone he can be like His own glorious image. Commerce, agriculture, manufacture, fishery, mining and all the industrial occupations of the human race, which are now the objects of the intelligent supervision of cabinet ministers, who are grand-masters of political economy and social science, can not thrive without vigor of human blood and brains and brawn, which are the machinery of these occupations; yet until this decade it has not been thought that the intelligent supervision of a grand-master of the divine science of medicine was necessary to preserve this vigorous health of the community, without which even these other ministers can themselves only imperfectly perform their own offices of administration.

When I entered the service of the Government of the United States as an officer of the medical department of the navy, nearly forty years ago, with a minimum of experience and a maximum of enthusiasm and an exalted opinion of the dignity and responsibility of my charge, which a lifetime has only intensified, I was stounded at the total ignorance of sanitary provision then prevailing in the naval service. Medical officers were curtly reminded that their opinions and advice would be asked when desired; their protests at acts that filled the hospitals and mortuary lists were contemptuously unheeded;

they were reproved for officiousness and punished as insubordinate; disabled sailors and marines were discharged and their places and those of the dead were filled without regret or remorse, but with the shameless boast that "if men die we can ship others;" like the Netherland commodore, some of whose crew had been killed by the careless firing of a shotted saluting gun, who accepted the apology for the accident with the nonchalant remark: "There are plenty more Dutchmen in Holland."

The battle-ships and cruisers of modern navies are not more unlike the brigs and sloops-of-war of forty years ago, than are the cleanly, well-fed, comfortably clad and cared for enlisted men, who go on shore daily, subscribe for newspapers and write letters; a different race from the begrimed and degraded "shell-backs," who were ordered to their work with curses and punished with brutality for offenses which neglect and ill-treatment had incited. The naval and military establishments have considered the beam in their own eyes, but civil authorities are still purblind to the necessity for organized intelligent sanitary supervision and direction, and grope for succor only under the flash-light of a pestilential visitation.

The following from a recent editorial in an influential journal is pertinent:

"Whether cholera has or has not made its appearance at Chester, which is practically one of the suburbs of Philadelphia, it is certain that the conditions reported to exist there are in the highest degree favorable for the introduction and spread of that disease. All accounts represent the neighborhood in which the alleged cases occurred as filthy beyond description and occupied by a class of persons who pay no attention whatever to the laws of health or personal cleanliness. Of course, the country now has the pleasant assurance that the place is to be thoroughly cleaned and effectively quarantined, but why were not the steps necessary for the protection of the public health taken before the resulting disease, whether cholera or not, had gained such a footing that already five persons had died from it? The time to lock the stable door is before the horses housed therein are stolen, and the way to treat contagious diseases is to prevent their appearance and not wait for them to gain a foothold and then try to stamp them out."

The Secretary-General has announced that the proceedings of this Section and its congener, the Section on Marine Hygiene and Quarantine, will constitute a special feature of this Congress. It is, therefore, incumbent upon us before adjourning to declare very positively the opinion of the members of this Section, experienced practical sanitarians from every country of the western hemisphere, that the interests of the public health must be intrusted to a department of the Government especially charged with their administration, with equal independent, executive authority, as given to other National departments. Temporary legislation under the spur of emergencies does not beat this age. As the enlightened physician seeks to prevent his charges becoming ill, so should the guardian of the public health be able to forestall those emergencies, whose pecuniary cost in money expended and wasted, in trade paralyzed and diverted, in labor and its wages lost by the sick and terrified and dead, in a single epidemic, exceeds that of maintaining an efficient sanitary service for the whole country for a whole year.

The fault of the medical profession has always been its lack of bold assertion of its rights, but it can no longer hesitate to declare to trade and commerce and agriculture and manufacture that the

health and vigor which are essential to prosperity can not be secured by their own unskilled uninformed efforts. They must learn, as the military services have learned, that powerful armies and navies are the result of able and untrammelled medical departments. It is as unwise to confide the care of the National health to a financier, however astute, as to expect a postmaster-general to understandingly control a bureau of agriculture, a fishery commissioner to best administer the affairs of the public schools, and an attorney-general to direct the mining industries. The health of a nation is a National consideration, involving international cooperation. There should be no priority nor clash of sectional interests. State lines are not respected by epidemic intruders. No State barrier can be so defensive and impenetrable that the toxiferous germ can not pass through. The precise form of administration may be left to legislation, the indispensable requisites being that it shall be National, that it shall have parity of voice and influence in the National councils; that it shall have independent executive authority under the limitations common to other departments; and that it shall be intrusted to educated and experienced medical men, who alone are competent to assume its responsibilities.¹

I have not wandered from my text in this pleading for a National public health establishment. Spasmodic tentative provisions in emergencies are nothing but attempts to discover *motes* from abroad, when the *beams* at home should first receive consideration. To parallel further and in another sense, the scientific tendency of the day is literally towards *mote-hunting* through microscopes, instead of using our human eyes upon visible abominations. The sanitarian, official or amateur, needs but look about him to be appalled at the spectacle of indifference of rich and poor, high and low, to dangers far greater than any from cholera microbes, which confront them every hour, and it may be worth our while to indicate some of these beams in our own eyes, which we complacently refuse to see, while we magnify the motes on our horizon.

The preventable disease, which kills more of the human race than cholera and yellow fever together, and in its ordinary slow process of killing lessens the productive power of a community, directly by the enfeeblement of its victims and indirectly by its demands upon members of households and eleemosynary institutions for the care of these chronic invalids—*tuberculosis*—is tolerated with as little concern as the Mongolian exhibits for smallpox, or the Creole for yellow fever or malaria. The consumptive whose traits no professional neumen is required to recognize, frequents our crowded thoroughfares, sits beside us in unventilated street cars, and at the hotel table, occupies Pullman sleeping-berths and shares the steamship stateroom, wholly unrestrained and innocently ignorant that he or she may be sowing the seeds of disease among delicate women and children. Any one may verify this who uses his eyes for the purpose along the railway and coastwise steamer routes to our invalid resorts. Within a twelvemonth, on my way to Mexico by rail, I was

fellow passenger with two invalids in the advanced stage of phthisis, en route for San Antonio, one of whom occupied the opposite berth, and the other one diagonally across the car, so that I could see and hear them coughing and expectorating, with only such attention as well-intending but unskilled relatives could render. They had no vessels for receiving their sputa, which was discharged in their pocket handkerchiefs, to be scattered over pillows, coverlets and blankets. They left the car in the morning, and I saw those same berths, it is true with change of linen sheets and pillow-cases, but with no change of blankets, mattresses or pillows, occupied that very night by other travelers, who were thus subjected to contact with a pathogenic microbe far more tenacious of life and power of evil-doing than the dreaded cholera spirillum. One has only to sit in a crowded street car on a winter day and watch the clouds of respiratory steam circling from the mouths and nostrils of the unclean and diseased into the mouths and nostrils of the clean and healthy, as the expiratory effort of the one corresponds with the inspiratory act of the other. The road is short but straight and sure from vomica and mucous patch to the receptive nidus in another's body. Who that has ever had forced upon him an aerial feast of cabbage, onions, garlic, alcohol, tobacco and the gastric effluvia of an old debauché can doubt that aqueous vapor can transport microscopic germs by the same route? Not long ago I traveled by sea from New York to Charleston, and for two nights was cabined with some twenty consumptives going to Florida. The air was chill, and they huddled around the stoves and fearfully and fearlessly closed doors and windows, until the atmosphere became stifling with their emanations and the dried sputa, which they ejected on every side. It was comparatively easy to escape during the day by staying on deck, and I slept with my stateroom windows wide open, but the curtains, carpets, pillows and mattresses had been saturated by I know not how many expectorating predecessors. I have visited fifty smallpox patients a day, have gone through yellow fever wards and stood by cholera bed-sides with far less apprehension than I experienced on that trip, yet it was one taken by many thousands of people, who would have been terrified to know that there had been a case of cholera within a mile to leeward of their homes. Recall in your several experiences the instances of members of a family, who have occupied the same chamber and bed with a gentle and beloved aunt or sister, and those of tuberculous husbands or wives, who have become ill like them with pulmonary phthisis attributed to everything but the manifest cause.

In former years, I preached a crusade against another virulent communicable disease, in the interest especially of innocent and helpless women and children, and for a time I was gratified to find that husbands and fathers began to realize from the numerous indisputable instances I was able to report, that *syphilis* might be, as it had been, contracted from combs and brushes and rough edged drinking vessels in hotels, sleeping cars and boarding houses, from pens, pencils and paint brushes, that had been held between diseased lips, from dirty, old banknotes, from street vendors' toys, from a lover's kiss, a stranger's caress, or a nurse's ministrations. Supported by an array of cases of infected children, young girls and elderly men and women, the com-

¹ The sanitary reforms were unanimously adopted in the form of a resolution by the members of the National Sanitary Association, which was held at the Hotel McAlister, New Orleans, in 1890, and reported to the National Sanitary Conference, by which it was adopted. It was also adopted by the National Sanitary Committee, which returned it with a recommendation that it be presented to the view of the Congress to be held at Washington in 1891, and which was reported thereon.

mittee of the American Public Health Association, of which I was chairman, advocated the enactment of a law, placing venereal disease in the category of other communicable affections and punishing its transmission as a misdemeanor, but there were too many of the self-righteous blind to these beams in their eyes, who thought it wiser to seek to exterminate by ignoring its existence and never uttering the name of a disease that has done more harm to mankind than all the diphtheria, typhoid, smallpox, measles and scarlet fever, which are so carefully isolated and their statistics so regularly collected and promulgated—a disease that travels with the missionary to Asia, Africa and the Pacific and decimates bodies faster than he can whiten souls.

I do not expect that all who have eyes will see as I do, or having ears hearken to what I say. The idle and perverse generation of the first century will have its following in the twentieth, and men and women will continue to do the insanitary things they ought not to do, and leave undone the sanitary precautions they ought to take despite our warning, our imploring, our advice or our denunciation. However benevolent and beneficent the hygienist's aim, this unappreciated, unrequited and often unprofitable labor is enough to deter him from what has been derisively described as only an effort to procure the survival of the unfit—and thus thwart Nature's own attempt to rid the world of them. He encounters another obstacle to success as aggravating as the disbelief in the necessity for his work. The authorities listen to his warnings and then employ their own perfunctory and superficial methods of protection. Told that absolute cleanliness is the fundamental fact of sanitation, street-cleaners are set at work brushing the surface dirt into little heaps, which passing vehicles again distribute or the winds carry into the opened windows of adjacent residences. The refuse of the household is deposited in vessels on the sidewalks of crowded thoroughfares to be emptied after a time into collecting carts, from which clouds of dust envelop passers and circulate back into the houses—*living* dust, for Manfredi found an average of 761,521,000 microbes to the gram of the street dirt of Naples, from which he cultivated pus, malignant oedema, tetanus, tubercle and septiciemia. Swarms of flies feed on the decomposing contents of exposed garden pans and buckets and carry their tiny germ laden booty into the butcher shop of the poor and the kitchen of the millionaire. Who can dispute that if the hair of the Newfoundland dog could transport yellow fever to a distant Mississippi town, and a newspaper printed in an Ohio village where smallpox was raging, could fatally infect a United States Consul in a foreign port where the disease did not exist, that a cloud of dirt, a swarm of flies, or a single fly, as Sawtschenko, Simonds and Sternberg demonstrate, can disseminate cholera and become a focus of infection, which ordinary precaution to cover and destroy the discharges and excreta of those already sick would have made impossible? Cities are reported clean whose sanitary inspectors have merely walked through crowded tenements, a hundred or more a day, and been satisfied with external evidences of brush and broom, leaving carpets and rugs unlifted, pieces of heavy furniture, with the fluff of years behind and beneath, unmoved; and closets, cupboards, pantries, storerooms, attics and cellars undisturbed. The cellars of our great cities,

and I speak with personal knowledge of many in New York, Brooklyn and Philadelphia, are greater abominations than even filthy living apartments.

The *New York Herald* of the 5th August, narrating the death of two children by falling from a window on the fourth floor of a tenement house at 201 West 61st Street, said: "To get at the bodies of her children the frantic mother had to go through the cellar of the house. There she waded through indescribable filth, almost knee deep to where her children lay, when the foul odors overcame her and she fainted." It added: "The sanitary superintendent issued an order that the cellar must be cleaned out within twenty-four hours." Do you believe that it was the only one of its kind that needed cleaning? No city can be accounted clean until its ordinances require every cellar door to be widely opened to the sun and air—that royal pair of germicides—every cellar to be emptied of its refuse, every cellar wall and ceiling to be scraped and whitewashed, every cellar floor to be taken up if rotted and sprinkled with lime if uncovered, a tedious and expensive process, but effective sanitation, costly as it must needs be, is cheap beside the outlay of a single epidemic. There are underground foulnesses in all our great cities, of which they should be rid at any cost, as where rag-pickers and bone-gatherers collect their filthy stores, and Italian street-corner fruit sellers keep their decomposing bananas, grapes and oranges, till rubbed off by dirty pocket handkerchiefs they are exposed for sale, glistening after their repulsive polish with impure saliva. If some more hunter, loth to find so huge a beam, chooses to find solace in disbelief, I might be able to shock him by declaring that I have seen the figs he munches unconcernedly, flattened in their pretty boxes in a country where syphilis reigns, by questionable thumbs moistened by equally suspicious saliva. Shall I, while revealing insanitary horrors, dare lift the sweeping train of the fair promenader, fashioned after that of women in other countries who never walk upon the streets, and show the nasty mess of spittle, excreta, mud and dust she gathers from the sidewalks upon her white skirts and silk stockings? She will not believe me, but the bacteriologist, who scoops the mud from between the cobble stones of the streets to find it swarming with microscopic life, can gather as rich a harvest of microbes from these same dainty undergarments.

Nor are these the only beams we overlook in our search for notes. Dr. Graham, bacteriologist of Starling Medical College, in response to an official inquiry by a member of Congress, reported that he was able to obtain thirteen colonies of two kinds of bacteria from one dirty, worn banknote, and the *Medical Record* of 21st of January of this year, states that a British bacteriologist discovered 19,000 microbes, including those of tuberculosis, diphtheria and scarlatina vegetating upon a single note.

Other harbors of mordant germs are the textile-factories employed in the furnishing of street cars and stages, which the chairman of the Sanitary Committee of the New York Board of Health reports as "a menace to public health by reason of their continual exposure to uncleanness and infection from the clothing of diseased and filthy passengers," which, like their grimy bodies, may be foul with the sputa of diphtheria, tuberculosis or syphilis, the disquimations of scarlatina, measles or erysipelas, the ema-

nations of typhus or the alvine discharges of cholera or dysentery. A commendable league of zealous ladies, who are seeking to prevent the abominable practice of expectorating in public vehicles, induced a few car companies to display placards, to the effect that "gentlemen are requested not to spit on the floors," but these appeals intended for beasts, who were never gentlemen, were hung in inconspicuous places or covered by other notices, and the spitters continued to discharge their syphilitic and tubercular sputa on the floor mats to be taken on ladies' petticoats and carried to their homes. The spitter and the other beast, who voids his nasal secretions where it suits him, are largely responsible for the spread of influenza, for, according to Pfeiffer, the discoverer of its bacillus, "its contagion is found in the moist secretions of acute cases in the discharges from the nasal and bronchial mucous membranes."

Further detail would be out of place in an introductory address to this Section. Let it suffice to point to the fragile spirillum of cholera, which we are exorcising by "bell, book and candle" as illustrating the dreadful *notes* of my text, and to the sturdy robust bacillus of tubercle as the *beam* we will not consider. "Cholera," says Ernest Hart, "can only be drunk and eaten. It can not be caught and breathed;" but the tubercular mischief-maker, who finds the ever open door of the respiratory passages his readiest approach, may also enter at any or all the orifices of the body. Among one thousand autopsies, Osler found 275 with tuberculosis; among 8,873 patients in the surgical clinic at Wurzburg, one-seventh (1,227) were tuberculous; the necroscopic statistics of Harris and others "show that one-third, perhaps over one-half, of the people who live to middle age, have some form of tubercular infection; and Dr. Williams of Johns Hopkins Hospital estimates that tuberculosis of the female generative organs is four times more frequent than generally supposed." (*Medical Record*, March 18.) Can any more obvious method of direct infection in these cases be imagined than the trailing skirts of women gathering tubercular sputa from the pavements?

The sanitary inspector is destined to become the most important agent of future civic administration. The perfunctory burning of a pan of sulphur in a diphtheritic chamber, the sprinkling here and there of a solution of corrosive sublimate, or the substitution of the sweeter scent of thymol, pinol or some newer "oil" for the foul odor of the privy will not then be the tolerated limit of this interference. All that science teaches and all that intelligence can devise will be exacted of him. A sanitary inspection will be a deliberate, painstaking, critical examination of nooks and corners and their disinfection, the flooding of the lairs of microscopic notes and the deluging of unsightly beams with those unstoppered, unpatented, inexhaustible germicides, air and sunshine.

Coincident with the approaching Eleventh International Medical Congress at Rome and its fitting complement, there is to be an Exposition of Medicine and Hygiene, and significant of the share accorded sanitary science in a Medical Congress representing the highest modern professional attainment, it will be noticed that of the *two* classes, which in their ensemble make up the Exposition, *two* are exclusively hygienic, to-wit:

4. Plans, models and *matériel* bearing on school management and sanitary civic organization (*ordinamento urbano*).
6. Plans, models and *matériel* for hygienic constructions.
7. Apparatus and furniture for hygienic uses in the interior of common dwelling houses and public offices on every scale.

8. *Matériel*, appliances and accommodations for the practice of personal hygiene; and

9. Plans, models and appliances for the hygiene of the working classes.

Three are partly hygienic, to-wit:

1. Apparatus, *matériel* and plans of buildings for scientific and technical investigation in therapeutics, biology and hygiene.

3. Articles and appurtenances requisite in salvage service and in *assistenza pubblica*; and

10. Books, atlases, photographs and such like, recently published and having reference to the medical, biologic and hygienic sciences.

Two only of the ten are exclusively medical and surgical, to-wit:

2. Apparatus, instruments and *matériel thérapeutique* in the various departments of medicine; and

5. Plans, apparatus and furniture for the purposes of the divisional surgeon in cities. Additional to these, special classes are devoted to hydrology and balneo-therapy, and to the Italian Red Cross Society, both of which are practical outcomes of sanitary endeavor.

I do not forget that climatology and demography, as well as hygiene, are within the purview of this Section, but what are climatology and climato-therapy but applied hygiene; and what demography but the demonstration of the results among masses of people of sanitary or unsanitary conditions? The climatologist is of necessity a hygienist. The materia medica and pharmacopœia are not his textbooks. Physical geography, meteorology, hydrology, balneology are his scriptures and gospels. The vivifying light, invigorating air and healing springs and waters his armamenta, his anodynes and hypnotics, his roborants and entropics, his alterants and excrementals. The high professional standing of the American Climatological Association, one of the constituent bodies of the Congress of American Physicians and Surgeons, and the distinguished climatologists who are with us to-day and who are conspicuous in every International Congress of Hygiene, are evidences of the place in medicine of climato-therapy, the practical end of medical climatology; that broad specialty which robs so many graves of untimely victims and makes so many heretofore without hope able, if not to take up their beds, at least to get out of them, and walk. The field of the climatologist is broad as the habitable surface of the globe—in the high altitudes of Colorado and the Alps; in the odorous pine forests of Norway and the Carolinas; on the sea shore or upon the wide waste of waters and their islet oases swept by ocean breezes.

Our American vital statistics are not yet piled high enough to form the foundation for a substantial superstructure of demography. The great caldron in which we are mixing Celts and Saxons, Semites and Aryans, with a seasoning of syphilis, tuberculosis and insanity, is simmering, with what ultimate homogeneity can only be conjectured. When immigration was a tiny stream, however muddy and noisome, poured into a rapid river of pure water, it was soon lost in the crystal fluid; but now that huge sewers are discharging their fetid pestilential torrents into a placid lake that has no outlet, the lake itself becomes turbid and unclean. Already, in the *caldrons* which are nearest the open mouths of these foul sewers and receive their floating scum—the pris-

ons, reformatories, almshouses, insane asylums and hospitals—this filthy, debased and diseased foreign element is ascendant, and our demographers have a simple task in representing its volume by numerical statistics. Dr. Frederick H. Wines, the distinguished compiler of this portion of the census of the United States for 1890, demonstrates by the indisputable evidence of figures that while the foreign born constitute only 17 per centum of our total white population, in round numbers about one-sixth, yet they furnish over one-half of all the paupers in the almshouses of the country. It is evident that the traits of the Saxon are disappearing from our National complexion, and if the proper solution of the negro question be, as suggested by certain prominent Afro-Americans, to bleach it out by admixture, we may expect the hue of our descendants to be decidedly tawny.

The most zealous demographers of this decade are the French, who have been spurred in their statistical researches to discover the causes of the too evident depopulation of France of its native races. But are we not again refusing to consider the beam in our own eyes in not giving heed to the operation of similar conditions in our own country? Dr. Billings announces that our birth rate has fallen from thirty-six per thousand inhabitants in 1880 to thirty-one per thousand in 1890. The twenty to thirty children of our ancestors, the dozen or more of our great-grandmothers, have dwindled progressively to five or six, then to three or four, until to-day one or two or none represent the fecundity of the educated classes. The *Independent*, referring to New England Puritan life, says:

"Large families abounded. According to Cotton Mather one woman had twenty-two children, another twenty-three by one husband, and a third was mother to seven and twenty. Sir William Phipps was one of twenty-six children of the same mother. Printer Green had thirty. The Reverend John Sherman of Watertown had twenty-six children by two wives, the second spouse the mother of twenty. The Reverend Samuel Willard, the first minister of Groton, had twenty children, being himself one of seventeen, as was Benjamin Franklin."

The paragraphist who can now record the case of the woman of 31 at Cold Spring who has become the mother of seventeen children in nine years, or that of the Georgia matron of 25 who rejoices in thirteen, has, in newspaper parlance, "a great find." The spectacle of impending maternity among our better classes is becoming more and more rare, and still more rare that of an infant nursing at its mother's breast. Only in the squalid quarters and purlieus of our great cities where the English language is not spoken, among imported lazzaroni and the overflow of Italian ghettos, does the process of human incubation go on as God and Nature intended. The laws of creation are immutable, and one has but to look beneath the disfigurement of female dress to recognize the evidences of imperfect physical development—in stooping unsymmetrical shoulders, in meager limbs, in narrow pelvis and flattened busts. Dr. Otis exhibited at the recent meeting of the American Climatological Association in illustration of the diametric measurements of the thorax, the profiles of a number of female chests which were supposed to be those of little girls until he explained that they were the contours of nubile young women in Boston normal schools, like her whom Solomon bewails in the Song of Songs: "We have a little sister and she hath

no breasts; what shall we do for our little sister in the time when she shall be spoken for?" My friend, Dr. Robert T. Morris of New York, has called attention to the fact that eighty per centum of all Aryan-American women have rudimentary clitorides and asks if evolution is trying to do away with this organ in the degenerative changes characteristic of highly civilized varieties of the *homo sapiens*, of which early falling hair, decaying teeth, weak mammary glands and badly balanced eye muscles are other examples. Is the sexual instinct losing its potency as a maternal factor? Is marriage only a social office for the display of finery on the bride and bridesmaids and the entertainment of crowds of gaping strangers? Is the virgin wife best prepared for conception by months of preliminary sur-excitation and feverish anxiety, and is a fatiguing railroad journey the best prelude to an act which should lead to the inception of a human being, the incarnation of a human soul? Has the function of reproduction come to be regarded only as a bestial concomitant of matrimony, and lactation its vulgar indecent supplement, and is all this attributable to physical deterioration shown by the undeveloped or imprisoned *mamilla muliebri* and atrophied mammae, and how far is this the explanation of the diminished fecundity of the Aryan-American woman? These are problems as interesting to our demographers as the depopulation of France, the disappearance of South Sea Islanders, the migration of Semitic and Mongolian races, and the effects of mal-nutrition on the indigenes of Ireland and Russia.

But, gentlemen, I shall no longer trench upon time that belongs to you. I am highly gratified at your presence and thank you most cordially for your kind attention.

Note.—The remainder of the address was delivered in Spanish, of which the following is a translation:

Gentlemen, our Friends and Colleagues from Abroad—Permit me, on the part of the members of this Section from the United States of America, to tender you a most hearty welcome to our capital. Your long travel to this city bespeaks your interest in the occasion. It is no light boast that here for the first time in its history, the medical profession of all America finds itself united in one great Congress. It was about nine years ago that a number of Canadian sanitarians claimed the right as Americans to become members of the American Public Health Association, and it was my privilege as president of that body to receive them as such. The subsequent transactions of that Association show how loyal they have been to its traditions, how zealous they have participated in its work and with what dignity they have filled its highest offices. Two years later they carried the Association into their own territory at Toronto.

In 1890, two distinguished representatives of the Supreme Council of Health of our sister republic of Mexico came to Charleston and, as Americans, likewise knocked at the door of the American Public Health Association, returning the following year in such numbers and with such a hearty welcome from their government to meet in their own capital, that the invitation was accepted, and the most successful meeting of the Association, the twentieth in its history, was held in the ancient city of the Toltecs. To-day the roll of States represented in the Advisory Council shows Illinois, Massachusetts and Tennessee, Ontario, Quebec and Manitoba; Louisiana, Quebec and Zaire in one fraternal union.

What sanitarians have done in that Association, which bears the escutcheons of its three constituent countries, side by side, this Congress aims to accomplish for the whole profession of medicine in the Western Hemisphere, uniting its members in one brotherhood, whatever their race or language, and whether their homes be on the frozen shores of the Arctic or the ill-deserts of Tierra del Fuego, among Greenland's icy mountains, in the archipelago of the West Indies or amid the perpetual gardens of Hawaii.

Physicians and brothers from the United States of all America, welcome to this your capital, which in that sweetest language spoken by human tongues, *proposui a vobis in disceptatione*.

Medico-legal Photography.—One of the recent inventions in photographic science is exhibited in the French building at the World's Fair. It consists of a reversible camera, with a special tripod enabling the operator to photograph a corpse and the surrounding area of ground in the proper perspective to an extent of about eight feet square. The tripod is placed over the object and focusing is obtained by means of a mirror at the back of the camera with an angle of 45 degrees. By this method the condition of the ground and contiguous objects in their most minute details are fixed upon the sensitized plate.

CHOLERA; ITS NATURE AND ITS CURE.

BY HENRY RAYMOND ROGERS, M.D.

DUNKIRK, N. Y.

"We have no better means of combating the cholera to-day than at any time since it became known to civilization, a thousand years ago," said a distinguished physician in a recent number of the *Review of Reviews*. "The medical profession therefore stands confronted with the appalling fact that hitherto all theories of this disease have been so misleading, and all forms of treatment have proved so worthless, that longer to trust them would be little less than criminal. Better theories and practice are urgently demanded."

The bacillus theory of Dr. Robert Koch, which was so eagerly grasped at, is now found to be fallacious. Dr. Koch himself admits that comma-shaped germs are found in the common diarrheas of summer everywhere, and he tells us: "Water, from whatever source, very frequently, not to say invariably, contains comma-shaped organisms." He is not ignorant of the fact that these bacilli are found in the secretions of the mouth and throat of healthy persons and in the dejections of hardened fecal matters. Dr. Koch also knows full well that Drs. Pettenkofer of Munich, and Emmerich of Berlin, two of the most distinguished members of the medical profession of to-day, and experts in this disease, drank each a cubic centimeter of "culture broth" containing these pathogenic bacilli without experiencing a single characteristic symptom of cholera, though the draught in each case was followed by liquid stools swarming with these germs. Hasterlik reports six cases of the same kind without any apparent results. The utter worthlessness of Dr. Koch's comma bacillus as diagnostic evidence of this disease is thus fully demonstrated.

As the result of a personal experience in every epidemic of this disease in our country since 1851, together with an experience of its effects upon my own person and a success in its treatment quite phenomenal, I am prepared to assert that cholera need be no longer the dread and scourge which hitherto it has been.

It is strange that a new philosophy of this disease which must revolutionize its theories and its treatment is now found where it never before has been sought for, but where alone it is possible to find it, viz: in the right interpretation of the symptoms which characterize the disease. This philosophy not only reveals the essential nature of this disease, but points unerringly to a more successful treatment.

The symptom of most vital importance, and the only one which is pathognomonic, is the watery exudations which find their way so profusely through stomach and intestines and skin. In fact, all other symptoms which follow this one have their origin *in it*, since, in the entire absence of *this*, neither of the others can have an existence. The most vital consequences, therefore, depend upon the right appreciation of this symptom, together with the promptness and efficiency with which its indications for treatment are carried out. This watery element is constituted of the serous element of the blood, and comes from every part and portion of the system.

The question now arises, by what process does this rapid separation of the finer element of the blood from the coarser take place? The nerves of the

system, when in their normal condition, preside over and maintain the tonicity of every organ, vessel and tissue of the body. They control the functions and processes of every part. The rapid filtration of the watery element of the blood through the now loose and patulous walls of the blood vessels indicates a loss of tonicity on the part of the nerves which permeate those walls. On account of such weakened condition of the walls of the blood vessels a general serous outflow pours from every vein and venule of the body, and the great life current is thus robbed to supply these so-called rice water discharges. At the same time the weakened vessel-walls contract with diminished force upon their remaining contents, and consequently the brain and heart fail of an adequate supply, and the more fatal symptoms and death follow. Such is the secret of the disease and its rapid and phenomenal fatality.

The rapid abstraction of a single element of the blood becomes disastrous in the same manner as when the full blood itself is lost in the more common forms of hemorrhage. It is, therefore, passing strange that this rice water phenomenon never has been recognized as a hemorrhage, with all that such a hemorrhage implies. All symptoms and conditions incident to this disease, as also the changes observed upon the cadaver, are explainable upon the hypothesis of actual hemorrhage; and we are warranted in saying, *only* upon that hypothesis.

Owing to the failure to discriminate between the actions of the red corpuscles of the blood and its white discs, its chief constituents, this hemorrhage hypothesis has not been applied in explanation of this disease. The vital forces of the system depend largely upon the action of the red corpuscles, for through these chiefly are effected the oxygenation of the blood and the consequent revitalization of the system. A small loss of this element may become quickly fatal. On the other hand, the serum or white element which constitutes the bulk of the blood performs less vital functions, and its abstraction becomes neither so quickly nor so seriously manifest. In this disease enormous quantities are sometimes separated from the circulating current without fatal consequences.

Treatment.—Since the disease is essentially a neurosis, and its controlling symptom a hemorrhage, its treatment becomes at once clearly defined, and the pure empiricism of the past must give place to a scientific treatment with vastly improved results. We must look upon the cholera hemorrhage as subject to the same general principles of treatment as other hemorrhages.

As the cholera hemorrhage occurs over so large a portion of the body, is colorless, and therefore virtually a *concealed* hemorrhage with all that is alarming which that word implies, it calls for attentions at once prompt, efficient and watchful. No painless diarrhea or painless vomiting is free from danger during a cholera epidemic, since the milder conditions of the disease often quickly change to those more grave and fatal.

Both the principles and the practice of medical science teach that position, *position*, position, is the prime safeguard in sudden and profuse hemorrhages occurring from any cause. In the treatment of cholera hemorrhage, position with the body horizontal or with the head the lowest, is quite as indispensable as in that arising from any other cause.

Position in the treatment of cholera is not simply a repose in bed with the head resting comfortably upon the pillow, and raised or lowered at the pleasure or caprice of the patient; but to be efficacious, as in its graver cases, it must be *compulsory*, and strictly maintained, *as for the very life*, until the danger period is passed. The vital necessity of position in the treatment of cholera is shown by Murray, Cunningham and other distinguished authorities when they tell us that "once sitting upright in bed sometimes causes death in this disease." Not even in the act of evacuation of the bowels should the head be raised in the more serious cases. But position in this disease is sometimes difficult to secure, as the patient, when weakened by exhaustive discharges and pain, becomes disturbed in intellect and is with difficulty controlled.

If the best results are sought for, the horizontal position should be enforced in every case of even suspected cholera. In cases of great danger the body should be inclined with the head the lowest. This position should be maintained until the blood vessels contract upon their contents, which fact is shown by an improved condition of the pulse.

In the present condition of medical science, opium and its preparations stand far above other remedies which may be employed in the treatment of this disease. No remedy is known which surpasses this one in the power to change the perturbed condition of the nervous system and close up the diminutive avenues through which the watery element of the blood and the life ebb away together. During an epidemic it is hazardous to rely upon remedies taken through the mouth, since in cholera the action of the mucous membrane often becomes changed, so that internal remedies either fail to act or are ejected. Moments are sometimes precious, as a life may depend upon the certainty of retention of a remedy and the promptness and efficiency with which it may act. The hypodermic method is here our best resource. According to the reports of cases in Asia, Australia and elsewhere, the hypodermic use of morphia has shown almost uniformly favorable results; the one-eighth to the one-sixth of a grain of the latter very rarely need be exceeded or frequently repeated. Opium and morphia *in large doses* are decidedly contra indicated *in any of its stages*; since, if these drugs are retained in the stomach, they may become cumulative and in the case of reaction they might become fatal.

For the relief of the atrocious cramps, the administration of chloroform by inhalation, together with small doses of morphia hypodermically applied, offers the most speedy and effectual means at our command. The stimulation of the brain by currents of blood sent to that organ by *position*, wonderfully facilitates the control of the cramps.

For excessive thirst, ice may be given ad libitum; and if ice can not be obtained, the coldest water in small quantities and frequently repeated. The suffering from thirst in this disease is inconceivable, and it is unjustifiable, unmitigated cruelty to withhold these necessities from the sufferer. Ice has been given freely in *every* case under my charge, and with the happiest effects.

The circulation should be promoted by the application of heat and friction to the extremities. Any further treatment may be conducted upon general principles.

En résumé: This disease, so destructive to human

life, is thus found to be most simple in its character and positive in its indications for treatment. As a problem in medical science, cholera resolves itself into a question of supply of blood to the brain and heart. If this supply be kept up, a fatal termination to this disease is not probable. Whatever course will best promote this end, therefore, must secure the most favorable results in its treatment.

The inestimable value of *position* as the fundamental idea in the treatment of cholera was first exemplified upon my own person in 1854, and has been abundantly demonstrated in the epidemics which have since occurred.

The simple theory herein advanced is found in entire harmony with the highest principles and practice of the advanced medical science of to-day. It offers results such as never yet have been realized, and places within the reach of all a ready method of treatment. This treatment may be successfully employed even without the use of medicines.

In fine, in the light of the study of this disease during forty years, both at home and abroad, such as few have had either the opportunity or the inclination to pursue, and in view of the phenomenally favorable results of treatment based upon this philosophy, I believe myself fully warranted in asserting that the rate of mortality of this scourge may be reduced to less than half of that at which it confessedly stands to-day.

The foregoing theories have been presented by the writer before the American Medical Association, the New York State Medical Societies and the Chautauqua County (N. Y.) Medical Society; also through the columns of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, the *Chicago Medical and Surgical Journal*, and the *Quarterly Epitome of Practical Medicine and Surgery*.

NECROLOGY.

A Famous Irish Surgeon Dead.—Dr. T. H. Parke, who Accompanied Stanley through Africa.—Dr. Thomas Heazle Parke, a distinguished surgeon, and one of Stanley's most intimate and beloved companions in the latter's trip across Africa in 1887-88-89, is dead. He was an Irishman, his birthplace being Ologher House, Drumona, County Tyrone. Dr. Parke was only thirty-six years old at the time of his death.

He was commissioned as surgeon in the medical staff of the British Army in 1881, and from that time onward his life was spent in active service abroad. The following year he was in the Egyptian campaign and received the Queen's medal and the Khedive's star. He then went through the cholera epidemic in 1883, and afterwards was in the Nile campaign for the relief of Gordon. Dr. Parke was present at the battle of Abu-Klea, the action of Gubart and other engagements. He went across the Bayudu Desert in medical charge of the naval brigade under Lord Charles Beresford and returned in medical charge of the Guards' camel corps under Lord Falmouth.

ACROSS AFRICA WITH STANLEY.

Subsequently he crossed Africa with Stanley in 1887-88-89, and when he returned received many honors from societies, his government and the Khedive. He was put in command of a company of the detachment under Major Bartellot, which sailed up the Congo on the steamer *Stanley*. At one point of the journey, at Ipoto, Dr. Parke was practically in the power of the natives. He and his companions, separated from the main body, suffered severely from want of food.

In 1888, when at Fort Bodo, Stanley fell ill of sub-acute gastritis, he pulled him through. After this he insisted upon accompanying Stanley to the Nyanza. In the following year Dr. Parke was himself stricken down. But while suffering from fever he arose from his sick bed to minister to other invalids. When Emin Pasha was found and met with his accident, Dr. Parke attended him successfully.

It is told of Dr. Parke that when he found Lieutenant Stairs wounded by the poisoned arrow shot by the hostile natives of the Aruwimi forest, he sucked the poison from the wound.

Stanley, in his work "In Darkest Africa," gives high praise to Dr. Parke for his invaluable services and his fine character.

Dr. William Thomas White, editor for many years of the *New York Medical Register*, died September 17, 1893. He was born in Richmond, Maine, in July, 1829. He was a graduate of the New York Medical College in 1855, being a protégé and afterwards assistant to that other distinguished Maine man, the late Dr. E. R. Peaslee. He served as house surgeon to the Ward's Island hospitals for a time, going thence to the Isthmus of Panama as surgeon to the railroad. He returned to New York after an absence of eight or nine years and at once identified himself with the Academy of Medicine, the American Medical Association and others of the best organizations. He was secretary of the Academy, five years later, serving in that capacity for eight years. He was an ex-president of the Medico-Historical Society and Medical Association of New York County. His positions on the staff of the Demitt Dispensary of the Presbyterian Hospital of Charity on Blackwell's Island and of the Veterinary Surgeons College, were well and honorably administered, and some of them were held down to the time of his demise. Dr. White's membership in the American Medical Association dates from 1866. He was one of the charter members of the great New York State Medical Association, now grown to a membership of 800, and the success of the body was very near his heart. The cause of his death was referable to cardiac hypertrophy and its sequelae.

Dr. Seth Rogers of Pomfret, Conn., died Aug. 6, aged 70 years. He was the twelfth son of a Vermont farmer and won his way into the medical profession by dint of perseverance, as well as a conflict with disabling ill health. He was a man of Quaker parentage and an anti-slavery advocate before the breaking out of the war. In 1862, he took the office of surgeon to a colored regiment, organized by Col. Thomas W. Higginson, the First South Carolina Volunteers. His medical education was partly obtained at the New York University and partly at the Castleton school. He also studied for a time in Paris under Trousseau and Valleix. He visited South America in 1858 for the sake of his health. Worcester, Mass., was his home during the earlier years of his career. In 1863, he was obliged by illness to leave the army, and he went to Pomfret in order to follow an outdoor life on a farm. He was able to establish a winter practice in Florida for a dozen years, and cared for patients at his own house in Pomfret during the summer months. Although his life was one long conflict with the *pes angusta domi* and with ill health, he was a character of so much vitality and courage that he has left a record bright with honorable accomplishment.

Dudley S. Brainard, died at Osage, Iowa, Saturday, Sept. 9, 1893. Dr. Brainard was born in Williamsburg, N. Y., now a part of Brooklyn, Jan. 3, 1851, and came to Wisconsin with his parents in 1861; six years later they removed to Zumbrota, Minn. He received his medical education at the University of Buffalo, N. Y., graduating Feb. 23, 1875. After practicing a short time in Minnesota and Wisconsin he removed in 1879 to Stacyville, Iowa, where he resided until a short time before his death.

Dr. Brainard prized his profession highly and was regarded as one of the strongest men in regular medicine in Northern Iowa. At the time of his death he was a member in good standing in the county, State and American Medical Associations. He was a faithful attendant at the meet-

ings of these societies, contributing frequently papers, which were listened to with interest.

Dr. Brainard was married in 1876, and his estimable wife and two children survive him.

His memory will long be held in loving esteem among those who knew him as a faithful physician, a loyal friend, a noble man, and a Christian.

Dr. Edwin N. Colt of Brooklyn, died on the 15th inst., after a period of sixty years of almost uninterrupted family practice. He was the *doyen* of the medical faculty of his town, and it is said that there are only two survivors in New York State whose dates of graduation antedated that of Dr. Colt. He was a native of Berkshire County, Mass., having been born there on August 7, 1811. He was a graduate of the old Berkshire school, in the year 1832. He was highly honored by the community in which he lived.

Dr. Philemon Hommel of Jersey City died suddenly September 14, aged 57 years. He was an Alsatian by birth and a Parisian by education. He studied pharmacy at Paris and became the pharmacist to the Hôtel Dieu, following his father and grandfather in the first choice of a profession. Having come to America, circumstances led him to study medicine and about 1882 he obtained his doctorate. He was successful in practice, and at the time of his death was a visiting physician to the Jersey City Hospital. His death was due to pulmonary hemorrhage.

Dr. Austin K. Gould of Worcester, Mass., died Sept. 9, aged 67. He was in the volunteer medical corps during the war of the rebellion as surgeon.

He was placed in charge of one of the division hospitals at Wilderness Run. Here he was captured by the confederates and for nine months languished in the prisons of Andersonville, Florence and Charleston.

In the latter place he was for nine days under a continual fire from the Union batteries.

Prof. Lyman Bartlett How, M.D., of Manchester, died in Hanover, N. H., Sept. 15, of consumption. He graduated from Dartmouth in 1860, and from the medical department in 1863. He had been Professor of Anatomy at Dartmouth for twenty-five years, and held the place until this year, when failing health compelled him to give it up. Dr. How was 55 years old, and leaves a widow and two children.

Dr. Horatio Nelson Page of Chelsea, Mass., aged 87 years died on the 16th at the residence of his son-in-law, Charles E. Reed, in Milwaukee. Dr. Page was well known in the East, having practiced at Chelsea and Bangor, Me., for many years.

Dr. Joel Henry Cooper, father of Congressman H. A. Cooper died at his home in Burlington, Vt., aged 70 years. He was born in Windsor County, Vt., and went to Burlington in 1845, practicing medicine until his retirement about ten years ago.

Dr. W. H. Galt, health officer of the city of Louisville for the last twelve years, died suddenly Sept. 14, of "blood poisoning." He was 66 years of age and one of the best known physicians in the State.

Dr. E. F. Long, past grand master-at-arms of the Knights of Pythias of Wisconsin, died Sept. 8, at his home in Black River Falls, Wis., after a prolonged illness.

Dr. Frank W. Brown, of 51 Eliot Street, Detroit, Mich., died Sept. 9. He was a son-in-law of the late John J. Bagley and his father was a physician of that city.

Dr. William P. Buck, who was surgeon of the old Eighth Illinois Infantry during the war, died Sept. 15 at his home at Mowequa, Ill.

Dr. Abram Simmons of Cohoes, N. Y., died at that city on the 12th.

Dr. John L. Galliver of Toledo, died Sept. 18, 1893.

Dr. Edward Warren Bey of Paris, died in that city Sept. 16.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:
PER ANNUM, IN ADVANCE, \$5.00
SINGLE COPIES, 10 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,

NO. 68 WARREN AVE., CHICAGO, ILLINOIS.

All members of the Association should send their ANNUAL DUES to the
Treasurer, RICHARD J. DUNGLISON, M.D., Lock Box 1274, Philadelphia, Pa.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION

This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Dunglison, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues and subscription for THE JOURNAL. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

SATURDAY, SEPTEMBER 30, 1893.

THE SEASON OF THE STUDENT.

Let those study who never studied before.

Let those who always studied, now study the more.

The annual pilgrimage of the medical students has commenced; some returning from summer semester with renewed health and vigor, others fresh from academy in pursuit of a new branch of science; and all classes full of enthusiasm and bold resolve. The dingy old college looks well to these youths, for in its walls are stored the paraphernalia of the amphitheater, the laboratory and the clinique. Even the musty jokes of the professors seem to have penetrated the cracks and crevices about the lecture rooms, which seem to be smiling softly to themselves as the eye of the neophyte rests upon them.

But no one better than the medical student, knows that there is a serious side to his life. He may have a rollicking, devil-may-care expression at the beginning of the term, but he knows that there are pains and penalties as well as prizes on examination days, and the former are as two to one.

The student has changed from the days of fifty years ago. Then, as a rule, he forsook the plow to follow a preceptor for six months immediately preceding the opening of the college term. He kept calls, studied anatomy in a desultory way, and occasionally assisted his preceptor in important cases. He then came to college with a fair knowledge of the routine life he intended to lead, he listened to many daily orations through the allotted period, and in a very short time received the engrossed parchment that authorized him to respectively save or slay according to his ability on the one hand, or blundering propensities on the other. Those days have passed for the American student; he may have less native keenness than his predecessor, but he has vastly more collateral knowledge. He is compelled to show evidence of previous academical study upon entrance,

and there is a strong probability that should he enter the recitation room, he will be necessarily absent on Commencement Day.

The pedagogue, too, has changed with the times; he no longer cultivates oratory, but the details of the branch intrusted to him; his speech is seldom studied, but his ideas are those born of intimate study of the subject in hand, and more than that, the fruit of a greater experience than that of his predecessors. The great increase in population has multiplied hospitals and dispensaries, until there is now little lack of opportunity for study of actual cases of any particular affection. The scientific pedagogue endeavors to allure and attract the students by class experiments and demonstrations. These have taken the place of the anecdotes that were used by all the old time professors. Our student must have his knowledge completely digested by the end of the term, so thoroughly mixed and incorporated into himself that it is his own. If he disgorges it whole, in the examination room, he will be through life a mental dyspeptic. The thorough assimilation of the knowledge poured into him also stimulates originality. "Bees," says MONTAIGNE, "cull their several sweets from this flower and that blossom, here and there where they find them, but afterwards themselves make the honey, which is all and purely their own, and no longer thyme and marjory." The modern method of teaching seeks to instill in the mind of the student the general principles of sincerity of purpose, attention to the lecturers and demonstrators; and a true student will learn modesty from the history of the art. The student also soon learns that cultivated eccentricities of manner and speech are no longer a passport to the highest standing in his class. He will gain much from the diversity of opinions he may hear expressed in the lecture rooms, and if he be wise he will follow the opinions that seem founded on reason. He will remember that the Republic of letters is a Republic and not a kingdom; for there is no king. He only commands who has reason on his side.

Few departments of the medical college are more useful than the quiz, which is not only invaluable to the student, but is made use of by the instructor to gauge the capacity of his pupils; as a young horse is brought out and exercised by his trainer, that the one may be made faster and stronger by exercise, and the other may know his gait, speed and peculiarities. But the quiz master should be entertaining and engaging in manner; the quiz "driver" is an unmitigated nuisance.

The student, to be successful, must avoid excesses, keep healthy and pay due attention to exercise while storing his mind; remembering the saying of PLATO that one must form not only a mind, and not only a body, but both a mind and a body, to become a Max.

THE AMERICAN ELECTRO-THERAPEUTIC ASSOCIATION.

No greater evidence of the altered position of electricity as a remedial agent need be sought than the character of the attendance and discussions at the recent meeting of the Association in Chicago. The interested participants seemed equally divided between those who were avowed specialists of National reputation and those whose standpoint was that of the general practitioner, and it was easy to see that both the speakers and hearers appreciated the educational value of the occasion. The two days' discussion on the character of coils, induced currents, and the new sinusoidal currents produced by specially constructed dynamos, and as well the discussion on fibroid tumors and individual papers showed scientific qualities unsurpassed in any other National organization. It showed also that such technical, though practical, subjects could not be adequately considered in any other medical organization than one devoted to electro-therapeutics or in a special section of our own great Association.

The organization of this Association was due to the combined labors of BETTON MASSEY, GOELET and WM. JAMES MORTON, names all standing for what is best in the newer electro-therapeutics. To them the profession are indebted for this most important step in the rescue of electro-therapeutics from empiricism and the ascertainment of a scientific basis for its claims.

Blatant quackery had already been relegated to a quiescent position as the ever-gullible public will permit, but the work cut out for an association devoted to medical electricity was even more difficult; it was the rescue of the remedy from the hands of its avowed friends—men who intrusted a noble agency to unskilled assistants and nurses. REMAK, ERB and DUCHENNE DE BOULOGNE builded well the foundation of modern electro-therapeutics, but so much can not be said for CHARCOT, who, great as he was, was responsible for a school of "impressionists" largely recruited among French and American neurologists, whose influence was distinctly inimical to scientific electro-therapeutics.

To AROSZOLI is due the modern revival of the physical methods of ERB, and as the field of their application now invaded gynecology and other departments capable of direct study and materialistic demonstration, it became finally possible for the questions involved to be discussed by believers in mere natural phenomena rather than mysticists.

As physical questions, involving the application of measured quantities and known qualities of an important force of nature, the subjects discussed at the three meetings of the Association have proved themselves sufficiently attractive to draw large audiences, and the discussions have been particularly full and

exhaustive. In accord with recent tendencies much space was devoted to gynecological questions, though it may possibly surprise some surgeons not present to notice that the contra indications of electricity as contrasted with surgery received marked notice.

The JOURNAL has recognized the importance of these demonstrations of advanced electro-therapeutics from the first, having been the only publication to receive and publish the full proceedings of each meeting, and we take pleasure in announcing the early appearance of the transactions of the recent meeting in forthcoming numbers, together with other contributions from time to time, relating to this interesting field of research.

CHOLERA.

At no time since the introduction of cholera into Europe in 1829, were there so many infected points as at present. This is no doubt owing to the greater facilities of communication, while it is also true the number of cases and the mortality incident to the progress of the disease is not as great as heretofore; the necessary result of greater precaution taken to prevent the spread of the same. Cholera is abating in Russia in the districts where for the last two years it has raged with such fatal results, while at St. Petersburg, the Crimea, and a few ports on the Black Sea it is on the increase and will no doubt continue so for some time. Cases are also reported at Constantinople, and for the first time in Servia. Cairo in Egypt is also said to be infected.

In Galicia and Hungary the disease still prevails, while the epidemic is decreasing at the Danube ports in Roumania, with the exception of Brahljon, where the fresh cases and deaths are about the same as for the last three weeks. There is not much change at Rome, Genoa, Leghorn and Naples. At Budapest there is an increase, also at Vienna. In both Budapest and Vienna, cholera is spreading among the better classes. At New Kellendorf, near Vienna, a man died of cholera, whose illness is said to have been caused by drinking water from the Danube.

A panic has been created at Bilbao in the Bay of Biscay in Spain, by the breaking out of cholera and it is rapidly spreading to the surrounding country. At Bareme, a village of 1,000 inhabitants in the Basses Alps in Southeastern France a very violent outbreak has occurred.

There has been a decided increase at Brest, Quimper and various other places in Western and Northwestern parts of France, with an increase in the number of infected localities. In Belgium, cholera is rapidly spreading in Damperemy, Marchiennes and Aupont, small towns in the province of Hainaut. A workman is reported to have cholera at the Hague. This is the first case. There is not much change in the situation at Berlin or throughout the

German Empire, with the exception of Hamburg. Here the disease has again broken out after an exemption of nearly five months. This is significant, as we may expect a like occurrence elsewhere. It is attributed to a break in the pipes that allowed water from the river Elbe to mix with the pure water. (After so long an exemption the question naturally arises how long may streams be polluted by the cholera poison?) Is it not possible that other causes may have had to do with the fresh outbreak? All the cases and deaths reported were in the suburbs of the city. One case occurred aboard the Rotterdam steamer *Amsdel* which has been lying in the harbor since September 16. It is also reported that cholera has appeared in the military barracks at Eppendorf a suburb on the Alster River. Complaint has been made that the cases were not announced earlier and that the water supply was not all filtered. In consequence of this outbreak the Hamburg-American Steamship Company have decided to dispatch their vessels hereafter from Cuxhaven. Steerage passengers for America will be kept five days under medical control at Cuxhaven before embarking. The stopping of the *Augusta Victoria* at Southampton to await the arrival of a medical inspector from Hamburg, was owing to the fact that one of the crew was suffering from choleraic disease. It is announced that if any cases should occur before reaching the port of New York she is to return to Southampton without making a landing. It is also stated that the water supply of Hamburg has been examined and found to be pure. For the last two weeks deaths by cholera at eight different points in England have been reported, the most serious outbreak being that at Hull. The indications are that the disease is slowly spreading in England, although owing to the care taken no serious outbreaks have occurred. The following cable will explain itself:

LONDON, Sept. 19.—Further questions were asked in the House of Commons to-day regarding the presence of cholera in Great Britain. In reply to these questions the Rt. Hon. Henry Fowler, president of the Local Government Board, stated that, with the exception of three ports on the east coast, all the ports of Great Britain were free from cholera. There was not the slightest reason, he added, to suppose that there was an epidemic of Asiatic cholera in any part of the United Kingdom. No cholera cases had occurred at Southampton. The medical experts attached to the Local Government Board held that there was no danger of infection from a ship that had been out fourteen days from Great Britain, and which had a clean bill of health.

Where from and how did the three ports on the east coast become infected? Was it water-borne or brought by vessels to these places, carrying immigrants from the continent for transshipment by way of Liverpool to the United States? Unless the baggage of the steerage is thoroughly disinfected, might there not be danger, even if the vessel had a clean bill of health and had been out from Great Britain fourteen days? From the foregoing it will be seen that, owing

to the many points of infection and their daily increase, there is still danger of the introduction of cholera into the United States this season. While it is true that, owing to the extraordinary efforts that have been made, we have been so far spared, it is also safe to assume that the present pandemic will continue for the next season in Europe. Why not, then, suspend immigration?

In this connection it will not be out of place to call attention to the announced discovery at Berlin of a new bacillus which is claimed to have more to do with cholera than the comma bacillus of Koch; also to a repetition of PETTENKOFER's and EMMERICH's experiment as follows:

VIESSA, Sept. 20.—In the Institute of Experimental Pathology here, Professors Hasterlik and Stockmayer, four students and others swallowed a quantity of comma bacilli. They suffered no bad effects beyond headache and nausea. Professor Stricker therefore draws the conclusion that the comma bacilli will not cause cholera in the case of strong, healthy subjects.

THE POISON OF RESPIRATION.

Some recent experiments by RAUER, *Untersuchungen über die Giftigkeit der Expirationsluft*, detailed in the *Zeitschrift für Hygiene und Infektionskrankheiten*, tend to deprive the organic matter of respired air of the importance hitherto attached to it as a morbid agent. Carbonic anhydrid has always been recognized as deleterious when present in large percentages in the air which enters the lungs. It is the deadly "after damp" of the mines, and many opportunities unfortunately have been afforded of determining the postmortem appearances in death from the inhalation of this gas. We are, therefore, not surprised to find that RAUER's mice died in an atmosphere in which the carbonic acid produced by the mice themselves amounted to 15.5 per cent. because for every per cent. so produced an equivalent amount of oxygen was used up, thus reducing the available oxygen to 5.5 per cent. Nor are we surprised that they lasted longer but eventually died in a free supply of an atmosphere containing 15.5 per cent. of introduced carbonic acid, although the available oxygen of the mixture was 17.5 per cent. We have, however, been accustomed to regard the relatively small proportion of carbonic acid in the vitiated atmospheres of overcrowded rooms as in itself comparatively harmless, and to consider that its quantitative determination by the sanitary chemists was of interest only as a measure of the associated organic elimination from the lungs, to which the headache and prostration attending the breathing of such air are usually attributed. It is true that R. ANGUS SMITH found .3 per cent. of carbonic acid to enfeeble the heart and quicken the respiration even to gasping. He claimed also that these effects could be detected with even .1 per cent., but as he himself failed to recognize such effects in the .2 per cent. of the soda

water factories, the organic matter of the respired air again assumed importance as the most deleterious of the excreta of respiration.

Now, however, comes RAUER with mice unharmed by the products of respiration, provided the carbonic acid be removed. He considers it proved by his experiments that there is no other poison produced by the breathing of animals than the carbonic acid; that indeed the existence of an organic poison in the air exhaled is impossible, for when the carbonic acid was removed there was no injurious effect, and a mixture of artificially produced carbonic acid had the same effect as that produced by an air of respiration containing the same proportion of carbonic acid. With the exception of this acid there is no gaseous poison liable to be effective in small quantities evolved from men or animals, and the conclusion is reached that men may live in absolute health in rooms with defective ventilation.

Without questioning the accuracy of these experiments we are inclined to offset them with the grand experiment that has been made during the past half century by medical men, sanitarians and philanthropists in increasing the air space and ventilation in prisons, tenements, barracks, emigrant and other ships, and living rooms generally, with the result of banishing the deadly typhus which the accumulated experience of generations recognized as due to the aggregation of human beings in confined and unventilated quarters. RAUER's experiments are interesting, but the other is more convincing.

RIGHT TO MAINTAIN SANITARIUMS WHICH POLLUTE NEIGHBORING STREAMS.

Hospitals and homes for the sick are recognized as lawful institutions, to be fostered and encouraged, and not to be discouraged or repressed. But now comes the novel and important question as to whether one who sinks an artesian well upon his own land, and uses the water to bathe the patients in a sanitarium or hospital erected by him on the premises, is liable to injunction and damages for allowing the water to flow into a stream which is the natural water course of the basin in which the artesian well is situated, the owner being free from negligence or malice, and using all due care in avoiding injury to his neighbor. This was exhaustively considered by the Supreme Court of Indiana in the case of *Barnard v. Shirley*, decided June 6, 1893, reported in the advance sheets of 34 "Northeastern Reporter," 600. No principle of law is better settled, it is said, than that a man has the right to the lawful use and enjoyment of his own property, and that if, in the enjoyment of such right, without negligence or malice, an inconvenience or loss occurs to his neighbor, it is a wrong for which there is no liability. If, in the excavation of his land, he should uncover

a spring of water, salt or fresh, acidulated or sweet, he will certainly not be obliged to cover it again, or to conduct it out of its course, lest the stream, in its natural flow, may reach his neighbor's land. But on the main point involved here, the nearest precedent is found in a mining case, where it was held that in the operation of mining in the ordinary and usual manner, a person may, upon his own lands, lead the water which percolates into his mine into the streams which form the natural drainage of the basin in which the mineral is situate, although the quantity as well as the quality of the water in the stream may thereby be affected. And this doctrine has been adopted by the court in this case, where the contention was that water caused to rise from the earth was polluted in bathing the bodies of diseased persons, having all manner of diseases, including syphilis, which after it had thus become befouled, was caused to be conveyed in a tile ditch underground, to the adjoining lands over which it was made to flow into a natural stream of water running thereon, causing such natural stream of water to become befouled and polluted, thereby exposing the same to the stock pasturing and feeding upon said land where stock was accustomed to run, feed, and pasture, such as milch cows, horses and hogs, which drank the water in its befouled and polluted condition. The court said that the natural right to have the water of a stream descend in its pure state must yield to the equal right of those above. Their use of the stream for the manifold purposes for which they might lawfully use it would tend to render it more or less impure. The water might thus be rendered unfit for many uses for which it had before been suitable; but, so far as that condition may result from reasonable use of the stream in accordance with the common right, the lower riparian proprietor has no remedy. Sewage and waste material may be cast into streams if material injury is not thereby caused. Inconveniences resulting from many causes must be endured by individuals for the general good; otherwise we should have to forego a multitude of the blessings of modern civilization.

Still, when a business is dangerous, unhealthful, or otherwise greatly injurious to a community or to an individual, and it is possible to avoid the injury by a more careful management, or even, if necessary, by a removal to a more secluded or less objectionable place, then the owners of the noxious business will be mulcted in damages, and, if necessary, restrained by the courts. And a man may not carry on a business which poisons the air and renders it unhealthy in a thickly populated neighborhood, and especially in the center of a large city. So establishments which involve danger, as powder mills and certain kinds of manufactories, must seek a secluded place where as few persons may be incon-

venience as possible. Then, is it lawful to build a sanitarium for the cure of the sick or to bathe in the waters those afflicted with disease? It is certainly lawful to do so, continues the court, provided the sanitarium is properly conducted and well managed, so as to do no injury to any person which reasonably and with due care can be avoided. This being true, it follows that those who, with due care, use the water of an artesian well to bathe patients at a sanitarium, the well and sanitarium being on their own premises, are not liable to an adjoining owner for allowing the water, so polluted, to flow into a stream which is the natural water course of that section. Moreover, if the person complaining stood by while money was being expended in erecting such sanitarium, and acquiesced for more than a year in the flow of water, he could not, on account of the law of estoppel, enjoin the continued operation of the sanitarium.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.—Special car for physicians will leave the new Illinois Central R. R. station, 12th Street and Michigan Avenue on Tuesday evening at 11:30, by the "Big 4" route, reaching Indianapolis at 7 A.M. Fare for the round trip, one and one-third excursion rate. The sleeping-car will be at the depot at 9:30 P.M. for such as wish to retire earlier than 11:30. Engage sleeper and buy tickets at the Big Four office, No. 234 Clark Street.

SELECTIONS.

Report of the British Local Government Board, 1891-92.—The supplement to the twenty-first annual report of the Local Government Board, 1891-92, containing the report of the medical officer, has just been received. Dr. R. Thorne Thorne, who now occupies this important position under the British Government, begins his report with a testimonial to the distinguished services of his predecessor, Sir George Buchanan, who resigned March, 1892. "For over thirty years," he says, "Sir George Buchanan has, either as medical inspector or as the Board's medical officer, contributed to the annual reports of the medical department, and many of his contributions have become classic in the literature of public health both in this and in other countries. But those alone who have had the opportunity and pleasure of working under his direction can appreciate to the full the important influence for good which his labors have had; and they alone can realize how much the medical department owes to the example which he set, as an earnest worker and director who never ceased to claim that all true sanitary progress must be based on accurate and scientific research into the etiology of disease." Sir George Buchanan was a worthy successor to Sir John Simon, whose name is a household word in the annals of public health.

An interesting account is given by Dr. Bruce Lowe of an anomalous illness that prevailed in Northamptonshire characterized by pneumonia, sometimes by meningial symptoms, and frequently associated with tonsillitis or sore throat. Certain of these cases had much in common with sporadic cases of cerebro-spinal fever that prevailed in some of the Eastern counties during the previous year.

An outbreak of scarlet fever at Enfield and Edmonton,

investigated by Dr. S. Moreton Copeman, was attributed to a milk supply which was derived from a farm at some distance from Essex, where attacks of the same disease occurred among consumers of milk from the same farm. No infection of the milk from a human source could be made out, but the cows were found to be suffering from udder eruption. Inoculation of calves with matter from this eruption gave negative results in the hands of Dr. Klein.

In cultures on gelatin a non-liquefying microbe was the predominant organism, similar to the streptococcus isolated by him from sores on Hendon cows in 1885, but the present organism inoculated into mice proved only doubtfully pathogenic.

Complaints of nuisance and of injury to health from the transportation of town manure to agricultural districts led to an investigation and an exhaustive report on the subject. The complaints had reference chiefly to manure from London, although that from other large towns as Liverpool, Newcastle, Nottingham, Portsmouth and Plymouth, had also been complained of in the districts to which it is distributed. London manure is as a rule entirely free from human excreta, but it is otherwise a compound of nearly every form of animal and of some forms of vegetable refuse; such materials as dead and putrefying animals, fish-guts, paunches, etc., being mingled with stable manure, cabbage stalks, rotten vegetables, etc. And the diseases which were most commonly regarded as being referable to the offensive emanations were diphtheria and allied sore throat. Two principal objects were held in view during the inquiry. To learn how far allegations as to injury to health and even as to the production of definite diseases were supported by actual experience, and to ascertain how far nuisances, owing to the unloading and temporary deposit of the manure at railway sidings and elsewhere, and lack of care in carting could be dealt with by law or regulations. The outcome of the inquiry under the first heading showed that in so far as bodily discomfort and functional disturbance, at times involving general impairment of health, are concerned, exposure more or less recurring to the offensive effluvia concerned does affect health, and that whilst certain affections, such as sore throat, which it has not always been possible to differentiate from diphtheria, can with some degree of certainty be held to have relationship with exposure to the manure effluvia, it has not been possible so to eliminate other sources of infection and of disease as to identify the effluvia with the production of any specific affection. To a great extent the nuisances arising from the manure traffic are already under the control of local authorities through the provisions of the Public Health Acts or through by-laws which may be made thereunder; but in agricultural districts and small market towns there is often an indisposition on the part of local authorities to exercise the powers which they possess in this connection.

The supplement contains a further report on the pathology and etiology of diphtheria by Dr. Klein. Taking the presence of the Klebs-Loëfer bacillus in definite relation with the mucous membrane as the *casus causa* of diphtheria, he tested various throat ailments with the following results: "Scarlatinal diphtheritis" occurring in the early days of scarlatina is not judged from the bacteriological standpoint, diphtheria; but similar manifestations whether of diphtheritic or croupy type, occurring in the later stages of and during convalescence from scarlet fever, are almost invariably true diphtheria. He found also that membranous croup of the larynx or trachea, although altogether dissociated clinically from diphtheria, must be regarded as essentially that disease.

Dr. Klein's experiments on the inhibitory action of the metabolic products of one microorganism on the life pro-

cesses of pathogenic organisms are full of interest. The expectation that the chemical products of bacillus pyocyaneus would be found to have distinct inhibitory action on the tuberculous process recorded by the medical officer in his report for 1890, has been fully borne out so far as regards guinea pigs by these experiments. Guinea pigs were inoculated, some with material of bovine, some with human tubercle, and as soon as the disease was established certain of the animals were repeatedly injected during successive days, now with dilute, now with undilute sterilized cultures of bacillus pyocyaneus, while others were kept for control. The latter invariably died in the usual time, while in the former the tuberculous process was delayed or even arrested. So uniformly in this way was inhibition of the tuberculous process obtained, especially with undiluted cultures of the bacillus, that further tests were made on cows and calves; but attempts to set up tuberculosis by subcutaneous inoculation of the matter of bovine tuberculosis practically failed in the cows and calves used in the experiments, and so far he has been unable to make further trial of the inhibitory action of the bacillus pyocyaneus.

Dr. Sidney Martin obtained during the year from the blood and spleen of persons dead of diphtheria, from the diphtheritic membrane in cases not fatal, and from artificial cultures of the bacillus diphtheriae albuminosus an organic acid which, when injected into rodents produced definite physiological results of a nature parallel with those observed in the human subject attacked with diphtheria,—particularly did he observe those nerve lesions that have obtained the name of diphtheria paralyses. These lesions are due to a degeneration of the peripheral nerves, which is an early and direct result of the diffusion in the experimental animal of the chemical products of diphtheria and chiefly of the albumoses.

Some interesting observations by Dr. Andrews on pus as a culture medium for certain pathogenic and saprophytic microorganisms are also reported. For the most part the microbes failed to multiply. Among the pathogenic species anthrax and diphtheria were at opposite points; the bacilli and spores of the former died out in the pus, but the bacilli of the latter not only retained their vitality but even multiplied.

The report is illustrated by some fine reproductions from photographs showing the degeneration of the peripheral nerves caused by the intravenous injection of albumoses.

Epidemic Influenza.—In 1891, Sir George Buchanan, the Medical Officer of the Local British Government Board, presented to the Board a report on influenza by Dr. H. F. Parsons. Recently his successor, Dr. R. Thorne, has submitted a further report by Drs. Parsons and Klein on the recurrence of the disease in epidemic form in the spring of 1891 and winter of 1891-92. The onset of these recurrences was less sudden than in the case of the epidemic of 1889-90; and this is regarded as evidence that a severe epidemic may serve to give a certain immunity against another in the same locality. There were, however, some notable exceptions to this, and no condition of site, soil, climate, sanitary circumstances or occupation has yet been instanced as giving a satisfactory explanation of the different incidences.

In 1890 the average death rate from influenza per thousand living was 157; in the later epidemics or recurrences it varied from 52 to 58 in the urban, to 53 in the rural districts, the later having a larger proportion of old people in their population. The mortality was not highest in localities having a high general death rate, nor was it highest in those having a high rate for diseases of the respiratory organs; but there was a distinct parallelism between deaths from influenza and those from diseases of the heart and other organs of the circulation.

Epidemic influenza does not check other epidemics as has sometimes been stated by observers in former times; for during the prevalence of the recent epidemics there were at various places high death rates sustained for several weeks from whooping cough, measles and scarlet fever.

Multiple cases in a household frequently occurred in succession, and the first case could in numerous instances be

traced to exposure to infection from a previous case or a visit to an infected place. In fact, the evidence shows influenza to be propagated from person to person. The disease followed the lines of human intercourse in so many instances that atmospheric causes must be given up in the theory of its propagation. Moreover, the discovery of a bacillus peculiar to the sputa of influenza, not only suggests a personal transmission, but the necessity for dealing with these discharges as is held necessary in the case of discharges from the throat, mouth and nostrils of scarlet fever and diphtheria. Klein verified the observations of Pfeiffer and Kitasato on the constant and copious occurrence in the bronchial secretions, during the acute stage of cases of influenza, of a minute, non-mobile bacillus. The report is illustrated with upwards of forty reproductions of photographic representations of the bacilli. Inoculation into rabbits gave negative results, and the same may be said of similar experiments on monkeys. Horses were not used, but as no disease akin to influenza was observed among the inferior animals during the progress of the epidemics, Klein inclines to the opinion that the disease among horses to which the name of influenza is commonly given can not be identified with influenza in the human subject.

Dr. Caldwell Smith of Anderson College, Glasgow, is cited as follows: "It is to the life history of Pfeiffer's bacillus that we must direct our attention, if we wish to understand the seemingly strange vagaries of the disease. I believe strongly that it is very infectious, and that it is even in the prefebrile or incubation period. An individual is infected by breathing at once the expired air from a person suffering from the disease, and I believe this to be the only method of infection. In this respect it resembles typhus fever. I can not see my way to believe in mediate infection, as the germ can not, according to Kitasato, grow at a temperature lower than 28° C. From my own clinical observation I have rarely met with a case which could not have arisen from a previously existing one, and even in those few rare cases, if strict inquiries had been made, I believe that the source of infection would have been discovered. Again, the bacillus is, I think, easily destroyed by free ventilation. From my own observation I would say that drying does not preserve, but destroys it, and that, like the cholera spirillum, its life history is, though difficult to explain, a very short one. In a suitable medium, that is, in the human body, it must multiply enormously, and in overcrowded apartments it plays havoc with the inmates."

Granted that influenza is propagated by infection from person to person, what are the circumstances which conduce to its epidemic spread at one time, often simultaneously in widely distant places, and not at another? To this question Dr. Parsons answers that it probably depends on the degree of concentration of the specific poison, likening its spread to a fire lighted in green wood, which if small will die out, but if large may set fire to the wood which will continue to burn. "Or we may compare the resisting forces of the human body (be they phagocytes or something else) to a strong man who can vanquish a number of foes one at a time, but would be overpowered by them if they attacked him all at once. A person of ordinary powers of resistance may escape serious harm from a small dose of the influenza poison (whether microbe or its product) but will succumb to a large dose or to a prolonged exposure. The feelings of malaise so commonly felt during an influenza epidemic by persons not actually themselves the subjects of the disease are, we may suppose, the effects of minor doses of the poison."

The notable clinical points observed during the epidemics were the debility left by the attack, the liability to pneumonia to which most of the mortality was due, the gastrointestinal catarrh, cerebro-spinal symptoms and the simulation of scarlet fever by an erythematous rash, desquamation and strawberry tongue. Among the sequelae were noted: great prostration, with confusion and an approach to mental and physical paralysis; neuralgia, persistent dyspepsia, abdominal pains, inflamed throat, rheumatism, phlebitis, meningitis, deafness, peritonitis, pericarditis, excessive prolongation of subnormal temperature, as sometimes observed

after scarlet fever; diarrhea and lastly desquamation of tongue and fauces as in scarlet fever.

The clinical diagnostic marks between ordinary catarrh and mild cases of influenza are not distinctly outlined, the most notable being the greater tendency in influenza to pains in the back and in the course of the spinal nerves, the dental and frontal nerves often being affected. Influenza also is followed by greater and more persisting prostration. But the necessity for clinical diagnostic signs will hereafter be obviated by a demonstration of the specific bacillus.

SOCIETY NEWS.

American Dermatological Association.

Abstract of the Proceedings of the Sixteenth Annual Meeting, held in Milwaukee, Wisconsin, September 5 and 6, 1893.

SEPTEMBER 5—FIRST DAY—MORNING SESSION.

The Association met in the club-room of the Pilester House, and was called to order by the President, Dr. GEORGE HENRY FOX of New York, at 9:30 A.M.

The first paper read was by Dr. R. B. MORISON of Baltimore, Md., entitled

COSMETICS.

The author said that cosmetics, in a general way, may be divided into two classes, namely, those which are irritating, and those which are soothing. For instance, if we wish to remove freckles or warts, a stronger application must be made than if we simply prescribe for a redness following an acne, or an eczema. It is invariably his custom to teach the patient, either through himself or his assistant, how to apply local remedies. Salves, plasters, lotions, and caustics are so often misapplied that experience had taught him to have an application from which one hoped to get the most good, made by skilled hands to begin with. He finds that nothing suits his patients better for the removal of freckles than the following solution:

R. Corrosive sublimate, grs. vii.	48
Distilled water, 5vi.	36
Spirits camphor, 3ss.	16
Rose water, 5v.	20

Three or four thicknesses of linen cut to cover the seat of freckles, are moistened with the solution and placed upon the face at night until they dry, when they are taken off. Whatever remains on the skin is left there till morning and then washed off. After a few nights' application the face becomes red, and the epidermis begins to peel off in fine scales. Then an ointment is used night and morning, the application being made by gently rubbing it over the face, with a clean finger for five minutes at a time.

In the removal of superfluous hairs, the author has given up electrolysis. The results which he had had himself and those which he had seen of others have not been sufficiently good to warrant its continuance. He finds that the proper application of a good depilatory answers the purpose much better. There are many women who wish to get rid of the white lanugo down on their faces, upon whom it seems that electricity can not be used for fear of stimulating the growth of the surrounding hair, and the appearance of permanent scars. If a preparation of yellow sulphate of arsenic and quicklime, of equal parts, made into a paste with hot water, be allowed to dry on the hairy skin it removes the hair for ten to twenty days, and sometimes permanently. On the other hand, nothing seems to take the place of electrolysis where there are a few strong hairs growing from moles, in the removal of moles themselves, in angioma, or in permanent small red spots.

For the removal of warts the author prescribes the following:

R. Hydrarg. bichlor., grs. v.	30
Ac. salicyl., 5i.	4
Collodion, 5i.	32

He sometimes increases the bichloride of mercury to 30 grains in the same amount of collodion, if the milder application does not answer. It is applied every day once, the upper crust of the previous application being removed before a fresh one is made. Four such applications generally soften the wart to such a degree that gentle traction removes it painlessly, the further dressing being any simple ointment.

The author had obtained excellent results in cases of acne by the use of the galvanic current.

Dr. GEORGE T. JACKSON of New York, read a paper entitled

A CASE OF RHINO-SCLEROMA.

in which he said that in October, 1892, he had the pleasure of presenting to his class at the Woman's Medical College of New York Infirmary, a case of rhino-scleroma. There have been only three cases of this disease reported by the members of the American Dermatological Association since its foundation in 1877. The patient, a woman, 54 years of age, was born in Hungary. The disease began sixteen years ago as a slight thickening of the upper lip to the left of, and just under the septum nasi. Since then it has grown slowly and without pain. During the past four years it has increased in size more rapidly than during the preceding twelve years. At present it appears as a hard, well-defined, elevated, old ivory-colored mass located upon the upper lip, beginning at a point a little to the right of the middle line and occupying near the whole of the left side of the lip. It runs up upon the left side of the septum nasi to a slight extent. It is slightly lobulated, so that it has an uneven surface, and shows a number of dilated blood vessels running over it, and a number of white points apparently representing plugged up and dilated follicles. There is no history of syphilis, nor does it look like a syphilitic growth. There is no sign of ulceration nor tendency to break down. She has been previously under the care of Dr. Charles W. Allen of New York city, who had cut out a small piece of the growth, and this had been examined microscopically by Dr. Lustgarten for the bacilli, discovered by Friesch, with negative results on account of the meagerness of the material. Nevertheless, there was no doubt as to the diagnosis.

The disease is a very rare one, and most of the cases have been reported from Austria and southern Russia.

No satisfactory treatment of the disease has been found. The best results so far reported have been attained by the use of salicylic acid injected into the tumor daily, at 1 per cent. solution of the acid or a 2 per cent. solution of salicylate of soda being used; while ten grains of the acid were administered by the mouth three times daily.

A CASE OF CIRCUMSCRIBED SCLERODERMA MORPHOEA.

This was the title of a paper read by Dr. W. T. CORLETT of Cleveland, Ohio. Mary M., aged 10 years, an intelligent looking girl, well nourished, although slightly pale, presented herself, with variously sized and colored lesions on left upper extremity. These were of two years duration. The lesions were located on the extensor surfaces, the most typical lesion being situated in the middle third of the forearm. This was of oblong shape, four inches in length, and two inches in width. It was slightly contracted, lessening somewhat the circumference of the forearm, and was somewhat depressed, resembling cicatricial tissue. The lesion presented a yellowish-brown central area with a slightly uneven surface, slightly indurated, and non-adherent. No anesthesia. Hairs were absent. Outside the central zone was a bluish white area surrounded by a lilac pink border merging into normal skin. Veins about the lesion were very prominent. A second spot had appeared one year after the first on the back of the hand, the characteristics of which were similar to the preceding. During the four months prior to her first visit to Dr. Corlett, seven other spots appeared on the arm and one on the shoulder. These were smaller than the original. Sharp pains were now complained of extending from the shoulder to the hand. These were aggravated by writing, but lasted only a few days. Some itching around the margin of the lesions and occasionally frontal headache were complained of. There was tenderness over the upper dorsal and lower cervical vertebrae; no motor or sensory impairment anywhere, nor were there any other evidences of cord disease. There was no history which might possibly explain the lesions excepting a fall upon the back at the age of five years. No history of nervous or hereditary disease of any kind in the family. The doctor considered the case as a perfect type of morphoea originally, but at the present time the case presents a picture of the atrophic stage of scleroderma.

The points of interest are:

1. The changes of clinical form through which the disease has passed.

2. The predominance of the neurotic element which is so often well marked in morphoea, and which points to the spinal cord as the most probable seat of the disturbance.

3. The confusion of nomenclature of morphoea and its relation to scleroderma is of some interest. Modern treatises on dermatology by American authors are in the main

inclined to consider morphea and scleroderma as distinct affections, while European authorities are rather inclined to the opposite view.

The author has not attempted to advance any original suggestions regarding treatment, contenting himself with the clinical presentation of the case.

Dr. W. A. HARDAWAY of St. Louis, Mo., read a paper entitled

A CASE OF TUBERCULOSIS OF THE SKIN SIMULATING LUPUS ERYTHEMATOSUS.

The patient was a pharmacist, 28 years of age, previous health good, family history good and no history of tubercle. Tall and spare, and of sallow complexion, yet he is a man of great endurance. In May, 1892, he noticed on his left malar region a small yellowish elevation the size of a pinhead. This was supposed to be a flesh worm and was squeezed, blood only being thereby obtained. The lesion gradually enlarged peripherally, becoming hard and red. No subjective phenomena. He came under Dr. Hardaway's care in June, 1892, the lesion being now as large as a dime, presenting an atrophic whitish center surrounded by a slightly raised infiltrated border of a dull red color. The lesion was anesthetic, a characteristic which has been noticed in tubercular syphilides. The anesthesia was temporary. In a short time the patient passed from under observation and was gone for a month, during which time he was thoroughly treated for syphilis by another physician. The treatment simply aggravated the general and local conditions. September 3, 1892, the original lesion was the size of a half dollar, not raised from the surface and moderately infiltrated. The center is still atrophic, and the same narrow dull red line presents at the borders. In a few weeks several small acniform pustules appeared on the right temple, side of the nose, and inferior angle of the right eye. Others presented on the end of the nose, right ala, and left cheek. These lesions were not painful or itchy. Each lesion was surrounded by a red areola which subsequently extended and became infiltrated, crusts forming over the centers of the lesions. The crusts were fatty or sebaceous in character, and with a dull red surface beneath were suggestive of lupus erythematosus. As the borders of the lesions extended the centers cicatrized, presenting the same dirty, yellow appearance of the original patch. December 9, thiosinamin was given hypodermically at 12, and the patient stated that about 7 p.m. the patches became hot and red, remaining so for an hour or two. Other injections of the drug were subsequently given but without effect. December 22, the lesion in the right eye had become as large as a quarter of a dollar. Electrolysis had been tried on the spot on the left temple, but it was still spreading. A new spot was now found on the chest, beginning like an acne papule, which became postulated and finally scaly. This went through the same metamorphosis as the previous lesions, the elevated red border extending until the lesion was as large as a pea, when it was thoroughly destroyed by electrolysis. Early in January a small piece of skin was excised from the lesion on the right temple and examined microscopically. Electrolysis was tried upon the other lesions with an apparent cure, followed by a relapse after a few months, manifesting itself first by the formation of a scale in the center of the scar. Electrolysis was persisted in as fast as the spots appeared and with apparent success. In March a small patch similar to the others appeared upon the scalp; this is now the size of a dime. The tendency to peripheral extension throughout has been a marked feature in this case. The whole nose finally became involved and became a continuous lesion of partly red and partly cicatrized integument, presenting a striking likeness to some forms of lupus erythematosus. Dr. Hardaway thought that this resemblance would have been more striking if the patches on the side of the face had been allowed to coalesce instead of being destroyed by electrolysis. At no time could nodules of lupus vulgaris be demonstrated, nor were the sebaceous plugs of lupus erythematosus seen at any time. The patient's general health has continued so poor that at one time general tuberculosis was considered imminent. A trip to Colorado brought about great improvement. At last accounts the disease was apparently quiescent, the patient's general health good, and no lesions of the lungs and larynx have been detected. Dr. C. Heitzmann reports, after microscopic examination of the excised piece of skin, that a moderate number of tubercle bacilli were found. A large number of inflammatory corpuscles were also detected, displacing the fibrous connective tissue. Nests of inflammatory corpuscles were seen in the arrangement characteristic of

tuberculosis. The diagnosis was local tuberculosis of the skin, which was entirely in accord with the clinical diagnosis.

Dr. H. R. CROCKER of London, Eng., read a paper on LUPUS ERYTHEMATOSUS AS AN IMITATOR OF VARIOUS FORMS OF DERMATITIS.

The author said that lupus erythematosus as an imitator of various forms of simple dermatitis was a formidable rival of syphilis itself. It was to this aspect of the disease that he desired to direct attention by relating some cases and showing drawings which illustrated the points he wished to place before the Association.

The first drawing was an instance of a lupus imitating erythema tuberculatum. The patient was 27 years of age. The lesions commenced on the right cheek. There was only one spot for the first two years, then others formed on the side of the nose, and they then became scattered irregularly over the face, but with the exception of a hemipseed sized nodule on the left ear, there were none anywhere else. The lobes of both ears were atrophied looking, but the patient said there had never been any lesions on them. All the lesions were exactly like an erythema tuberculatum, varying from a hemipseed to half an inch in diameter; quite smooth, except one on the side of the nose, which was scaly. They were of a uniform purplish-red except one, which was whiter in the center.

Case 2 showed an advanced condition of the disease, which began in a similar form to Case 1.

Case 3 was one of lupus erythematosus, like erythema papulatum. The patient, aged 42, was a cab driver. Two years previously he had some rash on the cheeks which lasted only a month, and it was not until a year ago that the present eruption began on the sides of the cheek, and has gradually extended until it reached its present condition. The eruption when seen occupied the whole face below the eyebrows, the orbits themselves and the lower lip escaping, but the chin, except in the center, was affected. On the left side it extended above the brow, but below the orbits, which was remarkably symmetrical. The most recent lesions were on the lower part of the side of the face and below the jaw. In these positions they were the form of erythematosis, slightly raised discs from a half to a quarter of an inch in diameter; the most recent were quite smooth and slightly convex; the larger ones were not prominent in the center and but slightly scaly.

Case 4 was like diffuse erythema, the patient being a lady 43 years of age. The disease had commenced three years previously as a small red spot on the side of the nose and had spread continuously; the whole nose was intensely reddened and slightly scaly, the skin thickened and infiltrated, but the orifices of the sebaceous glands were not patent or plugged.

Another disease which lupus erythematosus imitates is psoriasis, and the author reported a case in point. A rare imitation is that of lichen planus, of which the author had seen only two cases.

Dr. Crocker also reported a case of lupus erythematosus nodulatum. He had met with three or four other cases of this, but not with so many distinct foci of disease. In two cases there was only a single nodule in each. He also remembers a case in which there were even more foci of disease in a patient of the late Dr. Tilbury Fox. Cavaty also showed a man at the Dermatological Society of London, in 1892, but Dr. Crocker was not aware of any other cases having been recorded.

(To be continued.)

New York State Medical Association.—Program of the proceedings of the tenth annual meeting, to be held at the Mott Memorial Hall, on Madison Avenue. Introductory, Monday, October 9, 1893.

Evening Session, 8 o'clock.—1. Address of Welcome, by the chairman of the Committee of Arrangements, J. G. Truax, M.D., of New York Co. 2. Address by the president, B. M. D. Address: The medical work of the Association during its first decade, by John Shrady, M.D., of New York Co. Collection.

First Day, Tuesday, October 10.—Morning session, 9 o'clock. Order of business: a. Calling the meeting to order. b. Address of Report of the Committee of Arrangements. c. Address of the president. Read at evening session October 9. d. Annual report of the council. e. Report of special committees. f. Unfinished business. g. New business. A. Annual reports of the presidents of branch associations, in their numerical

order, to be read by title. *B.* Annual report of the president of the New York County Medical Association, to be read by title.

4. Address: The surgical work of the Association during its first decade, by Stephen Smith, M.D., of New York Co.

5. "Report of eight cases of placenta previa," by Zera J. Lusk, M.D., of Wyoming Co.

6. "Penetrating wound of anterior fossa through orbital plate of frontal bone. Recovery," by Zera J. Lusk, M.D., of Wyoming Co.

7. "The treatment of epithelioma and the canceroid ulcers by topical application," by Nelson J. North, M.D., of Kings Co.

8. "Prevention of disease," by James G. Porteous, of Dutchess Co.

9. Announcement by the presiding officer that the Fellows from the different districts shall appoint two members of the nominating committee from each district. *i.* Appointment by the president of a member at large of the nominating committee. *j.* Adjournment of the session. During this recess of half an hour, the Fellows from the different districts shall meet to appoint the two members of the nominating committee from each district.

First Day, Tuesday, October 10.—Afternoon session, 1 o'clock. Discussion on lesions of the pleura. 9. The discussion will be opened by John Shady, M.D., of New York Co., propounding the following questions:

Question 1. What are the factors of pleurisy? Its forms and contributive conditions? What are the pathological changes in a case of progressive pleurisy ending in recovery? 10. by Frank W. Ross, M.D., of Chemung Co. 11. by William McCollom, M.D., of Kings Co.

Question 2. What are the points of differential diagnosis in pleurisy and other affections of the chest? 12. by Edward F. Brush, M.D., of Westchester Co. 13. by J. Blake White, M.D., of New York Co. 14. by John G. Truax, M.D., of New York Co.

Question 3. What is the treatment of empyema, with relative value of aspiration, rib resection and free opening with tube drainage? 15. by M. K. Hogan, M.D., of New York Co. 16. by Charles A. Leale, M.D., of New York Co.

17. "The surgical treatment of pulmonary cavities," by N. P. Dandridge, M.D., of Cincinnati, O.

First Day, Tuesday, October 10.—Night session, 7:30 o'clock.

18. "Remarks on fermentative dyspepsia," by Austin Flint, M.D., of New York Co.

19. "Open treatment of tuberculous disease of the joints," by T. M. L. Chrystie, M.D., of New York Co.

20. "Bloodless amputation at the hip joint. Report of cases operated on by the author's method," by John A. Wyeth, M.D., of New York Co.

21. "Report of a case of osteotomy of both femora for the relief of deformity following ankylosis of the hip joints," by Reginald H. Sayre, M.D., of New York Co.

Second Day, Wednesday, October 11.—Morning session, 9 o'clock. Order of business: *a.* Calling the meeting to order. *b.* Communications from the council. *c.* Reports of special committees. *d.* Unfinished business. *e.* New business.

22. Address: The obstetrical and gynecological work of the Association during its first decade, by George Tucker Harrison, M.D., of New York Co.

23. "Rare forms of gout and rheumatism," by Sir James A. Grant, of Ottawa, Canada.

24. "Treatment often indicated after trachelorrhaphy," by William H. Robb, M.D., of Montgomery Co.

25. "R," by Henry D. Didama, of Onondaga Co.

26. "Ten years' experience in the treatment of cataract," by Alvin A. Hubbell, M.D., of Erie Co.

27. "The treatment of enteric fever," by Gustavus Eliot, M.D., of New Haven, Conn.

28. "Voluntary commitment of the insane to asylums," by W. D. Granger, M.D., of Westchester Co.

f. Adjournment of the session.

Second Day, Wednesday, October 11.—Afternoon session, 1 o'clock.

29. "Surgical and pathological memoranda," by Donald McLean, M.D., of Detroit, Mich.

Discussion on the treatment of appendicitis. 30. The discussion will be opened by Frederic S. Dennis, M.D., of New York Co., propounding the following questions:

Question 1. What proportion of cases of appendicitis end in resolution?

Question 2. What class of cases require immediate operation?

Question 3. What class of cases do not require immediate operation? These questions will be answered by: 31. R. N.

Cooley, M.D., of Oswego Co. 32. Donald McLean, M.D., of Detroit, Mich. 33. W. S. Tremaine, M.D., of Erie Co. 34. Joseph D. Bryant, M.D., of New York Co. 35. John W. S. Cooley, M.D., of New York Co.

Second Day, Wednesday, October 11.—Evening. Banquet. Fellows of the Association have made arrangements to celebrate this first decennial assembly by a banquet, further notice of which will be given by the Secretary.

Third Day, Thursday, October 12.—Morning session, 6 o'clock.

Order of business: *a.* Calling the meeting to order. *b.* Communications from the council. *c.* Report of the nominating committee, and action upon such report by the Association. *d.* Report of special committees. *e.* Unfinished business. *f.* New business.

36. "The male catheter, with some observations upon the proper mode of introduction into the bladder," by Douglas Ayres, M.D., of Montgomery Co.

37. "Researches on the efficacy of vaccinia after typhoid fever," by William Finder, Jr., M.D., of Rensselaer Co.

38. "Reflections on the need of close observation of disease and upon the value of hygienic therapeutics," by H. Ernst Schmid, M.D., of Westchester Co.

39. Unique case of traumatic tetanus, with generalization recovery," by John G. Truax, M.D., of Broome Co.

40. "A case of puerperal blindness," by Darwin Colvin, M.D., of Wayne Co.

41. "A plea for the non-operative method of treating dysmenorrhea, pelvic inflammation and pelvic abscess," by T. J. McGillivuddy, M.D., of New York Co.

42. "An additional note on nephrotomy and nephrectomy," by E. D. Ferguson, M.D., of Rensselaer Co.

43. "Fifty operations for laceration of the cervix uteri," by J. B. Harvie, M.D., of Rensselaer Co.

44. "Brief comments on the materia medica, pharmacy and therapeutics of the year ending October 1, 1893," by E. H. Squibb, M.D., of Kings Co.

g. Adjournment of session.

Third Day, Thursday, October 12.—Afternoon. Excursion to the island hospitals by invitation of the commissioners of charities and correction. Luncheon will be served on board the steamer, which will start at 1 o'clock from the pier at the foot of 26th Street, East River.

"Papers may be read" — either entire, by abstract, or by title only, as may be determined by the council. —

"The reading of a paper shall not occupy more than thirty minutes, except by permission of the Association."

"No person shall speak more than once, and then not longer than ten minutes, in the discussion of any paper, except by permission of the Association."

"No voluntary communication shall exceed fifteen minutes in length, except by permission of the Association. —"

"See By-Laws, Article N, Sections 7, 8, 9 and 11."

COUNCIL OF THE NEW YORK STATE MEDICAL ASSOCIATION, 1893.—*President*, E. D. Ferguson; *officio members of the committee*: John G. Truax, Chairman; Charles E. Dennis, Secretary; F. A. Baldwin, C. G. Campbell, Alfred L. Carroll, Elvira Denison, A. Palmer Dudley, John E. Erdmann, John W. S. Cooley, George T. Harrison, Charles A. Leale, Owen C. Ludlow, James C. Mackenzie, William McAllister, Johnston McLeod, Valentine Mott, A. D. Ruggles, John Shady, Stephen Smith, E. R. Squibb.

COUNCIL OF THE NEW YORK STATE MEDICAL ASSOCIATION, 1893.—*President*, E. D. Ferguson; *officio members of the committee*: John G. Truax, Chairman; Charles E. Dennis, Secretary; F. A. Baldwin, C. G. Campbell, Alfred L. Carroll, Elvira Denison, A. Palmer Dudley, John E. Erdmann, John W. S. Cooley, George T. Harrison, Charles A. Leale, Owen C. Ludlow, James C. Mackenzie, William McAllister, Johnston McLeod, Valentine Mott, A. D. Ruggles, John Shady, Stephen Smith, E. R. Squibb.

Second of Districts: J. C. Hannan, Vice-President, Hoosick Falls, Rensselaer Co.; Thomas Wilson (1893), Claverack, Columbia Co.; J. B. Harvie (1894), Troy, Rensselaer Co.; E. D. Ferguson, Secretary and Treasurer, Troy, Rensselaer Co.; Charles Albany, Clinton, Columbia, Essex, Green, Rensselaer, Saratoga, Schoenectady, Schottsville, Warren, Washington.

Third of Districts: N. Jacobson, Vice-President, Saratoga, Onondaga Co.; Homer O. Jewett (1893), Cortland, Cortland Co.; M. Cayana (1894), Oneida, Madison Co.; Charles Broome Cayana, Chenango, Chenango, Cortland, Delaware, Madison, Onondaga, Otsego, Schuyler, Seneca, Tioga, Tompkins.

Fourth of Districts: J. L. Link, Vice-President, Warsaw, Wyoming Co.; Thomas D. Strong (1893), Westfield, Chautauque Co.; F. H. Moyer (1894), Moscow, Livingston Co.; J. C. Allegheny, Cattaraugus, Chautauque, Erie, Genesee, Livingston, Monroe, Niagara, Ontario, Orleans, Steuben, Wayne, Wyoming, Yates.

Fifth of Districts: S. R. W. McLeod, President, 217 West 25th St., New York, New York Co.; John G. Truax (1893), 17 East 17th St., New York, New York Co.; Alfred L. Carroll (1894), 30 West 9th St., New York, New York Co.; John W. S. Cooley, Director of the Library, 24 Madison Avenue, New York, New York Co.; John Shady, Member-at-large, 119 West 124th St., New York, New York Co.; J. B. Harvie, Saratoga, New York Co.; Putnam, Rochester, Richmond, Rockland, Suffolk, Sullivan, Ulster, Westchester.

Communications may be addressed to Dr. E. D. Ferguson, Secretary, Troy, N.Y.

Blank applications for membership in the Association, at the Journal office.

Tri-State Medical Society.—Regular session will convene at Peoria, Ill., Tuesday and Wednesday, October 3 and 4, 1893. All members of the regular medical profession are cordially invited to be present and participate with us. W. H. Martin, President; J. M. Ball, Secretary.

Program.—Morning sessions, 9 A. M. Afternoon sessions, 2 P. M. Lecture on Tuesday evening, October 3, at 8 o'clock, by Emory Lanphear, M.D., Ph.D., of Kansas City, Mo. Subject, "The Wonders of the Brain."

The sessions of the Society will be held in the spacious hall of the Y. M. C. A.

Order of Business.—1, Roll call; 2, reading of minutes of last meeting; 3, reading of notes from absentees; 4, proposals for membership; 5, report of committee on credentials; 6, resolutions introducing new business; 7, selection of next place of meeting; 8, report of special committees; 9, report of treasurer; 10, election of delegates to State societies; 11, miscellaneous business; 13, address of the retiring president; 14, reading of essays; 15, election of officers; 16, adjournment.

In Memoriam.—Wesley V. English, M.D. J. A. Scroggs, M.D., Keokuk, Iowa.

List of Papers.

1. Charles W. Hall, Kewanee, Ill., "Epilepsy."
2. J. B. Murphy, Chicago, Ill., "Perforative appendicitis."
3. Wm. Jepson, Sioux City, Iowa, "Intestinal obstruction from a gallstone."
4. John Puntton, Kansas City, Mo. "Treatment and prophylaxis of insanity."
5. E. Wylliss Andrews, Chicago, Ill. "Recent improvements in the surgery of hernia."
6. H. H. Mudd, St. Louis, Mo. "Cancer of the tongue."
7. J. S. Pyle, Canton, Ohio. "A plea for the appropriation of criminals condemned to capital punishment to the experimental physiologist."
8. M. S. Marcy, Peoria, Ill. "Abortion."
9. George Minges, Dubuque, Iowa. "Further Experience with Koch's tuberculin."
10. Boerne Bettman, Chicago, Ill. "Extraction of a piece of steel from the vitreous with a magnet."
11. John I. Skelly, Pekin, Ill. "Symphysectomy."
12. C. E. Ruth, Keokuk, Iowa. "Surgical treatment of meningitis."
13. E. J. Blair, Monmouth, Ill. "Amputation above the hip joint."
14. A. V. L. Prokaw, St. Louis, Mo. "The conservative treatment of uterine myomas by operation."
15. Martin M. Ritter, Chicago, Ill. "Intubation vs. tracheotomy."
16. J. F. Percy, Galesburg, Ill. "Vivisection."
17. John B. Bacon, Chicago, Ill. "A new operation for the cure of stricture of the rectum—with demonstration."
18. O. B. Will, Peoria, Ill. "Bacteriology of the female genital tract."
19. Henry T. Byford, Chicago, Ill. Subject not announced.
20. T. I. Beattie, Kansas City, Mo. "The management of uterine fibroids."
21. Ludwig Hektoen, Chicago, Ill. "Fibroid induration following lobar pneumonia."
22. Geo. N. Kreider, Springfield, Ill. Subject not announced.
23. Bayard Holmes, Chicago, Ill. "Can an adequate system of medical education reduce the annual public expenditures for the education and support of the defective and dependent classes? What would such an education cost, what would it save, and how can it be instituted?"
24. Frank Parsons Norbury, Jacksonville, Ill. "Nervous and mental disorders in women incidental to childbirth."
25. Nicholas Senn, Chicago, Ill. Subject not announced.
26. J. H. Duncan, St. Louis, Mo. "Lupus."
27. Ellen H. Heise, Canton, Ill. Subject not announced.

How to become a Member.—Extract from the Constitution: "Membership in this Society shall be limited to those members of the medical profession who are regular graduates in medicine, and who acknowledge allegiance to the American Medical Association. * * * All applications for membership shall be referred to the Committee on Credentials, and shall be accompanied by a fee of two dollars." Extract from the By-Laws: "Every member of this Society shall pay to the Treasurer the sum of one dollar annually before participating in the business of the meeting."

Speakers.—The medical men of Peoria take this opportunity of cordially inviting you to this meeting.

Officers.—President, Dr. W. H. Martin, Kahoka, Mo.;

Senior V. P., Dr. Calvin Snook, Fairfield Iowa; Junior V. P., Dr. O. F. Pyle, Memphis, Mo.; Treasurer, Dr. H. S. Reese, Wayland, Mo.; Secretary, Dr. J. M. Ball, Keokuk Iowa.

Committee on Arrangements.—Dr. W. R. Allison, Peoria; Dr. J. F. Percy, Galesburg; Dr. Frank Parsons Norbury, Jacksonville.

The Medical Society of the Missouri Valley met at Council Bluffs, Iowa, on Thursday, Sept. 21, 1893, under the presidency of Dr. J. M. Knott of Sioux City. The total membership of this Society has reached 365, and it is in a flourishing condition. Dr. F. S. Thomas of Council Bluffs, is the secretary.

DOMESTIC CORRESPONDENCE.

Mr. Ernest Hart Replies to Dr. Hammond.

To the Editor:—My respect for and my sympathy with the medical profession in America, and my knowledge of their sentiments, forbid me to regard Dr. William A. Hammond as their representative in the defense which he puts forward in the columns of the *New York Medical Journal*, Sept. 16, of the practices of publicity hunting, by newspaper interviews, newspaper portraits and of the use of and traffic in secret preparations, etc. I have in the course of recent travel received personally from many hundreds of prominent and representative physicians in Milwaukee, Washington, Boston, Philadelphia, Chicago, Cincinnati, Detroit, and from all parts of the United States, their cordial congratulations on the tone and substance of the addresses which I had the honor to deliver at Milwaukee and Washington. I have been assured on all hands of the entire sympathy of the great body of the profession in the views therein laid down and discussed. I should have been surprised, however, and perhaps disappointed if they had not elicited some expression of pain and anger from certain quarters. "Let the galled jade wince; the withers" of the great American medical profession are, I am assured, "unwringing." Your correspondent, in an access of ethical agnosticism, assumes that the enumeration of ethical data as to medical conduct was, or could be, a reproval direct or implied to the medical profession of America. That is an unmerited insult which he addresses to his profession, and indicates a view which I apprehend to be special to himself. Let him enjoy the practices which he defends; I do not think he is likely to find much support or sympathy in them from medical men in good standing. His account of the position of the medical men in Great Britain is a parody underscoring of serious notice. So, as to myself, whom he favors with some personal abuse, I have been avowedly the scientific adviser to, but it is untrue that I have ever held any of the stock of the Apollinaris Water Company. As to his other trivialities, I was the guest of the Pan-American Medical Congress, and on entering its headquarters I registered in ceremonious form.

I have no desire to be honored amongst "the Pan-Anglicans," (the "Fat Men of America," and the other objects of lay interest, with whom Dr. Hammond puts medical men on a par, and I do not agree with him that medical men should desire to share with them the honor of newspaper notoriety. I do not believe any details of my medical career have ever appeared in any lay paper.

I suggest that it might be desirable for Dr. Hammond to rely less upon his imagination for his facts, and not to assume to speak for a profession from which he has no sort of mandate, and which would, I am well assured, repudiate, if consulted, both his advocacy and his methods of action and of expression.

I am assured that he utterly misrepresents that profession, both in his statement of principles which he avers to be it, and in his abuse of myself. I am, sir,

Yours faithfully, ERNEST HART.

MISCELLANY.

The Chemical Laboratory of the U. S. Department of Agriculture of the World's Columbian Exposition.—Of interest to medical science is the work and exhibit of the chemical division of the National Department of Agriculture in the Government Building at Jackson Park.

This exhibit occupies a liberal floor space in the northeast corner of the Government Building, and is designed to illustrate the chemical work of the department in its various aspects. The appliances for investigating sugar producing plants are perhaps the most complete of any in the world. Full illustrations are given of the analyses of sugar cane sorghum and sugar beets. Large numbers of beets are daily reaching the laboratory from different parts of the country and are at once analyzed. This part of the exhibit has also been put to good use by the board of awards, several hundred samples of sugars and syrups having been examined for the agricultural jury.

A most interesting exhibit shows how the Darwinian law of natural variation has been utilized in the improvement of a sugar producing plant. In 1858 experiments were commenced by the department on this line. In that year in a plot of sorghum growing in Kansas and submitted to systematic examination, there was found one plant with a phenomenal content of sugar. The seeds of this plant were propagated carefully and the progeny again examined. None of the progeny reached the degree of perfection of the parent, but many plants were produced showing a content of sugar above the average. The best of these was selected for further planting, and this process has been continued up to the present time. From this one parent-head, as a result of these continued selections, a variety of sorghum cane has now been fully established having a sugar making value equal to the best sugar cane of Louisiana. Last year nearly five hundred selections were made from canes which had an average content of nearly 20 per cent. sugar. Illustrations are also given of the same line of work with sugar beets.

Of most interest to the medical profession, however, are the exhibit and work relating to the adulteration of foods. Pure food is an essential to health and every physician is deeply interested in securing to the public immunity from fraud in this direction, of both a financial and hygienic nature. The thesis which is proposed by the exhibit is that all foods exposed for sale should be what their names imply. The exhibit shows how far our American food products fail to meet the fundamental conditions of this proposition. Honey purchased in the open market is shown to have been made quite independent of the mediation of bees, or at most having only enough pure honey to give the required flavor. Coffee beans are exhibited which have been molded from a mixture of meal and molasses. Canned goods kept beautifully green by copper make an important addition to this display of the ingenuity of man, unrestricted by any regard for health.

The results of the work in this line of investigation do not condemn the use of copper in greening peas, but emphasize the justice of the demand that artificially greened goods should carry a label announcing that fact, and stating the character and amount of the added greening material. The same remark may be applied to the data obtained by the work of the chemical division in regard to the use of anti-

septics in the preservation of food. The use of salicylic, salicylic, sulphureous, benzene and boracic acids is common of wide extent, and attention is called to the fact that the medical fraternity and the people should be informed regarding the use of these preservatives. If, then, the patient and his doctor prefer to use such foods, it is a question for them alone; the public has at least done its duty in relation to the matter.

There is by no means unanimity of opinion among hygienists in regard to the effect on the human system of continued small portions of salicylic acid, copper, etc., as they occur in the food. In fact, opinions on such subjects are of little value unless based on actual experiment. At least one thing, however, is certain, viz., that no harm is done in letting the consumer know what he is eating.

Every day a large number of chemists may be found busily studying some of these problems relating to foods, and physicians might spend a profitable hour in examining the character of the work.

Distilled liquors, wines and beers are also analyzed for the jury of awards, and the final distribution of medals will rest largely on the results of these investigations.

One of the very interesting facts of the work is found in the study of the olive oil which are on exhibition. It is claimed by the producers of olive oil in California, that they have a powerful competitor in the cotton oil of our Southern States. Much of this oil, it is asserted, finds its way to France, Italy and Spain and returns to this country under the guise of pure olive oil. The examinations which have been made so far do not afford much comfort to the promoters of that rumor. Even were it true, it is not at all likely that foreign exhibitors would place any such adulterated oil in competition. There is no manner of doubt of the fact that a large proportion of the salad oil purchased in this country has had its origin in Mississippi and Texas, but such oils are not found to any great extent in Jackson Park masquerading as products of the olive.

An important part of the work now in progress in the chemical laboratory consists in the analysis of cereals for the agricultural jury. All those cereals—nearly 1,000 in number which have been adjudged worthy of competition by the jury have been sent to the laboratory for examination. The weight per unit volume is first determined, whence the weight per bushel is calculated. Next, the sample is ground until it all passes a very fine sieve. After the removal by means of a magnet, of any iron dust which may have been mixed with the flour through abrasion of the steel mill, the nutrient value of the sample is determined by analysis. The moisture, ash, oil, fiber, and albuminoids are determined by direct analysis and the starch by difference. On the data thus obtained the food value is calculated. For this purpose the percentage of moisture, ash, and fiber is deducted and the nutrient value calculated on the residue, the relative values of the starch, oil and albuminoids being as 1:2.5:2.5 respectively. On these data and the report of the experts on the commercial value of the samples the awards are made. Space does not permit of a more extended notice of the work of this laboratory in food products. Above have been mentioned only some of the more important of the investigations. But in addition to these, nearly all the food products on exhibition in the Agricultural Building have been subjected to some kind of a chemie examination. It is doubtful whether any other work, not strictly of a medical nature, which is carried on at Jackson Park has a more intimate connection with public health and State hygiene than that of the chemie laboratory.

The work is under the direction of Dr. H. W. Wiley, chief chemist of the Department of Agriculture of Washington. Dr. Wiley is himself a graduate of medicine, and while not

sacrificing the promotion of agriculture in any way his medical training may be allowed some credit for the direction which the investigation in food products has taken.

Fair Emergency Hospital Work.—Cases Cared for by Exposition Doctors and Nurses Since May 1.—While it is one of the most important institutions connected with the Fair little has ever been said about the work of the Emergency Hospital. Under direction of Dr. John E. Owens the department devoted to caring for sick and injured people from the start has performed its duties most admirably. The staff of assistant surgeons is composed of Drs. W. H. Allport, N. R. Zeager, S. C. Plummer, and E. J. Edgerly, with J. L. Hills-mantel and W. C. Roughly as resident physicians, W. H. Gentles, Superintendent of Ambulances, and Miss M. R. Brown of St. Luke's Hospital, head nurse. She has at all times a corps of ten trained nurses under her command. They are changed every month so as to give others an opportunity to see the Fair. These nurses are selected from the best hospitals of New York, Pennsylvania, Massachusetts, Baltimore, Boston, Washington, Chicago, Philadelphia, Toronto, and other large cities. Up to Sept. 16th 13,765 patients had been treated. Out of this number there were twenty deaths, three of them victims of the Cold-Storage fire. The record of cases by months is as follows:

May	2,621
June	2,904
July	3,492
August	3,169
September (16 days)	1,717
Total	13,765

The great number of cases in May is due to the fact that a great many workmen were injured in various ways. The great majority of patients have, so the physicians say, been victims of indigestion, superinduced by irregular eating and change of diet. On hot days prostrations were quite numerous. July 4, with 170 cases, was the biggest day, and Sept. 14, last Thursday, Ohio day, furnished 151 ambulance calls. In May were 315, in June 406, in July 581, and in August 564.

Increase of Alcoholism in Europe.—According to the *Lancet*, June 24, the multiplication of deeds of violence among the Latin peoples of Europe, can be distinctly traced to use of stronger drinks. In Southern and Central Europe the human subject is even more susceptible than the dwellers to the north, to the evil influences of alcoholic intoxicants. Even the nationalities dwelling along the Mediterranean have, from this cause, during the last decade, raised the crimes of bloodshed to a figure quite appalling.

Opening of the Chicago Medical Colleges.—The Rush Medical College and the Chicago Medical College respectively held their opening exercises in Tuesday, Sept. 26. The introductory lecture was given by Dr. Norman Bridge at Rush Medical College, and at the Chicago Medical College by Prof. N. S. Davis.

Editorial Change.—Dr. F. S. Parsons has been appointed editor of the Philadelphia *Times and Register*, to succeed Dr. A. F. Waugh. Dr. Parsons has been for many years a member of the American Medical Association and at the last meeting was secretary of the Section on Diseases of Children.

Coroner of New Orleans.—Dr. G. B. Lawrason has been appointed coroner of New Orleans Parish by Governor Foster, to fill the vacancy caused by the death of Dr. Seeman.

There has been too much microbe hunting in Hamburg and too little attention paid to general sanitation.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from September 16, 1893, to September 22, 1894.

Capt. LOUIS BRYANT, Asst. Surgeon, is granted twenty-three days' leave, to take effect about September 17, 1893.

Major HENRY M. ELDREDGE, Surgeon U. S. A., is granted leave of absence for one month, to take effect about October 1, 1893.

Capt. FRANK E. PRICE, Asst. Surgeon, relieved from duty at Ft. Wadsworth, N. Y., and ordered to report to the commanding officer, Ft. Porter, N. Y., for temporary duty at that post.

Capt. WM. C. SHANNON, Asst. Surgeon, is relieved from duty in the office of the Surgeon General of the Army, and as assistant to the attending surgeon, Washington, and will proceed to New York City, and report in person to the commanding general, Dept. of the East, and report in person to the attending surgeon and examiner of recruits in that city, relieving Capt. GUY L. EDIE, Asst. Surgeon.

Capt. H. S. T. HARRIS, Asst. Surgeon U. S. A., is relieved from duty at Ft. Keogh, Mont., and assigned to duty at Ft. Preble, Me.

Capt. M. W. WOOD, Asst. Surgeon U. S. A., is relieved from duty at Ft. Preble, Me., and assigned to duty in Boston, Mass., as attending surgeon and examiner of recruits.

Capt. FRANCIS J. IVES, Asst. Surgeon, ordered to proceed from Ft. Sheridan, Ill., to Chicago, Ill., and report in person to Capt. LOUIS A. LA GAYNE, Asst. Surgeon, in charge of the medical section of the War Department exhibit, World's Columbian Exposition, for temporary duty.

Capt. GUY L. EDIE, Asst. Surgeon, upon being relieved from duty in New York City by Capt. WILLIAM C. SHANNON, Asst. Surgeon, will proceed to Washington, D. C., and report in person to the attending surgeon for duty in his office.

Capt. WM. G. SPENCER, Asst. Surgeon, is granted six months' extension to sick leave of absence granted in S. O. 108, A. G. O., May 13, 1893.

The Commission of the Surgeon General of the Navy.

From one of the military service papers we learn that a fine specimen of the printer's art has just been turned out by the Government Printing Office, being the commission of Surgeon General J. R. Tryon, U. S. N. The commission is printed on vellum and is a beautiful piece of work. In forwarding commissions to bureau officers care is generally taken that the document is neither folded or rolled, so that the "sheepskin" can be framed without showing wrinkles or deformations. The commission of the Surgeon General will be signed by the President in a few days.

Circular.

The Treasury Department has issued the following:

Unlabeled baggage of steamer passengers, and unlabeled baggage of second cabin passengers from chub in infected ports or places, to be disinfected at the quarantine station for the port of arrival.

TREASURY DEPARTMENT, WASHINGTON, D. C., Sept. 19, 1893.

To quarantine officers of the United States, commissioners of immigration, collectors of customs, steamship agents and others.—Department circular No. 65, May 4, 1893, relating to the labeling of baggage and the issue of inspection cards to steerage and cabin passengers, provides that all baggage of steerage passengers destined for the United States shall be labeled at the port of departure, said label to bear the seal or stamp of the consulate or of the medical officer of the United States serving at the foreign port; also, that the baggage of cabin passengers from chub in infected ports or places shall be likewise labeled. Information has been received that occasionally pieces of baggage arrive without being labeled as above required.

It is hereby directed that any piece of baggage, including hand baggage, belonging to a steerage passenger, not bearing a label as provided for in said circular, shall be disinfected by steam at the quarantine station for the port of arrival; also, that the baggage of second cabin passengers coming from chub in infected ports or places, not bearing a label as provided for in said circular, shall be likewise disinfected by steam at the quarantine station for the port of arrival.

In view of the difficulty of accurately inspecting each piece of baggage while on board ship at the quarantine, commissioners of immigration and custom officers are hereby directed to scrutinize the baggage of immigrants when landed at the immigrant station, and should any piece of baggage, including hand baggage, be discovered to be without a label as above required, they are directed to return the same to the quarantine station, where said baggage shall be disinfected by steam, and properly labeled with a certificate to that effect, before said baggage shall be allowed to pass into the United States.

CHARLES S. HAMLIN, Acting Secretary.
1893. Department No. 111, Marine Hospital Service.

LETTERS RECEIVED.

(A) Acknowledgment, W. B. Philadelphia, Alma Sanitarium Co., Alma, Mich.; Arnold, A. Chicago, Ark. Springs, Colo.; (B) Bane, W. C., Denver, Colo.; Barker, A. R., Cleveland, O.; Booth, C. E., Low Moor, Va.; Brucker, C. M., Tell City, Ind.; Bloodgood, D., Brooklyn, N. Y.; Borger, L. C., Philadelphia, Pa.; (C) Castle, Wilmet, & Co., Rochester, N. Y.; (D) Corlier, A. H., Kansas City, Mo.; (E) Dose Chemical Co., St. Louis, Mo.; Durbin, S. H., Boston, Mass.; Dobbler, Goodale & Co., Boston, Mass.; Dixon, W. A., Ripley, O.; Dunbar, Louis, Allegheny, Pa.; (F) Flannery, J. M., Rome, N. Y.; Flint, Austin, New York, N. Y.; (G) Hagan, H. B., Philadelphia, Pa.; Hammond, E. B., Philadelphia, Pa.; (H) Hahn, H. B., Youngstown, O.; Hoff, J. W., Pomeroy, O.; (I) Lippincott, J. R., Co., Philadelphia, Pa.; (J) Peck, C. S., Youngstown, O.; (K) Roberts, J. B., Philadelphia, Pa.; Rogers, F. C., Milwaukee, Wis.; (L) Sprague, C. H., Youngstown, Pa.; (M) The Times, New Lebanon, N. Y.; The New York Tribune, New York, N. Y.; The J. H. Bates Advertising Agency, New York, N. Y.; (N) Voldeng, M. N., Independence, Iowa; (O) West, H. A., Galveston, Texas; Walker, J. E., Brooklyn, N. Y.; Westcott, John A., Chicago.

The Journal of the American Medical Association

VOL. XXI.

CHICAGO, OCTOBER 7, 1893.

No. 15.

ORIGINAL ARTICLES.

INSANITY IN CHILDREN.

Read in the Section of Neurology and Medical Jurisprudence, at the Forty-fourth Annual Meeting of the American Medical Association.

BY HARRIET C. B. ALEXANDER, A.B., M.D.

CHICAGO.

FELLOW OF THE CHICAGO ACADEMY OF MEDICINE; FORMERLY ASSISTANT SUPERINTENDENT COOK COUNTY INSANE HOSPITAL.

Moreau (de Tours)¹ with equal force and truth, strikes at the grave psychiatric error involved in the denial by pediatricists, of intellectual, emotional and moral affections of physical origin in the child. Such disordered mental phenomena were explained as immoralities, as eccentricities, or as the result of defective education and training. From the time of the great physician of Cos, instances have been cited reversing these opinions. Not, however, until school over-pressure became a burning question was the subject regarded as a topic of general medical interest. The psychological state of the normal child even is much misunderstood. Meynert,² with exceeding fullness and subtlety, thus outlines the evolution of psychological processes in the child:

Kussmaul has shrewdly indicated certain perceptions and movements common to the fetus in utero, which feeds itself, as it were, by swallowing amniotic fluid. He also indicates that there may be special motives, such as the more stimulating taste of the fluid after occasional depletion into it of the allantois, which induce swallowing. Here, then, there are two alternatives; the fetus swallows or it does not swallow. Fetal consciousness is already presupposed, which would exist, however, under circumstances that give but little opportunity for perception. The newborn infant at once discovers signs by which it distinguishes between one set of perceptions and another. One set of perceptions helps it to define the circumference of its own body; another set belongs to the world beyond it. However obtuse this perception may be, though the child may at first not be able to discriminate between the various impressions of space, still it is certain that the child's perception of its own body circumference is established very early. Among other means by which it learns to distinguish between impressions received from its own body and the outer world are these: contact of a strange finger with its own skin excites but one tactile sensation; contact between two parts of its own body excites two tactile sensations; one from the touching, the other from the touched part. Furthermore, a number of strange auditory sensations strike the ear of a child, but only the sound of its own voice is accompanied with muscular sensations, and so the attendant muscular sensations help the child to discriminate between movements of its own body and any other movement it

may see. There is no order of movements, which, under the cover of instinct, can be pushed in between conscious and reflex movements. The first instinct of a child would be the instinct for food, but the origin of that has been discussed. There is absolutely nothing in the sensation of hunger which would acquaint the child with the means of remedying this pain. It obtains naught but the concept of pain. In the general restlessness it displays and in the convulsions ultimately resulting from anemia there is nothing which could be likened to an instinct for food. If the child has not to depend on its own resources but has a nipple put into its mouth then the sensation thus excited starts the reflex mechanism of sucking. The child has thus acquired the concept that the sensation of satiation is connected with the act of sucking, and these two sensory memories are associated with the innervation sensation aroused by sucking, and probably by the scent of the mother's breast. That a child should suck at every finger may be attributable to a reflex mechanism, but the sucking of the child in dreams proves that the act of sucking has produced images which have been registered in the cortex. The factors of this primary abstract ego are not definitely defined. . . . The nature of the ego does not depend upon any definite order of memories, but is determined simply by the most firmly fixed memories. . . . As soon as movements of aggression have taught the child to take hold of things it is evidently under the impression that it is living in a world of sweets; it takes everything to the mouth and licks it. A later aggressive movement—kissing—like the first sucking movements, is probably based upon the act of bringing an attractive object to the mouth. This latter movement is clearly dependent upon a powerful secondary presentation aroused by its impressions, just as the sucking movements during sleep denote secondary presentations excited in the course of dreams. . . . Space vision in the child excites movements of aggression which aim at the possession of the thing it sees, but as it lacks the power of locomotion it has no conception of distance. These aggressive reflexes of the upper extremities are no more coordinated in space than the movements of the eyes are before the child has learned to see, and through irradiation these movements become general, leading to a tossing of the whole body, to kicking with all fours and to cutting of grimaces. These movements though extravagant are not spasmodic, but must be regarded as results of cortical impulses interfered with by cortical irradiation. The acoustic nerve also takes part in reflex impulses; the child that hears others speak or perceives other sounds and noises has the desire to bring forth the same sounds and noises. As its cortical functions improve, it develops the secondary idea that the sounds which it brings forth are similar to

¹ *Pollie chez les Enfants.*

² "Psychiatry," Sachs' Translation.

those of ordinary speech. Wundt correctly remarks that the speech of animals consists of so-called sensory sounds, and this is true of children before they have acquired the faculty of imitating syllables. In all aggressive movements the child over-estimates the possibilities of its powers. Experience and an improvement of the power of imitation correct these false conclusions. As soon as the child has reached that age when all cortical fibers acquire their white substance, purely reflex movements and those due to irradiation diminish in number. In the child the expression of emotion may vary much. Under the influence of the apnetic effect of functional hyperemia attendant upon pleasurable emotions, there will be movements of aggression bespeaking the force of the child's own personality, or there will be spasmodic movements of repulsion (due to irradiation) such as screaming and crying. All these expression movements, whether due to irradiation or not, dispatch sensations of innervation to the cortex, which sensations are there turned into "special memories" and serve later on as impulses, starting the entire groups of movements which are involved in expression. Consequently, these movements of expression result primarily from stimulation of sub-cortical centers, just as simple forms of reflex movements serve as the foundation upon which the structure of more complex, conscious movements is raised. As soon, however, as these irradiatory impulses, which excite the mechanism of expression, are put under control of an organ of motor coördination, they acquire secondarily a higher value as psychological factors of expression. In the child, pleasurable emotions result in general movements of the entire body. Even in the adult, who dances for joy or performs other extravagant movements, occurs a repetition of these primitive mimical movements of the child. A state of excessive pleasurable emotions may pass into a condition of maniacal excitement as a result of dilatation of the arterial network of the brain, or a state of pleasurable confusion may end in a transitory swoon. The doctrine that ideas are inherited and are not the result of perception and association, that movements, even mimical ones, are the result of innate motives and have nothing to do with imitation and early reflexes can hardly be applied to man. Not even the upright gait is innate; it is acquired with difficulty only through imitation and cortical coördination.

Dickson has found insanity in children characterized by subacute maniacal symptoms, garrulity or loquacity, or melancholic depression associated with homicidal or suicidal tendencies. The children are often bright, but irritable and wayward.

As Perez has shown, anger appears very early in children. In the first two months the child shows by movements of its eyelids and hands strong anger when the attempt is made to bathe it or to take something from it.

According to Feneelon, jealousy is much more violent in children than is usually suspected. Bourdin claims that all infants are liars. He, however, ignores the fact that the weak inhibitions of the child prevent it from distinguishing clearly between the subjective and the objective—between its wishes and facts. This condition is essentially one of mental instability and underlies the mental states at the foundation of terror and suspicion. As might be expected, cruelty is very frequent in childhood. Not

from an innate tendency to cruelty *per se* as claimed by La Fontaine and Montaigne, but, because as has been shown by Meynert, the feeble secondary "ego" does not so dominate the primary "ego" as to enable it to recognize the feelings of others. In certain cases this secondary "ego" is not developed, because of inherited, congenital or acquired defect or perverted training.

Motor explosions, for reasons already pointed out by Meynert, readily occur in children, whence the fact noted by Dr. Grace Peckham Murray³ that neuroses in children tend to be motor rather than sensory, since the reflex arcs of which the motor strands form a part are earliest perfected, so that when a sensory stimulus sets free a nerve energy it is likely to overflow into motor paths. Intellectual comprehension of sensation, and consequently of pain is the last to be developed; in consequence, severe nervous shocks which would give rise to exquisite pain in the adult, result in a motor neurosis in the child.

Motor neuroses, as already stated, readily pass into the motor expressions of psychological disturbance; and from these psychological disturbances intensified by the feeble power of discriminating between the subjective and objective, result the hallucinations so frequently noted in children.

The disturbance of the feeble ego results in the appearance in the mental foreground of the child, of cruelty, mendacity, and other primitive instincts. Abulic speech, as Dr. J. H. Kellogg has shown, may occur in the instinctive insanities of childhood from morbid tendencies to commit improprieties of speech. (*American Journal of Insanity*, 1892.)

The child, therefore, gradually acquires a series of checks on its explosive tendencies and the egotism shown in the over estimate of the possibilities of its powers. These elements underlie the mental state of childhood, which, according to Moreau (de Tours)¹ is characterized by an absence of reflection and self-control, by spontaneous and capricious actions, by dominance of immediate sensory impressions and absence of regard for the future, by desire for power and tyrannical use of it. In a study of these phenomena, classification becomes a necessity and the following modified from Moreau (de Tours), is an excellent basis for such study, especially if it be remembered that even the "pure neuroses" in childhood are often attended by mental symptoms. The classification of the psychoses is based on Spitzka.

Neuroses.	Convulsions.		
	Nervous laughs.		
	Nervous coughs.		
	Hiccough.		
	Stuttering.		
	Neuralgias.		
	Hysteria.		
	Hysteria.		
	Chorea.		
	Epilepsy.		
	Somnambulism.		
	Hallucinations.		
	Anomalies of character.		
	Aberrant sentiments.	Love.	
		Jealousy.	
		Anger.	
Psychic Types.	Imperative conceptions.	Purely attended by impulsive acts.	Arson.
			Suicide.
	Idiocy.		Violence.
	Imbecility.		Homicide.
	Night terrors.		Alcoholism.
	Mania.		Theft.
	Acute confusional insanity.		Rape.
	Melancholia.		Non-criminal acts.
	Transitory frenzy.		
	Stuporous insanity.		
	Katatonia.		
	Paranoia.		
	Periodical insanity and hebephrenia.		

The imperfect coordination of the slowly acquired inhibitions is readily upset, whence occur states of uncertainty and resultant terror. "Night terrors" were the earliest morbid mental phenomena noticed in children. "Pavor nocturnus" described by Hippocrates was worthy the clinical insight of the great physician of Cos. The emotion of fear, as Meynert has shown, characterized by greater excitement and attention, is probably the neurosis of a subcortical center (of the medulla) which defies cortical inhibition. Movements of flight may therefore be started by allied associations in the absence of real danger, and even against the will this underlies the conditions found in "night terrors" and explains the running which so frequently precedes epilepsy in children; the so-called *epilepsia cursiva*. The motor elements in childhood's neuroses are therefore not so pure as they at first seem. The sensory inhibitions which enabled the child to determine its own movements from those of others remain dormant, it is true, to spring to the surface in constitutional disorder, not as inhibitions but as sensory accessories.

Among the earliest manifestations of morbid mental activity in children are hallucinations which depend on already registered perceptions. Hallucinations of all the senses may occur, but those of sight are most frequent; next, those of hearing, while taste and smell but exceptionally occur. These hallucinations are readily excited by simple causes, like indigestion, and are present in night terrors which are an intensification of the hypnagogic hallucinations that occur in many adults on awakening. In many instances even moral agencies produce sudden explosions of mental disorder.

The inherited tendencies of childhood predispose to these attacks. As Clouston has shown, neuroses and psychoses not requiring hospital treatment are by no means uncommon in the "too sensitive" child with hereditary taint. Children of this class take "crying fits" and miserable periods on slight or no provocation. These tendencies are aggravated by the results produced by the maternal mental state. The silly threats of mothers often cause such brief attacks. He has seen a boy of five become intensely depressed, cry and moan for hours because of the "hell" which his mother described as the portion of bad boys who tore their pinafores, sinned against God, and disobeyed their mamma.

In predisposed children, subjective frights and unpleasant dreams originate persistent anxieties and hebétude. In such children, precocity, over-sensitiveness, unhealthy strictness in morals and religion for a child, a too vivid imagination, want of courage, thinness and craving for animal food are common characteristics. These children are over-sensitive, over-imaginative, and too fearful to be physiologically truthful, and tend, under fostering, to be unhealthfully religious, precociously intellectual, sensuously artistic, and hypertheoretically conscientious. He points out that what he calls "delirium of young children" is relatively frequent. "In most cases it is a pure delirium, without consciousness, attention, or memory, but in some instances there are frightful hallucinations. In others, an excited melancholia of short duration." "The same children who suffer from delirium at low temperature are those subject to 'night terrors' chorea, epilepsy, hysteria, and

even adolescent insanity (hebephrenia) at later ages."

Krafft-Ebing state that "night terrors" are peculiarly frequent in neuropathic children.

Dreams, somnambulism, and night terrors, according to C. P. Putnam, find their explanation in a loss of the higher and exaltation of some of the lower cerebral functions. The conscious life of the individual is in the realm of the higher functions, which exercise an inhibitory influence on the low.

Steiner² believes that of the immediate causes of "night terrors" and the resultant states, the most important are a bad mental training, ghost description ere retiring, and going to bed in the dark, all of which are calculated to stimulate the lively intelligence of children already timid and excitable.

In regard to the frequency, etiology and types of the various psychoses and neuroses much variance of opinion exists. The frequency with which chorea occurred among degenerates led to an expression of opinion that all choreic children were morally imbecile. The question will, therefore, naturally arise as to the existence of degeneracy in the family of a given child. "Degeneracy," according to Morel³ the apostle of the doctrine, "is the result of a morbid influence, physical or moral. An essential characteristic of degeneracy is hereditary transmission, but of a grave type and more far reaching in consequence than ordinary heredity." This factor plays an exceedingly important rôle in the disorders of childhood. In infancy, are born errors and prejudices almost never uprooted, above all credulity. Although impressions are mobile, still something remains therefrom for the future. The child is dominated by the most pressing appetite and instability resembling that of the ape (as described by Milne-Edwards), or the hysteric is in the main uppermost in childhood. Cabanis has shown that there is no moral distinction between the psychic life of the sexes in childhood at the outset. Upon the power of acquiring checks, turns the after-life of the child and this power is lessened by the cortical deficiencies due to degeneracy which also creates the predispositions to which reference has already been made. Under "insane diathesis" or "insane temperament" has been placed a congenital predisposition most graphically portrayed by Dr. C. F. Folsom:⁴

"It is closely allied to insanity and the neuroses, and at the critical periods of life is exceedingly apt to develop into one of them. It is congenital or due to early interference with normal brain development. It shows itself in childhood and infancy by irregularity or disturbed sleep, irritability, apprehension, strange ideas, great sensitiveness to external impressions, high temperature, delirium or convulsions from slight causes, disagreeable dreams and visions, romantic, intense feeling, periodic headache, muscular twitching, capricious appetite and great intolerance of stimulants and narcotics. At puberty developmental anomalies are often observed in girls and not seldom perverted sexual instincts in both sexes. During adolescence there are often excessive shyness or bravado, always introspection and self-consciousness and sometimes abeyance or absence of the sexual instinct which, however, is frequently of extraordinary intensity. The initiative and imaginative faculties may be quick. The affections or emotions are strong. Velocement dislikes are formed and intense personal attachments result in extraordinary friendships which not seldom swing around suddenly into bitter enmity or indifference. The passions are unduly a force in the character which is said to lack will-power. The individual's higher brain centers are not well inhibited and he dashes about like a ship without a rudder.

² Kearney's Case of puerilia.

³ Diseases of Children.

⁴ Traité des 162 "dégénérescences" Physiques, etc.

⁵ Peppin's "Study" in Med. Medicine.

³ Journal of Mental and Nervous Diseases, 1884.

⁴ De la Folie chez les Enfants.

fairly well if the winds be fair and the seas calm, but dependent on the elements for the character and time of the final wreck. Invention, poetry, music, artistic taste, philanthropy, intensity and originality are sometimes of a high order among these persons but desultory, half finished work and shiftness are much more common. With many of them concentrated, sustained effort is impossible and attempts to keep them to it impossible. Their common sense, perception of the relations of life, executive or business faculty and judgment are seldom well developed. The memory is now and then phenomenal. They are apt to be self-conscious, egotistic, suspicious, and morbidly conscientious. They easily become victims of insomnia, neurasthenia, hypochondriacal, neurotic, hysterical or insane, and they offend against the proprieties of life or commit crimes with less cause or provocation than other persons.

At the same time that many of them are among the most gifted and attractive people in their community, the majority are otherwise and possess an uncommon capacity for making fools of themselves, being a nuisance to their friends and of little use to the world. . . . If such children could be placed in the hands of judicious and experienced physicians much better results could be obtained and the downward tendency might be stopped."

Among those beings termed by him the "neurotics" Dr. E. S. Talbot¹⁰ has found anomalies of the jaws and teeth exceedingly frequent. Such stigmata of degeneracy were to be expected. The "lithemic" child, of pediatricists, belongs but too often to this class, the lithemia being an expression of degeneracy. Here, also, very often belong the infant prodigies like the two-year-old negro calculator described by Dr. S. V. Clevenger,¹¹ and the host cited by Moreau de Tours. Such precocity is a mental stigmata and, like early puberty appears so often among the degenerate as to give rise to the proverb, "a wit often is a fool at thirty." Shelley is an excellent instance of this "insane temperament."

He was somnambulist from his sixth year.¹² From "very early childhood" he was an imaginative and restless child. Trifles unnoticed by most children, seem to have made keen and permanent impressions upon him—the sound of wind, the leafy whisper of trees, running waters. The imaginative faculties came so early into play that the unconscious desire to create, resulted in the invention of weird tales of legendary creatures, tales sometimes based on remote fact, in attempted delusion of neighbors and in the experience of more or less positive hallucinations. His memory surprised many of his friends. He delighted in "weird and somber tales of the supernatural and horrible." He was extremely desultory and careless in all his habits. His room was a chaos of scientific instruments, chemicals and books. "From thinking the best of friends and acquaintances he could of a sudden, and with insufficient cause, pass over to the other side and think the worst." Like all neuropathies he was easily hypnotized. He was a great hypochondriac. On one occasion, meeting a woman with large legs he was seized by the notion that she had elephantiasis and had infected him. Medical examination demonstrated the falsity of this notion but it persisted for several days. "One evening he actually arrested the dancing of a line of pretty girls, proceeding to examine their arms and necks, with such woebegone gravity that they were terrified and their angry partners silent." He suffered frequently from the topalgias so frequent in neurasthenics and hypochondriacs. His flagrant violations of social conventionalities were notorious. Many of these, however, had, as Symonds has shown, logical bases from the Shelleyan standpoint of reaction against social tyranny not unnatural to a mind early subjected to the brutal "fagging" of English schoolboys and brutality of schoolmasters who found a "voluptuous ecstasy" in flogging boys ere entering on the "feast of reason, flow of soul" of a banquet whereat the flogger was the "genial, humorous" host. Shelley, however, violated his own code in a most capricious manner. An avowed atheist, he took the sacrament in a blatantly audacious manner for interested reasons. He reverted to fetishism and argued for the existence of ghosts. He denounced

legal marriage, but, married Harriet twice; once by the simple Scotch common-law and once by the English church rite. The constant nagging of his intriguing "sister-in-law" which drove Harriet into "nerves" and him into home hatred, led to the estrangement of wife and husband. The hysterical insensibility of the wife to her own children fostered this. Shelley's temperament, however, aided this tendency. He "took strange caprices, unfounded frights, vain apprehensions and panic terrors, and therefore absented himself from formal and sacred engagements." In a month after the English marriage he deserted Harriet and her unborn child, to elope with Mary Godwin. Even Symonds, the most logically psychological of Shelley's analysts, fails to justify this act from Shelleyan principles. In Shelley's case hereditary degeneracy existed. He normally reacted against school tyranny, hence it alone does not account for the defects and peculiarities of his career.

School training, however, may develop very similar states and wreck many a nervous system. Such an acquired predisposition is singularly well illustrated in the lives of Margaret Fuller and George Eliot. Margaret Fuller says:¹³

"My father instructed me himself. At the outset he made one great mistake, more common, it is hoped, in the last generation than the warnings of physiologists will permit it to be in the next. He thought to gain time by bringing forward the intellect as early as possible. Thus I had tasks given me as many and various as the hours would allow, and on subjects beyond my age, with the additional disadvantage of reciting to him in the evening after he returned from his office. As he was subject to many interruptions, I was often kept up until very late, and as he was a very severe teacher, both from his habits of thought and his ambition for me, my feelings were kept on the stretch till the recitations were over. Thus it frequently happened that I was sent to bed several hours too late, with nerves unnaturally stimulated. The consequence was a premature development of the brain that made me an 'infant prodigy,' by day and by night a victim of spectral illusions, nightmare and somnambulism, which at the time prevented the harmonious development of my bodily powers and checked my growth, while later they induced continual headache, weakness and nervous affections of all kinds. As these, again, reacted on the brain, giving undue force to every thought and every feeling, there was finally produced a state of being both too active and too intense, which wasted my constitution and will bring me—even although I have learned to understand and regulate my now morbid temperament—to a premature grave. . . . No one knew why this child, already kept up so late, was still unwilling to retire. My aunts cried, 'Out upon the spoiled child; the most unreasonable child that ever was—if brother could but open his eyes to see it—who was never willing to go to bed.' They did not know that, soon as the light was taken away, she seemed to see colossal faces slowly advancing toward her, the eyes dilating and each feature swelling loathsome as they came, till at last, when they were about to close upon her, she started up with a shriek which drove them away, but only to return when she lay down again. They did not know that when at last she went to sleep, it was to dream of horse-trampling over her, and to awake once more in fright; or (as she had just read in her Virgil) of being among trees that dripped with blood, while she walked, and walked, and could not get out, while the blood became a pool and plashed over her feet, and rose higher and higher till soon she dreamed it would reach her lips. No wonder the child rose and walked in her sleep, moaning, all over the house; till once, when they heard her and came and waked her, and she told what she had dreamed, her father sharply bid her leave off thinking of such nonsense or she would be crazy; never knowing that he himself was the cause of all these horrors of the night."

To these influences Emerson¹⁴ rightly referred her later demonology, with its curious superstition and imperative conceptions. He says:

"Her childhood was full of presentiments. She was then a somnambulist. She was subject to attacks of delirium, and later perceived she had spectral illusion. When she was 12 she had a determination of blood to the head. 'My parents,' she said, 'were much mortified to see the fineness of my com-

¹⁰ *Life of Talbot*, p. 145.

¹¹ *Am. J. Child. and Neurology*, 1888.

¹² *Life of Shelley*, pp. 11-12, from the Lives by Dowden, Sharp, Symonds and M. C. Safford.

¹³ *Memoirs*, Vol. 4, p. 11.

¹⁴ *Memoirs*, Vol. II.

plexion destroyed. My own sanity was severely wounded, but I recovered and made up my mind to be a traitor, though ugly." She was all her lifetime the victim of disease and pain. She read and wrote in bed, and believed that she could understand anything better when she was ill. She acted like a girdle to give tension to her feelings. A girl who was with her through an attack of nervous headache which made Margaret totally helpless, assured me that "Margaret was yet in the finest vein of humor, and that those who were assisting her in a strange, painful exchange between laughing and crying, by perpetual brilliant sallies. There were other peculiarities of habit and person. When she turned her head on one side she alleged she had second sight, like St. Francis. These traits and predispositions made her a willing listener to all the uncertain senes of mesmerism and its golden brood which have been ripe of late years" (1889). She had a feeling she ought to have been a man, and said of herself: "A man's ambition with a woman's heart is an evil lot." In some verses which she wrote "To the Moon" occur these lines:

"But if I steadfast gaze upon thy face,

A human secret like my own I trace,

For through the woman's smile looks the male eye!"

And she found something of true portraiture in a disagreeable novel of Balzac, "Le Livre Mystique" in which an equivocal figure exerts alternately a masculine and a feminine influence on the characters of the plot.

The same tendencies are demonstrable in George Eliot. Strongly skeptical and virile in type as was the intellect of George Eliot, her childhood was marked by phenomena of like causation to those already described in Margaret Fuller. Like Margaret Fuller she had a father of "extraordinary determination of character." Her mother was a "woman with an unusual amount of force" but of "ailing habit." George Eliot during childhood "suffered from a low general state of health and great susceptibility to terror at night," and the liability "to have all her soul become a quivering fear" remained during life. She suffered from periodical depression which later gave place to migrainé evidently of uric acid type, and often attended with rheumatoid phenomena. She was "an awkward girl, reserved and serious far beyond her years, but observant and addicted to the habit of sitting in corners and watching her elders." Fear of the unknown in children, seemingly a reversion to the fear of the unknown of savages, tends like it to produce occult belief. This has been pointed out by Emerson in the case of Margaret Fuller. Despite the German rationalism of George Eliot, such fear found utterance in her "Beyond the Veil," a mystically occult contrast with her novels and with the Positivism which was her religion. The philosophy of George Eliot should theoretically have effaced such mysticism, yet, as a survival of "night terrors," it came to the surface.

Dickens teaches a lesson in school training eminently worthy of study when, in discussing the model school in "Hard Times," he says about the teacher:

"Ah! rather overdone, Mr. Choakumchild! If he had only learned a little less, how infinitely better he might have been taught much more. He went to work in the preparatory lessons not unlike Morgiana in the 'Forty Thieves'—looking into all the vessels before him, one after another, to see what they contain. Say, Mr. Choakumchild, when from thy boiling store thou shalt fill each jar brimfull by-and-by, dost thou think that thou wilt always kill outright the robber Fancy lurking within, or sometimes only maim and distort him?"

The career of the modelly trained moral imbecile, "Gradgrind," is an apt illustration of the results of this system. His case is one of the extreme results of school over pressure in which the struggle for marks before maturity more than equals in fierceness and intensity the struggle for good after it. In certain respects this school over pressure checks even in well developed minds the transition from the terror of the unknown of childhood into the calmness of maturity. Many morbid fears, imperative conceptions and acts, which torture the individual during an otherwise healthy career, unquestionably originate in the earlier periods of life.

The treatment of the degenerate offspring of degenerate parents is one of the most serious problems

which confront the pediatrician. Although the parents may be convinced of the necessity of the institution in the rearing of the child, the parents' emotions are too weak to carry out the training decided upon. Incomplete separation of the child of over accomplishment, something of a child of the weak inhibitions of the degenerate, the latter course is practically impossible. Parents who are excessively fond of the children, who are in a certain fashion, and their egoism causes them to think themselves model mothers. I have had such a mother consent to turn over entirely the training of her child to a person recommended by me, and yet at the first attempt of the companion to exercise authority over the child, the mother told the child to do as it pleased. These children need a nourishing, stimulating diet, an outdoor life, regular hours and regular employment; in fact, they require the very life which is led by the healthy children of healthy parents, but which they rarely get unless one of the parents happens to be of sound mind and strong will and financially circumstanced to control the surroundings of the children.

Dr. W. S. Christopher, in a paper recently read before the Chicago Academy of Medicine, has laid stress on the nutritional influences, active in the production of neuroses underlying psychic states, and these deserve more attention than they have received.

Beside hereditary and the other predisposing causes cited already, Dr. Welt very correctly has said that the etiological factors in the production of mental disturbances in children are injuries of the head, either during parturition or later; acute cerebral trouble and abnormal development of the brain; fright, masturbation and infectious diseases may act as predisposing elements. Among the chief exciting causes are the fevers.

There has shown that psychoses following acute diseases are of two classes: the first is met with during the development and the duration of the acute process itself, while the second class is found only during convalescence, or at least during an intermission of the disease. The etiology, as well as the course and the issue in these two groups—the febrile and asthenic deliria—differ considerably.

Kraepelin points out that in pathology of the febrile deliria the exciting cause prevails considerably over the predisposition; the causes of the disease are dependent upon somatic disturbances. Hence the monotony of the febrile deliria, the short course, and the nearly always favorable issue with the disappearance of the etiological cause; on the other hand, the predisposition of the individual forms the most important factor in the development of the asthenic form. The lowered state of the system, depressed by the preceding fever and infection, exhibits itself more when the circulation is retarded during the decline of the fever; and the brain which may have suffered in its vitality by the preceding rise of temperature, is the first organ that reacts on the inadequate supply of blood; besides, there may be an influence of the infectious elements upon the central nervous system, either by affecting the ganglionic cells, or indirectly through a change of the blood by the microorganisms. In the deranged equilibrium of the system even slight irritating influences, afforded by the events of daily life and

frequently overlooked, may cause mental disturbances. In their course the asthenic psychoses resemble the mental derangements of spontaneous origin, and usually terminate in full recovery; with convalescence and better nutrition brain morbidity disappears. Dr. Sarah Welt advises that as a matter of prophylaxis, children after acute diseases, especially when in an anemic and poor condition, ought not to be allowed to leave the bed too early, and the action of the heart should be carefully controlled. Threatening spells of weakness ought to be prevented by administration of good nourishment and stimulants. In occurrence of deliria strict control of the patient becomes necessary; bed rest and a generous administration of alcoholics and heart stimulants. Against the irritable state of the brain, sedatives in result-giving doses should be used.

Dr. Kiernan states that the psychical manifestations of the febrile stage of any disorder are usually an hallucinatory delirium or acute confusional insanity. These may be agreeable in type. With a fall in temperature occur asthenic psychoses, characterized by visual and auditory hallucinations and their consequences. These are due to acute exhaustion of the nerve-centers succeeding to considerable thermic oscillations. The mental symptoms of the febrile stage may aggregate temperature oscillations and in turn be aggravated.

Spitzka¹⁷ finds that febrile and other acute disorders sometimes cause serious and incurable insanity usually combined with more or less arrest of development. This result is most apt to follow when some moral cause, such as a shock is super-added. From 10 to 30 per cent. of infantile insanity is attributable to the acute diseases of childhood, the overwhelming majority being sequelæ of the exanthemata (excluding cases followed by simple imbecility). Scarletina, measles, typhoid and acute articular rheumatism are most to be dreaded in reference to their immediate mental sequelæ. Typhoid is especially deleterious. Naso classifies the febrile insanities according to their period of development: *a*, coincident with the fever as to time and ranging from delirium to insanity; *b*, developing as an apparent aphasia and dementia. Spitzka found but 7 per cent. of his cases attributable to these causes. This low percentage was due to the fact that he did not include fatal cases nor ephemeral deliria, which in children, as Hughes and McBride¹⁸ have shown, replace malarial attacks and which are benign, self-limiting and not apt to come under alienistic care, like the more serious and protracted mental complications which may attain pseudo-cretinism. Aside from an infrequent hallucinatory delirium, there is a continuation of the specific somatic disorder, so that a true convalescence can not be said to have existed. This is often associated with hyperthermia; *c*, developing during convalescence. These last, Spitzka¹⁹ is of opinion, are different from the other two, are probably more benign and are anemic or adynamic. Spitzka states that sudden changes of temperature uncomplicated by other causes can produce transitory frenzy and acute delirious states. This is equally true of the extremes of temperature. Over exposure to the sun and pressure of the unprotected head of an infant to a hot stove have been declared responsible for the

same acute delirious or furious outbreaks that Reich observed in children who, after long exposure to severe cold, suddenly entered a warm room.

Rapid cure of a maniacal delirium after the expulsion of ascarides in several cases proves, in Spitzka's judgment, that a parasitic etiology has been correctly assigned for these cases. These mental disorders are usually of acute type.

The parasites which have their seat low down in the bowel have a less direct relation to mental disturbance when, as in not a few cases, they provoke masturbation by the scratching of the anus they cause, or by wandering into the genital passages. The forms thus produced vary from the precipitation of hebephrenia to a stuporous insanity, or an acute hallucinatory confusional insanity of favorable prognosis.

As to frequency, Dr. Sarah B. Welt²⁰ remarks that insanity in the first ten years of life, aside from idiocy is very rare. Out of ten thousand inhabitants, Emminghaus found in Germany, between the first and fifth years, 0.18 per cent. insane; between the sixth and tenth years, 0.69 per cent.; and between the eleventh and fifteenth years, 1.46 per cent. insane. Deboutteville, in France, found among the insane admitted to the asylum in Saint-Yon from 1827 to 1834, 0.9 percent. between the fifth and ninth years; 3.5 per cent. between the tenth and fourteenth years; and 20 percent. between the fifteenth and twentieth years. Turnham found but eight children less than ten years of age among 21,333 insane; idiots, who are far more frequent in number, not being included. The most common mental derangement in childhood is idiocy, be it congenital from insufficient development of the brain, or acquired from previous cerebral disease. Next in frequency is maniacal exaltation, while depression occurs only in late childhood. Insanity in childhood in her opinion occurs more frequently than is evident from the statistics. As no psychosis in childhood shows the entire complex of symptoms as in adults, it is readily understood that the symptoms of a mentally deranged child may often be taken to be bad behavior, and only the result, mental weakness, will be recognized.

The neuroses, properly so-called, are beyond the scope of this article. All of them may be accompanied by psychical symptoms. Hysteria, convulsions, ecstasy and chorea may occur in epidemic form especially during religious revivals. The child crusades were mixtures of these epidemics with psychical ones.

Epilepsy and hysteria in childhood as in adult age present their characteristic mental phenomena. Extreme cruelty, as in the case of the boy fiend, Pomeroy, may long be the only manifestations of the epileptic neurosis. In this age it is well to remember that as Griesinger has shown mental derangement often appears as moderate irritability, persistent or habitual. The child is passionately obstinate, quarrelsome, malignant, and even immorally inclined. Often this mental degradation is dubbed simple wickedness. It may occur as a simple, logical perversion with aimless, errand tendencies, intellectual and emotional perversion with excitement. These children can not keep still a moment. They talk incessantly and incoherently, and are very inattentive. There are sometimes longer or shorter at-

¹⁷ *Journal of Nervous and Mental Disease*, 88, 1, 1880.

¹⁸ *Keating's Cyclopedia*,
¹⁹ *New York Medical Journal* March 18, 1874.

tacks of mania. In children of from 3 to 4 years attacks of crying, of wild refractoriness, of striking and morbid destructiveness occur. These may alternate with epilepsy, chorea, stupor, catatonic catatonic states (simulating katatonia). The child may remain for hours or days as if quite absorbed, with open eyes, fixed countenance and peculiar position, sometimes breaking out suddenly into loud cries. Hypochondriacal states develop in children of parents morbidly anxious about the health of their offspring.

According to Shaw¹⁵, in children the ideas are simple, few and disconnected. They are therefore incoherent because of an absence of organic associations between the residua. The morbid phenomena are not systematized as in the adult, and the result is (according to Maudsley¹⁶) delirium rather than mania. The morbid idea in the child's mind having little range of action acts downwards (Maudsley) on the sensory ganglia, causing hallucinations or giving rise to morbid impulses. These impulses constitute impulsive insanity, called by Maudsley, monomania, and by Morselli, paranoia rudimentaria impulsiva.

Under the head of monomania Maudsley places the epidemics of morbid ideas which have from time to time in the history of the world affected children. The ruling instinct in a child of 3 or 4 is self-gratification, involved in which is a tendency to destroy what it dislikes. Its insanity is manifested by perverse and unreasonable appropriations of whatever it sees, and by extreme destructiveness. It suffers from the instinctive variety of moral insanity. Maudsley describes a cataleptoid type of insanity resembling katatonia.

The instability of childhood is shown in the presence of garrulity, melancholic depression or excitement, maniacal exaltation of the pleasant deliria type and instinctive tendencies. Exaltation and delirium is usually contemporaneous with the beginning and acme of febrile attacks, while depression usually follows the disease. The temperature at which delirium begins in a child is, as Clouston has shown, a good index of its brain constitution and temperament. The temperature at which delirium sets in is lower in the sensitive. Such children, independently of temperature, are subject to gusts of unreasonable elevation during which they are quite beside themselves, rushing about wildly, shouting, fighting, not really knowing what they are about; this coming on at intervals like the attacks of disease.

Scherp¹⁷ finds that mania of sudden inception and furibund character is the most frequent acute type. Melancholia often originates in hallucinations and has a tendency to hypochondriacal phases. Katatonia may occur. Impulsive monomania, paranoia, periodical insanity, and moral insanity are more frequent than the acute psychoses.

In W. A. Hammond's¹⁸ experience the most frequent type of insanity in children is mania, but insanity in children may occur as an affection mainly of the emotions or as characterized by blind and unreasoning impulses to deceit or violence. Fixed delusions are not a prominent feature, but there are perverted feelings, indecency, destructiveness, malignancy toward relatives and hallucinations.

Kernan¹⁹ agrees substantially with Clouston and Griesinger, but has noticed that hallucinatory types are relatively frequent.

Hecker, Kerlin and Kessler find heretofore types of insanity in children marked by disagreeable variable temper, irritability, lack of self-control, morbid egotism, and often one-sided ideas of persecution at times, with impulsive and immoral tendencies.

Kirchoff finds that children whose ancestors have suffered from psychoses or neuroses, not alone become delirious from slight causes, such as digestive disturbances, slight fever, teething, etc., but are apt to be depressed for a long time after the ordinary disagreeable events of daily life. Mental work at school rapidly exhausts them. Fright and punishment excite them to a dangerous degree.

According to Moreau de Tours, circular and periodical insanity in childhood resembles in all essential particulars the same psychosis in the adult.

Pottier²⁰ insists that persecutory delusional paranoia presents special characters in childhood. They are wild, unsocial, inclined to solitude and isolation, somber and taciturn, defiant and suspicious, living apart from their comrades, regarding these last as scoundrels, and already interpreting to their disadvantage the most insignificant event. Such a delusional state may of course have the usual forensic results.

Morbid jealousy may present itself at an early age and exercise a decidedly deleterious influence on the heart of the child. Love, according to Descurret, explains the passionate attachment often displayed by little girls for dolls. In the degenerate, romantic love may occur early. Byron at the age of 8 was passionately in love with Mary Duff, a little girl of 10. The news of her marriage eight years later caused convulsive attacks. Alfieri and Dante were similarly in love at 9 years. Such early love must be regarded as morbid and an expression of degeneracy like precocity and early puberty. In the cases reported, other evidences of degeneracy existed. Like all precocity it needs restraint, not assistance. Pathological anger is exceedingly frequent in childhood. Imperative conceptions of all types occur. Hughes²¹ has observed pyrophobia in a boy of 6, who doused all fire with water. Agorophobia, mysophobia, chlorophobia, etc., also are relatively frequent.

The discussion of the "imperative acts" following imperative conceptions involves many mixed states closely bordering on delusional conditions, from childhood's instability with regard to the difference between the subjective and the objective.

With the increasing social tendency to expose children to financial and other mental stress at the critical period antecedent to puberty, suicides, insanity and criminality among children must, in the nature of things, increase. In evidence of this, Moreau de Tours gives the following table:

Years	18	19	20	21	22	23	24	25	26	27	Total
1811-1820	1	2	11	6	3	4	1	1	1	1	34
1821-1830	1	1	1	9	3	4	0	1	1	1	21
1831-1840	4	2	2	11	5	4	0	1	1	1	37
	26	37	35	36	23	11	5	4	3	3	188

In the last ten years, forty-two boys and fifteen girls attempted suicide in Russia. In the fourteen

¹⁵ Mental Pathology.

¹⁶ Manual of Insanity.

¹⁷ *Zeitschrift für Kinderheilkunde*, 1883.

¹⁸ Insanity.

¹⁹ *American L.*, 1891, Vol. VII.

²⁰ *Handbook*.

²¹ *Thèse de Paris*, 1886.

²² *Allenstein and Neurologist*, 1881.

months ending December, 1891, 62 children committed suicide in Berlin, Germany. The youngest had not reached the age of seven. The percentage there is higher for the same reason which will increase it here; the increase of school over-pressure. The exciting cause of the suicide is usually a trivial one. One boy killed himself to get rid of "so much dressing and undressing." No less than five attempts at suicide were made during 1887, by children under 14 years of age, resident in a Philadelphia district less than a mile square. In three cases the attempts were successful. In three of the five cases the moral epidemic nature of suicide was shown in the fact that one suicide was an exciting cause of two suicides and one attempt. In all five cases, the approach of puberty had produced its usual emotional disturbance. The immediate causes were, as in most child suicides, trivial. Hanging was the favorite method, although one girl (who seems to have formed the melancholiae delusion that she had hanged one playmate who committed suicide) took landanum. She recovered from the poisoning and the melancholia. St. Louis has recently had a very similar epidemic. Griesinger states that 6-10 per cent. of the suicides in England are of children under 10 years. Death does not inspire children with the same fear it does the majority of adults, and the weak ego is easily overcome by the dominant idea of suicide.

In dealing with the question of homicide it should be remembered, as Clifford Allibret²⁶ points out, that in children homicide is, as a rule, an unreflective act. The act is in all probability imitative as a rule. The child has heard of killing and of death but has no clear perception by reflection of their meaning. Homicide by negro children is growing far from rare. In two instances in 1892 two ten-year-old negro boys killed a baby brother to get rid of the trouble of minding it. Moral imbecility may crop out here and in cruelty to animals. Moreau de Tours²⁷ cites a case in which a four-year-old boy chopped at the face of a ten-months-old nursing. Esquirol has observed a prematurely nubile girl of 8 years who had a fixed tendency to kill her stepmother. Legrand du Saulle reports the case of a five-year-old boy addicted to masturbation from his third year who had long been noticed by his nurse to be wicked and vicious, who loved to torment younger children. He liked to see chickens killed; ordinarily stupid, his intelligence was shown only in mischief. Having noticed nose-bleed follow the fall of his baby brother he felt an intense desire to see blood flow. Profiting by the absence of the nurse he flung the baby down from a table. Epistaxis resulted and he rubbed his hands gleefully in blood. With complete indifference he answered in reply to all questions that the nose-bleed amused him and he would repeat the deed. This was also excellently illustrated in one of my cases:

The eight-year-old daughter of a hystero-epileptic presented many of the symptoms of degeneracy. Intensely cruel, she took delight in torturing those of a weaker nature than herself. She was constantly calling the attention of a melancholic to the screen in her window. She knew how to induce hysterical attacks of her mother and delighted in them. She delighted although afraid of her mother at that time. She delighted in the sight of blood. She was a constant liar. Imperative hallucinations had been demonstrably present for more than a year. Like so many of these degenerate cases, she had an intense appetite for meat.

The crimes of Pom-roy, the "boy fiend" of Massachusetts who killed and tortured several small children, were later explained by the appearance of epilepsy, and other cases of children homicides have had like explanations. The impulsive type can, of course, occur without epilepsy since the feeble "ego" of the child is as easily overcome by the homicidal as by the suicidal impulse.

Arson results as (Legrand du Saulle remarks) in maniacal, emotional and depressional states, in deliriums, imbeciles and idiots. It may also develop in girls ere puberty or as Marc has said, in child servants badly treated by masters and desirous of re-entering under the parental roof. Nostalgia results. Fire and flames are found to relieve this, whence arson. Rape may occur from early precocity in both sexes in the degenerate. Thefts often occurs from the same feebleness of the ego which results in homicide and suicide.

Dr. KIERNAN—There has been too great a tendency in latter days to put heterogeneous psychoses into the Procrustean bed of insanity. It not infrequently happens that acute insanity is paranoiacal even when senile. Such cases are frequently curable. It very often happens that an old gentleman is locked up and regarded as incurable when some treatment would improve his mental condition. With regard to the point raised about parietic dementia after sixty years of age, it is well known that there is an enormous number of such cases on record. There has been a tendency to call that senile or latent parietic dementia. I remember two cases in the same family which elucidates the point that parietic dementia in one generation may occur late and in the next one early. In the cases I mention the father had it at 65 years of age and the son at 25. The various types need more than an ordinary line of demarkation and for that reason I am glad to see the subject brought up.

With regard to the second paper, of course in a general way many of these mental phenomena in children pass unnoticed. There is a great tendency to ignore mental symptoms of ordinary disease and under ordinary circumstances. It shows a tendency in a right direction when we begin to study mental disorders resulting from various diseases.

Dr. FRANK T. NORBURY—I was quite pleased to hear the presentation of the subject of mental affection in children. I was associated for a time with a feeble minded institution, and having cases coming into the institution from three years up to about twenty, probably the oldest children being about twenty. I had some very interesting cases under observation. While most of them were cases of marked idiocy, yet there were many of them practically of recurrent insanity. The doctor speaks of Dr. Kerlin's observations. It was in the institution of which he was the superintendent that I served a term and where I met three cases of special interest; all these cases were females and did not come under my special charge. The cases of paranoia in childhood, that is those which I would class as paranoia, are probably not frequent, but yet there were at that institution several, one of which had very thoroughly systematized delusions of persecution, and another one had some hallucinations at intervals accompanying these delusions. I have had quite a number of children presenting epileptic insanity, and we received them in the Illinois institution. I had one child 7 years of age committed as insane to the Illinois Central Hospital for the Insane, a boy who presented the symptoms of epileptic insanity quite similar to those of an adult. We had several cases in one winter, but we have not at present any under 15 years of age.

Dr. A. : Some day I shall be able to tell you that I have a greater sympathy for the family than I have for their patients, but I want to start a case. I have done recently. I had a case of some insanity on the family, been warning the members of the family, and the family were four married daughters who all had children, the family history being bad, about the care of the children. An expert was called into the case and when the daughters questioned him, for I suppose I had aroused their fears, he said: "Oh, no, there is no danger; you need not take extra care of your children. It is only the strong-minded who get insane anyway." I have lost my hold on that family. I feel that it is a necessity in such cases for the physician who comes into a family and finds this difficulty to warn the family about the care of the children. Yet it is done almost never, where the family really should be warned about the care of their children. The children are allowed on the street late at night, allowed tea and coffee that even healthy children should not have, and yet they have never been warned.

SOME REMARKS ON INSANITY OF THE AGED.

Read in the Section of Neurology and Medical Jurisprudence at the
Forty-fourth Annual Meeting of the American Medical Association

BY FRANK PARSONS NORBURY, M.D.

JACKSONVILLE, ILL.

Lecturer on Nervous and Mental Diseases, Keokuk Medical College,
Keokuk, Iowa; late Assistant Physician Illinois Central
Hospital for the Insane, Jacksonville.

The tenure of normal mentality in old age depends on the sum total of vitality originally deposited and the maintenance of normal equipoise in the brain machinery during the years of active engagements in the affairs of life.

The blending of the normal and abnormal mental states renders the psychological study of old age difficult, because what is the normal tenure of one approaches the abnormal change in another; the result is, as Clouston has remarked, "the psychology of old age has yet to be written." To the confusion arising from the differentiation of ordinary functional derangements from organic brain diseases, is due the difficulty of diagnosis and clinical classification, which must be experienced to be appreciated.

In a clinical study of 196 cases of insanity, occurring in men over sixty years of age, coming under my care, I have been struck by the heterogeneous symptoms, yet similarity of mental affections, when modified by the influence of senility. Senility seems to be more or less a common mold in which the mental disorders of the aged are cast, for the mark of the senile change is on them all. It is because of the modifying influence of senility, causing variability in the tenure of normal mentality and confusion in abnormal manifestations of intelligence, that there is such a wide difference in the classification of the insanities of the aged. In looking over the reports from some thirty prominent State institutions for the insane, I find it is, more or less, the rule to classify distinctive insanities of the aged as senile dementia. While it is true senile dementia is the only characteristic alienation of the mind when in its uncomplicated form, conforms more to a distinctive type than any other one form of insanity of any age, yet we must not forget that we have other types in the aged as much entitled to consideration, both pathologically and symptomatically, as senile dementia. Indeed, all things considered, it seems

dementia or cerebral syphilis, but are distinguished from them by other associated symptoms, especially of cardiac and renal origin. Vertigo is quite noticeable as before mentioned and is probably due as Hirt says, "to the atheromatous condition of the arterial walls, and the consequent irregularities of the blood supply to the brain substance."

The melancholia of chronic atrophy is, we believe, dependent alone on those circulatory changes. All have noticed in attacks of acute melancholia of the aged, where cardiac disease was conspicuous, the dependence of mentality upon the stability and regularity of the heart's action. In a study of probably thirty such cases, during the past four years, I have satisfied myself that more than renal disease is necessary for the melancholia of cerebral atrophy, and that the circulatory changes are, primarily, the cause of such mental depression. Again, the manic outbreaks of chronic cerebral atrophy with their explosiveness, incoherence and destructiveness may be of cardiac origin. I have noticed, especially in cases complicated with angina pectoris, that the mania was very severe and distressing. The fear of impending death, to be noticed in individuals not insane is, in the insane, transposed into hallucinations and delusions, destined to cause great mental disturbance.

In the ordinary senile dementia we meet with destructiveness, filthiness and incoherence; the physical and mental helplessness being but the result of the progress of disease.

The decline is gradual; the slowness of the atrophic process producing mental symptoms is, at first, regarded as but the natural result of old age; the amnesia, the sudden changes in moods and emotions, and the appearance of delusions being the evolution of distinct senile dementia.

The minor details are familiar to you all, and cause you more or less anxiety in their treatment, especially at their homes. It is the persistent wakefulness at night of such cases and their tendency to wander away from home, that ultimately leads their friends to have them committed to the hospital. Here the career of helplessness goes on until death sooner or later closes the scene. In brief, I have presented the characteristics of these two *distinct* mental diseases, having *distinct* symptoms worthy of more study from alienists, especially in their pathological differentiation, which is too much ignored.

Another organic disease of the brain, however not frequent, but still it does occur after sixty years of age, is parietic dementia. Steadman says that it rarely occurs after fifty, but I have, in the 196 cases of insanity occurring in men over sixty, found seven marked cases. Mickle has observed that "owing to the brain strain and exhaustion of the over pressure and blood deprivation in modern life, general paralysis tends to occur at an earlier age than formerly." I may therefore look upon this series of cases as of rare occurrence. I rather believe in the agricultural communities, from which most of my patients came, the longevity of such people may be considered as a factor in the cases I have observed. Nothing out of the ordinary was noticed in the cases, except in the postmortem examination of one, the very thin skull was interesting, for it is usual, as Wood says, to find hyperostosis and exostosis on the skull. This skull was so thin that objects could readily be distinguished through it.

Syphilitic disease of the brain was observed in five cases; one made a good recovery, three died and one is still under observation. The diagnosis of intracranial syphilis in the aged is difficult, but the symptoms, as outlined by Gray, have materially assisted me in making what I believe to be a correct diagnosis in the five cases above mentioned, the mental symptoms of course confirming my belief. The suspicions and hallucinations being especially marked.

General paralysis may occur beyond sixty years of age.

Syphilitic insanity should not be confused with senile dementia, and the treatment of syphilitic insanity must be vigorously pushed in the aged to avoid chronicity.

In conclusion, gentlemen, I would say that the differentiation of the insanities of the aged are too carelessly observed in our State hospitals for the insane; that the attention to their pathology is neglected and the observation of special symptoms ignored. The recoverable attacks of mania and melancholia being too often classed as chronic insanity, and the recurrent attacks of mania and melancholia in chronic cerebral atrophy classed as acute insanity.

We need more attention to the study of the science mind, and less politics in our institutions to bring them up to the standard of foreign hospitals.

REFERENCES:—"Mental Diseases," W. Byan Lewis, 1891; "General Paralysis," Wm. Mickle—Tuke's Dictionary, 1892; "General Paralysis," H. R. Steadman—Reference Handbook. Wm. Wood & Co. 1886.

SOME MEDICO-LEGAL EXPERIENCES IN RAILWAY CASES.

Read before the Section of Neurology and Medical Jurisprudence, at the Forty fourth Annual Meeting of the American Medical Association.

BY THOMAS G. MORTON, M.D.

PHILADELPHIA.

Railroad injuries, from a surgical point of view, possess many features of interest; not the least of which is the medico-legal question concerning the gravity or reality of alleged injuries for which pecuniary compensation is demanded.

At a time when he least expects it, in these days of rapid transit and frequent travel, any individual may be obliged to witness, participate in or be the victim of a railroad accident attended by loss of life or by various degrees of traumatism—maiming, contusion or concussion, and every surgeon is liable to be called upon to render assistance to those injured or claiming to have been injured by such an occurrence. Experience, however, has taught us to exercise special caution and to express a very guarded opinion as to the prognosis or gravity of a traumatism occurring under such circumstances. Suits for damages are so common that the surgeon or physician almost instinctively recognizes these patients and governs himself in accordance with this fact, knowing that the attempt may be made to use him as a means of extorting large sums of money; indeed, he may even unconsciously become an innocent party to a conspiracy to defraud the railroad company defendant.

Under such circumstances it would seem proper that we should consider this question, which, although largely medico-legal, is still more one of diagnosis

calling for a high degree of skill to separate the time from the fraudulent claimants. I compared a brief resume of several recent cases to illustrate the tendency above referred to and tried first to present briefly a few of the more typical characters which distinguish this class of non-ordinary surgical injuries. The most evident one in these patients is a psychological one arising from the prospect of receiving damages in a malcorroboration by simple and easy means.

The fact that courts and juries are popularly believed to sympathize with the plaintiff in these cases and the corporation defendant is popularly presumed to be guilty until proved to be innocent, has doubtless effect in stimulating such litigation.

The number of persons in the United States actually claiming to have been more or less seriously injured upon railways is very great; many of these cases are beyond all doubt fictitious and fraudulent. Upon good authority it has been stated that E. R. R. railways have paid, within a period of five years, upwards of eleven millions of dollars damages for spinal injuries alone. I believe that I am correct in stating that more or less exaggeration is present in nearly every case of railway injury. In the attempt to impress the court and excite the sympathy of the jury, very frequently the person claiming to be injured will go close to the border of imposition, even though he justly claims compensation for actual injuries. On the other hand, the willingness of railroad companies to settle such cases outside of court tends to make prompt compensation for actual injury, serious or loss of time, is so well known that designing persons attempt to take advantage of the weakness of fraud and even actual conspiracy to defraud is not infrequent.

Prompt settlement for injuries can generally be made on more favorable and satisfactory terms immediately after the injury has been sustained, and in this way a mole-hill can often be prevented from growing into a mountain because so long as the claim is unsettled, ill-health continues. In fact, the possibility of permanent disability is always made a prominent feature, and every occurrence in the subsequent medical history of the claimant is apt to be traced back to the accident as an additional cause.

Medical expert testimony is commonly sought by the plaintiff and the court and jury share the confusion of being embarrassed in arriving at a just verdict. Among the disturbing elements may be mentioned the possibility of the plaintiff's counsel in suggesting the dreadful possibilities of the future and in so doing painting them in lurid colors. Thus the medical witness is often questioned concerning the possibility of cancer resulting from a contusion or of displacement of the uterus, the development of tumors or of pelvic inflammation; all of these being the effect, perhaps, of a trivial injury whose external effects are transitory and insignificant.

Lateral spinal curvature has even been reported to be caused in this way, which has been substantiated by findings to be due to congenital asymmetry of the lower limbs, as will be observed in two of the three above cases appended to this paper. Indeed, it would seem, in the opinions of some, that any of the flesh which is heir to may arise from railway injuries. The readily recognized maladies and deformities resulting from railway injuries are settled with less difficulty.

[illegible]

11. Most stressors are non-lethal, and the effects of stressors are often cumulative. The effects of stressors are often cumulative, and the effects of stressors are often cumulative.

[illegible]

Other structures within the nucleus are found in much more restricted regions. The nucleolus, for example, is found in one particular region of the nucleus, and is especially prominent in certain tissues. It is composed of exposed ribosomes, strands of ribonucleic acid (RNA) and proteins which are strongly attracted to each other.

From these numerous firms, called for under the act, the government has received only a small number of returns. It is unable to determine the corporate income tax status of many of the "expected" returns, and so has not announced until the present date the other half of the revenue which it is expected will be received. It is well as the Government is informed that the "small" expectations of Federal income tax revenue are based upon a study of the returns examined in the "terrible" effects which are said to follow a change in the spine. In the records of such examinations are the so few, it is said, and the number of returns.

those who have claimed to have the injury, that the skeptics are somewhat justified in attributing the few cases which have shown great pathological changes in the cord and its membranes to the coincidence of disease, as myelitis or syphilis, or to much graver injuries than concussion.

I may say, after looking back upon a very large number of cases of railway injuries, real, exaggerated or feigned, upon which I have been called to give an opinion that I am not conscious that any injustice has been done in a single case. On the contrary, where the claimant was judged to be a malingerer, or that fraud was attempted, the subsequent history of the case has been such as to strengthen and confirm the opinion, and on several occasions, the attempt at fraud has been confessed or the conspiracy revealed.

At the present day the simulation of disease can rarely be successfully carried on, provided the medical attendant makes use of modern means of diagnosis and is familiar with the symptomatology of the feigned disease. Instruments of precision enable us to attain accuracy of observation, which very promptly enables us to recognize such cases, so that fraud is detected with more certainty and its character made manifest to court and jury. Impostors, therefore, are less likely to enter suit when they know that it will be contested by the railroad company and the actual state of the case brought out in testimony.

In many cases, settlements are declined and consequently a defense must be made by the railway corporations, or the treasuries might at once be opened unrestrictedly to all applicants; in view of the possibility of a settlement being refused, it is important for the railways to secure, not only an examination of the injured person soon after the accident, but also an examination before the trial; such evidence may reduce a verdict, or even obtain one for the defendant. Juries, however, usually sympathize with the plaintiff and can hardly be said to carefully weigh the evidence when their sympathies are aroused by the plea of mental and physical suffering or by the sight of bodily injury or deformity which is always made as prominent as possible. A common method, it is said, of arriving at the proper amount of damages, is for each jurymen to name his idea of the proper sum to be awarded, and these sums to be added together and divided by twelve to get the result. In some instances it would seem that the last step (of dividing by twelve) had been omitted.

Occasionally the gallantry of a jury is not appealed to in vain; in a recent case, a husband was killed upon a track where it was shown he had no right to be. Although it was agreed that the widow had no claim, a sentimental appeal was made simply for the widow to the jury, who gave her a verdict of \$1,200. The foreman of the jury was subsequently asked how it was that such a small sum was given, and that the widow had any claim at all, the verdict was increased at least \$50,000. He replied that it was because he felt that the widow could get along at \$1,200 a year, and then, as she was so young, it was probable that she would be married some one to look after her.

Such a verdict is a commentary upon human nature, and extends an additional cord to the prompt settlement—it is commonly

noticed that no matter how long the plaintiff has been a helpless invalid while the claim was pending, as soon as the settlement is made and the money paid over, he improves in health to a marked and sometimes miraculous degree.

Out of the many cases I have selected the following, which are sufficient to illustrate the points which I wish especially to submit for discussion and which may be taken as representative of the entire class.

In the suit brought by the driver of the coach in which said Smith was injured, he got a verdict of \$6,000. We got a new trial and paid \$1,000 in settlement. He claimed injury to spine. I afterwards saw him running across Independence Square as swiftly as a deer and as straight as an Indian.

Several of the cases (4, 5 and 7) reported occurred in the service of the Pennsylvania Railroad Company, and in these the examinations were made conjointly and the opinions formulated with my associate, Prof. William S. Forbes of Philadelphia:

Case 1.—Conspiracy to recover damages from the Philadelphia Traction Railway Company for injuries self-inflicted.

Henry S., a young man, was standing on the platform of a Philadelphia traction car and was thrown off while rounding a curve at 6:30 in the afternoon of May 16, 1890. The lad was picked up, found to be considerably injured, and was taken to the Jefferson College Hospital, where it was found that he had sustained a fracture of the left humerus.

The reports of the conductor and passengers showed that the lad was told to take a proper position, and to be on his guard at the rounding of the curve; and that there was nothing to cause him to be thrown off, as the car was about stopping. This led to suspicion and an investigation, and the following was discovered:

Harris P., and Passa P., his son, aged 16 years, and Henry S., his son-in-law, met and adopted a plan to swindle the railway corporation and concluded that one must be injured by an accident due to jerking of the car. After some argument the lot fell to the son-in-law, Henry S., to fall off the car on the date mentioned. Henry S. got on the car, stood on the back platform, and as it rounded the curve (the place agreed upon) he placed his back towards the sidewalk and deliberately stepping backwards, rolled off. It was also discovered that the plaintiff had secured witnesses to observe the accident; the jealousy and cupidity of these persons divulged these facts on account of the large sum of money the plaintiff expected to receive.

It was also found that Passa P., the son of the originator of the conspiracy, was present at the scene of the accident, awaiting its occurrence, and reached the hospital before the injured man arrived. This led to the arrest, trial, conviction and imprisonment of the three conspirators.

It was subsequently learned that Harris P., the father, had been convicted of similar crimes in Russia, and that the three had swindled other corporations in Philadelphia.

Case 2.—Conspiracy to defraud the Traction Railway Company.

The trial of the action in this case was brought by Nicola Flore against the Philadelphia Traction Railway Company to recover damages for personal injuries received, which injuries, it was alleged, were of a permanent character; a lateral curvature of the spine having resulted, and necessitated the wearing of a plaster jacket by Flore.

The defense was that the claim was fraudulent and a conspiracy to defraud the company.

Dr. Wm. Pepper, Dr. Thomas G. Morton and Dr. Horatio C. Wood were called by the defense, and taking Flore from the court-room into an ante room, they made a physical examination of his condition, first cutting from him the plaster jacket which he wore. At the end of the examination they came back into the court-room and testified that they found a congenital shortening of one leg, a scar from a wound on the back near the left shoulder, and that with these exceptions there was nothing the matter with the man at all.

They further testified that while making the examination they subjected him to certain tests, as to the location of pain, etc., and found from his answers that he was feigning. As to the plaster cast jacket, they said that, while in some

instances, such an appliance might be of use, there was no necessity for the use of it in this case not the slightest particle of necessity for the use of it.

On behalf of Flore, a counter-conspiracy on the part of the Traction Company was alleged. The counsel for the plaintiff in arguing the case for Flore to the jury, asked them to give his client special damages; while the counsel for the defendant, on behalf of the Traction Company, suggested that the jury should give Flore nominal damages of damages originally laid, or believing him to be a fraud, should give him nothing.

The court, after defining the law, said: "It is charged here that this case has been manufactured; that the injury has been greatly exaggerated; that the plaintiff, with the assistance of others, has attempted to deceive you and to pretend that that which was really but a trifling hurt, was in reality a permanent injury, affecting him for life. If you believe that, of course your verdict ought to be for the defendant, because a man who will grossly and deliberately falsify his oath and swear falsely to you intentionally, ought to be dishonored entirely, and he is getting off very well if he goes out of court with the verdict against him. It is a case for your common sense; apply it to it."

The jury, after a deliberation of about ten minutes, rendered a verdict for the Traction Company.

Case 4.—Trifling or simulated injury greatly exaggerated. Erichsen's railway spine claimed to have resulted.

Arbitration unanimously awarded a verdict for the defendant; appeal and trial before jury, who with exactly the same evidence gave a verdict for the plaintiff; an appeal to the Supreme Court and a new trial; amicable settlement effected.

Mr. A., a resident of Pennsylvania, stated that about 10 a.m. in May, 1891, while seated in a car looking out of a window, when his body was partly turned, a sudden coupling of the cars jerked him backwards, twisting or spraining his spine. He immediately rose in his place and exclaimed, "My God, my back!" At this time he said that he had a pain as though something pierced him, in the small of the back, that his speech stopped to a certain extent, and became very jerky. He continued his journey when the cars started in a couple of minutes or less, and on arriving at his home at noon he changed his clothing, ate his dinner, and in the afternoon went to work as usual. While at work playing, his back hurt him so much that he had to quit work several times. He worked several days before going to a physician, and on doing so received a strengthening plaster which he applied to his back, and continued to work, off and on, until February or March of the next year. In October previous, he had applied at a general hospital for rheumatic pains.

Finally a claim against the railroad was brought for a large amount of money for permanent injuries. Mr. A. testified at the trial that he had suffered pain from the moment of the accident; that he had not the proper strength in his arms; that sleep was interrupted; there were tender spots on his back, etc. The medical testimony offered by Mr. A. showed that his walk was impaired; he had terrible pains in his head; he was nervous and irritable; he had a swelling over the small of the back on one side; the spine was rigid as though it were a piece of solid steel; there were terribly contracted muscles; a peculiarity of speech; a jerking of his voice when attempting to speak; that when he attempts to lift his arms above a right angle with his body, he can not speak at all; that for many weeks he did not recognize any one; that he had been insane; unable to lie in bed, only on the floor; had lost control of bowels and bladder, etc. In answer to a question, his medical attendant stated that he was suffering not only from hysteria, but from Erichsen's disease, or railway spine, and that he had been seriously and permanently injured by the sudden twisting of his back.

An examination of the plaintiff, with Dr. Charles K. Mills, discovered that, although a neurotic, yet he was unquestionably a malingerer of the most pronounced type. He had previously been treated for lumbago, and he had lost much time from his trade as jobbing carpenter on this account. There was no evidence of spinal lesion, or that so-called commotion of the spine had occurred. There were some symptoms which might charitably be ascribed to hysteria; but his jerky speech was purely simulation, and he attempted to deceive while testing his hearing. He was of neurotic ancestry, and some of his relatives had been insane. His general standing in his community was not high. The settlement of the case was left by agreement to arbitrators who, after a very protracted inquiry, taking

every particle of evidence obtainable, gave a verdict for the railroad company. An appeal was taken from the result and the case was tried in court, and the result was exactly the same evidence, and a verdict for the railroad company appeared and was granted a new trial, in which time came, however, a settlement was made for full for \$1500.

Case 5.—Injury to a passenger by a car wheel striking him on the head, resulting in a permanent injury.

W. H. was a passenger in a car when a wheel struck his track and partly turned over by the spreading of a rail. Immediately after the accident he was able to get up and was at home in time to his bed, and on the second day afterwards, he drove in a buggy some ten miles to see a physician. He was afterwards brought for his injuries, and five months after the accident, an examination being allowed, the following report was made:

W. H. stated that he had, at the time of the accident, received a wound of the thumb and an incised wound of the ear; he also stated that a part of the seat of the car was pressed in upon his right groin. His physician, who was present at our examination, stated that there had been a partial fracture of one rib; also that the patient had suffered from hemorrhages from the lungs, with some purulent discharge at such times; that there was incontinence of urine, which necessitated the frequent use of the catheter; that the testicles had been injured; that there was abdominal dropsy, as well as general dropsy of the extremities; and that he was suffering from injuries which not only had seriously compromised life, but that he was also permanently injured.

Upon examination, H. was found to be 46 years of age, a very large man, well developed, weighed perhaps 225 pounds; he was sitting down stairs when we arrived, readily got up out of his chair, and walked without assistance or effort to the second story for our examination.

The incised wound of the ear and the thumb had healed with a slight scar; the joint of the thumb had evidently been opened, for complete ankylosis had resulted. There was no other evidence of injury about him, and on our asking his physician to point out the site of the partial fracture of the rib he was unable to locate the injury, and when he indicated as about the place, the latter was not where any rib existed; in other words, it was to the sternum our attention was called.

There was no effusion into the abdominal cavity, nor was there any swelling or dropsical condition of the limbs. There was no evidence of any lung or heart trouble. In regard to the incontinence of urine, the only appearance which would sustain this was the presence of a wet spot upon the patient's shirt, but the usual indications found in incontinence were absent; in other words, there was no urinous odor about the parts, no soaked appearance of the penis and scrotum, no irritation about these parts incident to the constant presence of urine—the mouth of the urethra was normally dry. With forced inspiration and expiration the testicles were elevated and depressed normally; they were of normal size and properly located, nor was there any evidence of their ever having been injured; no adhesions such as would be present had there been any local inflammation as a result of injury; the scrotum was normal. The patient was apparently very sensitive to the least examination of the testicles, and complained of intense pain with the slightest examination by finger pressure. When the chest and abdomen were examined by percussion which presented no variations from the normal state, the results showed no evidence of variation from health.

Conclusions: The statement that the patient has from time to time more or less severe hemorrhages from the lungs and stomach is not borne out by examination, for it would be impossible for him to have such a condition without more or less disease, which could be ascertained. If he has any such loss of blood, it certainly is from the nasal region and quite innocent in character. The appearance of the discharge he is said to have, and in favor this view, because it is colored, and the associated discharge said to occur is probably nasal and from the nose. In other words, there is no evidence of any pulmonary or cardiac disease, which must be present to variant any other view.

There may have been some bruising of the groin, but if such an injury did take place, there is no evidence of it at this time. The internal abdominal organs are normal, and the fact that the patient and his physician have been in error as regards the dropsy of the abdominal cavity and

the limbs shows conclusively that a great mistake in diagnosis has been made.

There are no symptoms present which indicate any permanent injury of any organ or part—in time he will unquestionably be restored to his usual health, except the ankylosis of the thumb, and some trivial scars; and further the examination warrants the belief that the case is an unmitigated fraud.

The jury rendered a verdict for \$16,000, and the court promptly decided to grant a new trial, or a reduction of the verdict to \$10,000; the latter was accepted, and paid by the company.

A year or so subsequent to the settlement, the wife of the plaintiff voluntarily came to her husband's counsel, who communicated her statement to the counsel for the Pennsylvania railroad company, that her husband received only trifling injuries in the accident; that he worked for a week afterwards at his usual vocation—a butcher, peddling through the streets—and that he then conceived the idea of making a claim against the company; that he had none of the troubles which he swore to having on the trial, and that he did not dare to call her as a witness because she would have sworn that his testimony was untrue. She further stated that he was not impotent, having had sexual relations with her four times during the week the trial was going on, and was also discovered with the housemaid; that he had entire control of bladder and rectum; that the blood he said was expectorated, was brought to him from the butcher; that soon after receiving the payment from the company, he went to Scotland and had not been seen since.

Case 5.—*Lateral spinal curvature, claimed to have resulted from injury, but was demonstrated to be due to asymmetry of the lower limbs.*

Mrs. L., aged 36, claimed that while sitting reading in a car she received a sudden jar induced by the coupling of a car to the rear of the train, by which she was thrown forward, striking her forehead against the frame of the window. No other passenger was injured. When she was examined by a surgeon soon after, no evidence of injury was seen except a slight wound on the forehead. After reaching her home, some hundred miles further on, she was attended by her family physician, who stated that he found her suffering with sick stomach and severe pain extending down the spine to the sacrum. These symptoms continued, the spinal pain subsequently became paroxysmal, and later on a lateral curvature was discovered; the patient, however, was up and about, and gained in flesh. She claimed that either walking or working aggravated the spinal pain; but she considered herself, on account of the spinal curvature, a confirmed invalid.

An examination was made in 1889 for the railroad company by the late Prof. Henry H. Smith, who reported that: "The patient was found in bed, where she says she has remained since the accident; objective symptoms—a slight scar is apparent on the forehead; limbs are full and round, and her weight probably 170 pounds; pulse variable, showing nervous excitement; skin has a healthy color; temperature and reflexes normal; no nerve lesion. Lateral curvature of long standing, possibly has been unknown to patient, physician or friends, but has no connection with the accident;" and the opinion was given that the case was one of hysteria with some neurasthenia.

Subsequently the claim for damages of \$20,000 was supported by affidavits from various parties, among whom were female friends who testified that they had seen her dressed and undressed prior to the accident and that they had never noticed any spinal curvature and that after the accident she walked one-sided, and badly. One affidavit from her pastor stated that she was "a woman of fine character and a member of his church in good standing, and the mother of five small children." A medical man testified in regard to the plaintiff "that he had never heard or seen any spinal trouble, any curvature of the spine; her walk and carriage was always straight, erect, and without trouble, nor did she have any curvature of the spine until the railroad accident."

Some months after this, Dr. Smith sent in another report with his reasons in opposition to the claim that the lateral spinal curvature was the result of the accident, which condition was the principal injury for which damages were claimed. This report acknowledged that a lateral curvature existed but that it certainly developed early in life; that there was no instance on record of such a curvature having developed in a few weeks by an mechanical violence, whether applied through collision of cars or other force; and the creation of lateral curvature by a sudden force applied to a

fully ossified vertebral column is a physical impossibility; numerous surgical authorities were quoted in support of this view. But the presence of the curvature was not satisfactorily accounted for, and suit was pressed.

Dr. Smith died in March, 1890. As the trial was imminent, another examination was requested and allowed. The patient was found to be in a fair condition of health; but the main source of complaint was the curvature of the spine, which it was alleged caused pressure upon the spinal nerves and a general weakness of the extremities, and generally of all the functions.

Mrs. L. was after much persuasion induced to permit a thorough examination of her spine; her back from her head to her heels was exposed. As she stood with her back towards the window, a lateral curvature was at once observed; but at the same time the line of the nates was found oblique, and the gluteo-femoral fold of right side was much lower than on the left side, showing at once that asymmetry of the lower extremities existed, which fully accounted for the curve. The right lower extremity was raised by placing books under the heel so as to equalize the limbs and the right was found to be one and one-quarter inches shorter than the left. With this correction of the asymmetry, the curvature vanished, and not a trace of the deformity could be found.

The plaintiff's medical attendants were then convinced that the curvature was a condition of early life, and had no relation to the accident; yet nervous shock, lost time and wound of forehead were deemed sufficient to claim damages and suit for \$15,000 was pressed.

Just before the trial, a settlement for \$2,500 was effected. The plaintiff, who came walking into the room on crutches and markedly lame to receive a check and sign a release, immediately after this, got up, walked out without the crutches and without any lameness; shortly after this she was married and up to last accounts was in good health.

Case 6.—*Action against the Philadelphia Traction Railway Company for \$100,000 damages for personal injuries.*

On August 26, 1889, at about eight o'clock in the evening, Mrs. M., a married woman, was a passenger as far as the depot in Philadelphia. After safely alighting from the car, she fell on the wooden floor, some five feet away; the conductor assisted her to rise, but she claimed she was unable to walk. A grocery-man near at hand had her taken home in his wagon.

The woman was attended by a physician, who sent word to the company that she had broken several ribs, seriously injured her arms and legs, and as a result of the fall had aborted, and that the fetus was preserved in alcohol.

The medical examiner sent by the company to make a report stated that he saw injuries upon the arms and legs, that she was plastered and bandaged in the usual manner for fractured ribs, and also stated that as the doctor was a reputable physician, he accepted his statement that the ribs were broken.

Subsequently the husband of the woman, and a friend, went to the office of the company and endeavored to secure a settlement for the injuries sustained by Mrs. M., and for expenses incurred.

The company declined to consider any proposition, and suit was brought against them. The severe injuries which it was claimed the woman had received attracted the attention of the legal counsel of the railroad, who, suspecting fraud, directed an investigation, which developed the following remarkable state of affairs:

The woman, Mrs. M., was intimate with the physician; that she had not sustained any injuries whatever, and was not pregnant at the time of her fall in the depot; that the alleged injuries on her arms and legs were specific ulcers; she had been under treatment for constitutional disease and for ulceration at one of the Philadelphia dispensaries some time prior to the accident. That the fetus was obtained by the doctor from a girl of loose morals who lived in the house adjoining the plaintiff; that the doctor had produced an abortion on her when she was about four months pregnant; that another physician stated that he was called upon to stop the girl from bleeding to death after the criminal operation; that this girl was intended to be a witness in the suit for damages to prove the accident, and to state that she was a passenger on the car at the time. That the husband and his friend tried to make arrangements to purchase other witnesses to testify to seeing the accident; that the two women, Mrs. M. and the girl, picked up two men on the street, with whom they had oysters and liquor, and these men were asked to become witnesses, and were promised money for the same.

It was also discovered that Mrs. M. was on the floor playing with puppy dogs immediately after the accident, showing that serious injury of the limbs and broken ribs were most improbable.

Upon this report, the parties were all arrested and tried before Judge D. Newlin Fell in the Court of Quarter Sessions, and after two full days' trial the defendants were all convicted, and were sentenced to fifteen months' imprisonment.

Case 7.—Injury due to negligence of the claimant, followed by hysteria and simulated loss of power. After accepting compensation, confessed to having a carefully taken mummy.

Miss B. stepped from the platform of a car while the latter was in motion, and in getting off faced the rear of the train, and had no recollection of stepping off, but found herself sitting on the ground bewildered. The conductor came to her and said, "Are you hurt? Can you walk? You should not have stepped off backward." Miss B., however, walked to the office of a medical man in the neighborhood, where she remained an hour and a half, was then taken to her home, and was confined to her room for some six weeks. She became insomniac and lost considerable weight. Some weeks after the accident she had a hemorrhage, apparently from the lungs; eight weeks after the injury was walking about, went on a short journey, and after this went about as usual. Damages to a large amount were claimed.

On examination, Miss B., who was thirty-eight (38) years of age, not usually emotional, but nervous and spare frame, complained that she was unable even to do any light work, and that her health had been broken up. Careful inquiry failed to detect any malady or any result of the accident; but she continually referred to compensation, and the effort was obviously made to make out the case as serious as possible.

Miss B. may have been somewhat contused and shocked, and subsequently became unmoved, hysterical and prostrated. That great exaggeration of her symptoms existed, was demonstrated when she was asked to lift one foot and then the other upon a chair; this she appeared unable to do, indeed affected not to have the power to accomplish the act. Since it had been shown previously that there was no loss of muscular power, the effort to deceive was very apparent.

There was no evidence of permanent injury; her nervousness was aggravated by too much sympathy by her friends of the church, who constantly condoled with her.

Soon after this the case was settled for one thousand dollars (\$1,000).

Some months later a lady called upon me, and seemed surprised that I could not recognize her; she then said, "Do you not remember Miss B.?" and then remarked, "I have felt as if I must see you and say that I ought never to have taken one penny from the railroad company; it was not right." And as suddenly she left.

These cases are not detailed with any idea that the presentation of the facts will make any difference in future trials of railway cases, or that verdicts will in any wise be different; yet it is well, perhaps, to place the histories of such cases before one another, so that we may be on guard in examinations, especially of persons who claim to have been damaged in railway accidents, whom we, from our observation, are led to believe are attempting deception.

AURAL VERTIGO (MENIERE'S DISEASE.)

Read in the Section of Neurology and Medical Jurisprudence, at the Forty-fourth Annual Meeting of the American Medical Association.

BY L. HARRISON METTLER, A.M., M.D.

CHICAGO, ILL.

The classical experiments of Flourens, in which destruction of the semicircular canals resulted in unstable equilibrium, were so brilliant and apparently so conclusive that it seemed very proper to attribute the vertigo in so-called Meniere's disease to the hemorrhagic obstruction and consequent interference with the normal function of these same organs. Medical literature abounds with cases where-

in a sudden attack of vertigo associated with loss of hearing was diagnosed as hemorrhage into the labyrinth, without further investigation into the correctness of the inference. I have never felt convinced that such an explanation was the true one for the majority of these cases. In the first place, vertigo is a mental phenomenon of far too complicated a character to presuppose so simple an origin. In the second place, it is not positively proved that the semicircular canals preside over the maintenance of general equilibrium, for experiments have been made which indicate that they subserve in some way the purpose of hearing rather than that suggested by Flourens. In the third place, neither physiological experiment nor pathological observation are sufficiently abundant to show that the canals alone are responsible for the vertigo. Other intracranial structures have, in the majority of cases, been injured along with the canals. And finally, the absence of any positive postmortem examination showing involvement of the canals only, forbids all dogmatic assertions in regard to them being the source of the vertigo in Meniere's disease.

I will briefly consider each of these arguments and analyze a few reported cases; but before doing so I will refer to two cases that have fallen under my own observation, both of which presented the typical picture of Meniere's disease, but in which the cause of the vertigo could be easily explained otherwise than as a hemorrhage into the semicircular canals. The details of my first case will be found in the *Journal of Nervous and Mental Diseases* for January, 1891, page 19.

E. M., a German woman, 45 years of age, having a good family history, had been subject to attacks of malaria, rheumatism, asthma and dyspepsia. The pulse was rapid, irregular and tumultuous, while the sounds of the heart indicated marked insufficiency of the mitral valve, the result of an old endocarditis. Being a hearty eater, the patient retired one evening in March, 1890, after indulging in a full meal, and was suddenly awakened about two hours later with a horrible nausea and distress in the stomach. There was intolerable vertigo, violent vomiting and severe frontal headache. The vomiting continued in the morning and the dizziness became so great that standing upon the feet was absolutely impossible. The vertigo was both subjective and objective, for she beheld objects swimming about the room while at the same time she felt herself whirling about like a top. It was in the morning that she first noticed the loss of hearing in the left ear. The deafness was complete, but there was marked tinnitus, which the patient described as a "pounding on metal," alternating with a peculiar noise like "a group of birds in the grass." I could discover nothing abnormal with the ears externally. After treatment some time with the iodid of potash, the patient improved, and consented to have her ears examined by Dr. Chas. S. Turnbull. The Doctor wrote me his opinion, which will be found with the more detailed report of the case in the journal cited. The general condition of my patient, the suddenness of the attack, the unilateral character of the affection, the limited nature of the symptoms, the gradual and permanent amelioration of the vertigo, the total loss of hearing and the absence of more positive bulbar and aural signs inclined me to regard the lesion as that of an embolus in the auditory artery.

My other case I saw about a year ago. The woman was about forty years of age, with a good family history, and with the full phlegmatic type of constitution. There was no apparent cause for the trouble, as there were no symptoms of any special disease as in the former case. She was married, but childless. She retired one night seemingly perfectly well, and awoke suddenly after a few hours with a roaring sound in the head, accompanied by intense nausea and dizziness. In the morning she found herself totally deaf in both ears. An examination of the ears revealed nothing abnormal externally. Various lines of treatment proved inefficacious, and though the vertigo soon vanished and the patient regained the best of health, there was still no indication of the slightest return of the hearing. In both of these cases Charcot's treatment with large doses of quinin proved entirely futile.

The mental phenomenon known as vertigo, reveals upon close study, a far more complicated nature than a mere disarrangement of the function of any one organ, such as the semicircular canals. The study of vertigo alone is one of the most intricate in medicine, and though we are quite familiar with its subjective and objective manifestations its immediate cause remains yet a profound mystery. The maintenance of equilibrium can not be satisfactorily assigned to any single center, though its disturbance may easily depend upon a number of distant reflex disturbances. There is a multiplicity of impressions constantly pouring in upon the brain through the various avenues of sensation which must necessarily keep the mind in a state of extreme tension, so that the slightest exaggeration one way or the other will result in mental confusion and more or less vertigo. We learn instinctively how to control and marshal these ever passing sensations before the mind, but if for a time they become too frequent, rapid or sudden, the controlling force of the intellect is weakened and we are confused and overcome by them. Everybody knows how quickly vertigo is established by rapidly revolving mirrors, peculiar whirling sounds, electrical sensations upon the skin and such distant irritative conditions as dyspepsia and constipation. Physiological psychologists are agreed now that our knowledge of the relationship of things, as well as of space and its dimensions, is the result of experience gained from the use of our muscles. The infant learns these dimensions by the frequent application of its hands to the objects which it sees; and the sight, which is the only other sense that reveals to us an extended object, and that never shows us more than two dimensions at one and the same time, does so entirely through the "muscular sense" exercised in the use of the muscles of the eyeball. Now when we study the nature of equilibrium we discover that it is dependent upon a normal consciousness of the proper relationship of things outside of the centers of consciousness. It is not purely psychic as some have imagined. There is the sensation of a motor process in it. Dr. Hughlings Jackson has long insisted upon the importance of this fact, while Dr. Reynolds wrote as long ago as 1854 that "the feeling of equilibrium results from the harmony of our different sensations among themselves and with the motor impulse which is their combined effect. When any one group of the sensorial impressions is distorted or removed, the balance is disturbed and as these impressions are themselves the stimuli of

muscular action, attempts are made for its restoration . . . producing vertiginous or allied movements." The principal factors in the preservation of equilibrium are therefore consciousness and normal sense impressions. A vertiginous impression reflected through consciousness may end in a complete or incomplete motor act. In the latter case there is merely a residual disturbance of past impressions without a fulfillment of the present impulse in complete motion, while in the former the patient is uncontrollably moved in one direction or another.

If the views of Spitzka and Starr in regard to the sensory paths in the medulla be correct, they bear strongly in favor of this sensory motor theory of vertigo. Thus Spitzka concludes that impressions from the cochlea reach the cortical centers in the superior temporal gyrus by way of the posterior division of the eighth pair of nerves, the trapezium of the same size, part of the lemniscus, posterior pair of the corpora quadrigemina, external geniculate body and the corona. According to some late observations of Starr which prove the correctness of the views of Flechsig and Von Monakow, the lemniscus tract is associated with the so-called "muscular sense" and is chiefly distributed to the inferior quadrigeminal body. Some physiologists think that it is even continued up as far as the corona. It is believed that this tract is associated with the sense of sight, as well as with the coördination of movements. Flourens found that injuries to the corpora quadrigemina of one side caused "forced movements," and that their complete removal resulted in incoördination of movement, yet we have no knowledge of any connection between these bodies and the cerebellum, though it is barely possible such a connection does exist. At all events the point which I desire to insist upon is the close relationship of all these tracts for sight, hearing and the "muscular sense" in the corpora quadrigemina and their more distinct termination in the cerebral cortex than in the cerebellum. If vertigo were a kind of encephalic ataxia, and due simply to disturbed coördination, it might readily be attributed to the cerebellum and then the *probable* connection of this part of the brain with the organs of sight, hearing and muscular sensibility would easily explain the vertiginous sensations in disease of any of these peripheral end-organs. While the function of the cerebellum may be that of coördination and the maintenance of "continuous tonic muscular contractions" and while as Spitzka tersely remarks, it may be the center where "impressions of touch and position are associated with those of time and space," I find no authority for assuming that it is in any way the center for the institution of movements or the maintenance of these movements in a regular, methodical manner, which, to my mind, is the underlying phenomenon, objectively or subjectively, of true vertigo. Vertigo is something more than simple incoördination, though incoördination may enter as one of its principal elements. In vertigo there is a disturbance, not merely of the reflex functions but of the higher powers as well. The motor and sensory phenomena of vertigo, in typical cases at least, are not mere sequences of abnormal motor and sensory impulses, but they are the impulses themselves. The distinction which I am endeavoring to make is the same as that between the ataxic movements of

posterior spinal sclerosis and the spontaneous movements of chorea. In the one case there is the retention of power, but the loss of coordination; in the other there is loss of power with or without coordination. Simple incoordination manifests itself in irregular unmethodical movements and thus shows that it is due to an affection of some subordinate regulating center of the brain; true vertigo, like chorea, manifests itself in regular methodical objective movements and thus reveals disease of a higher independent center.

It is a significant fact, when considered in this connection, that the vertigo which is so characteristic of cerebellar disease and which is identical with the vertigo of Meniere's disease, is caused only by lesions in the middle lobe or that part of the cerebellum which is most liable to involve the sensory-motor tract of the medulla; and furthermore, that lesions of the lateral lobes not pressing upon or involving the middle lobe do not give rise to any known symptoms. And it is still more significant that vertigo is not pathognomonic of cerebellar disease, for it may be caused by lesions in other parts of the brain as well. Even in its coordinating function, it is more than probable that the cerebellum, instead of sending out direct coordinating impulses to the muscles, merely coordinates the impulses sent down from the cerebral centers above. Indeed, as Ranney has said, "it is a curious fact that most of the effects of cerebellar lesions are attributable, to a greater or less extent, to irritation of the crura."

According to Goltz, Serres, Cayrade and others, the function of equilibrium is profoundly affected by destruction of the corpora quadrigemina. The experiments of Ferrier upon monkeys, fishes and rabbits, and of McKendrick upon pigeons, revealed the same effects. The corpora striata have also been shown by physiological experiment to preside over the maintenance of equilibrium, especially after the removal of the hemispheres. Every indication points to the fact, then, that we must look for the center of equilibration not in one particular part of the brain, but in the harmonious action of the various sensory and motor centers one upon another.

Now for the application of all this. One of the most common peripheral disturbances of this sensory-motor equilibrium is disease of the ear. Becker has said that "the ear is the most intellectual of all the organs," and in regard to its effect upon the mind, both in health and in disease, it is indeed second in importance only to the eye. Without stopping to consider the many causes of vertigo in connection with the external and middle ear, I will at once consider the question of labyrinthine vertigo. It is pretty generally considered now that only the semicircular canals are affected in *true* Meniere's disease. At least that is what Meniere himself seems to have believed. His second and fourth propositions are that certain functional troubles, having their seat in the *internal auditory apparatus*, may give rise to cerebral symptoms such as intense vertigo, uncertainty of gait, turning to the right or left and falling, all of which may be attended with nausea, vomiting and syncope, and that all this tends to confirm the belief that the lesion which is the cause of these functional troubles is in the semicircular canals. In his original paper he described ten cases, in only one of which was there an autopsy. This case, the tenth of the series, had no disease of the nervous

centers, but the semicircular canals were filled with a "reddish-plastic material." It was on the strength of this single observation that he declared the canal to be the cause of the cerebral symptoms. Aside from the unscientific character of such a hasty generalization, this one case, as Bremner points out, will hardly explain those in which the cerebral symptoms come and disappear rapidly. And if the hemorrhage into the semicircular canals were the cause of the trouble here and in the majority of the apoplectic cases, as Knapp argues, it remains to be shown why the hemorrhage should be bilateral, since the aural symptoms are so frequently bilateral.

Ever since the first announcement of this affection there has been much confusion in regard to it. Disease in any part of the internal ear, and even of the middle ear, has been called Meniere's disease, though, as we have seen, Meniere himself was careful to restrict the lesion, in its apoplectic form at least, to the semicircular canals. Knapp, whose paper upon the subject is second only to that of Meniere himself includes all affections of the entire internal ear, irrespective of their causes, under the name of Meniere's disease. I have examined his cases and fail to see why he should insist so positively upon the inner ear as the source of the vertigo and other cerebral symptoms. In his third case, which he is careful to specify as a fair example of Meniere's disease, one of the most prominent symptoms was diminution of the sight—a condition which remained after many of the other symptoms had vanished. After discussing in full, Voltolini's famous case in which an autopsy revealed an extensive leptomeningitis with pus at the base of the brain, in the pons, medulla and cerebellum, and some hemorrhage into the labyrinth of the ear, he makes the sweeping generalization that "the changes in the nervous apparatus of the labyrinth consequent on the hemorrhage must have been such as to destroy the hearing function forever." Thus he totally ignores the possibility, and in Voltolini's case the extreme probability, of the central injury being the cause of the deafness as well as of the vertigo and other symptoms. In Politzer's case, with autopsy, there was a fissure of traumatic origin at the base of the occipital bone which probably was the cause of the meningitis of which the patient died. Pain at the base of the brain was here a marked symptom. Both Politzer and Lucæ report cases in which the semicircular canals were absent or filled with blood, and yet the patients did not suffer from any disturbance of equilibrium. In the *Lancet* of May 16, 1891, Ferrier reports the case of a man 36 years of age who was stricken with total deafness in both ears after experiencing a sound like an explosion in the head. The ear appeared to be normal, and the diagnosis was hemorrhagic effusion into the labyrinth without cerebral involvement. And yet there seems to have been no pronounced vertigo. In most of the reported cases of Meniere's disease that I have seen, while there was a possibility of the ear trouble being the origin of the special symptom group, there was an equal possibility, and in very many of the cases a strong probability, that the more prominent symptoms were due to a central or medullary lesion, and that the aural symptoms were merely a coincident member of the group.

Gowers, who is one of the strongest advocates of the labyrinthine origin of vertigo, adduces five argu-

ments in favor of his position. His first is based upon the number of cases reported by Meniere and others. I have already shown how inadequate are the proofs from this source. His second is, that irritation rather than mere loss of function in the nerve is proved by the disease being attended with severe vertigo, which may cease when the progress of the disease has produced complete deafness. There is usually so little correspondence between the severity of the vertigo and the amount of the deafness, as Gowers himself remarks elsewhere, that this argument fails.

His third is, that in the majority of the cases of definite vertigo, the slight or considerable tinnitus that is present is evidence of a process of irritation of the fibers of the nerve. That is true, but the argument is no proof of the source of the irritation being within the semicircular canals or labyrinth. Tinnitus is not an unusual symptom of certain extralabyrinthine lesions. His fourth argument is, that slight loss of hearing, tinnitus and vertigo may be observed not only to come on together but to pass away together. I fail to see that this proves anything more about the labyrinthine origin of the vertigo than does the previous argument. Lastly, he asserts that "the frequency with which symptoms of labyrinthine disease are found in cases of vertigo is itself a fact of very great significance. Of 106 consecutive cases in which definite vertigo made the patient seek advice, in no less than ninety-four, ear symptoms were present, tinnitus or deafness, or more often both."

The figures are undoubtedly significant in proving the frequent association of vertigo with auditory symptoms, but they are scarcely commendable as an argument of the labyrinthine origin of the vertiginous sensation. It seems to me, therefore, that these propositions, which I have presented almost in the author's own words, do not make out a very strong case in favor of the labyrinthine origin of the vertigo; certainly not sufficiently so to warrant the large percentage of cases of vertigo which this writer attributes to diseases of the internal ear.

It seems to me, furthermore, that he is almost self-contradictory upon this subject. He lays stress in aural vertigo upon the coincidence of the auditory symptoms with the vertigo, and shows that this is due to the continuity of structure in the cochlea and semicircular canals. He says, "it is conceivable that labyrinthine vertigo may occur without any auditory symptoms. I have actually seen two or three cases in which definite giddiness existed alone and in which auditory symptoms came on later." Then when I turn to his account of gastric vertigo, I find this: "I do not think it is quite certain that there is such a thing as definite vertigo of purely gastric origin. . . . We know that in 95 per cent. of the cases of definite giddiness a morbid state of the labyrinth is the real cause of the vertigo." This leads us to infer, then, that in 95 per cent. of the cases of vertigo there are distinct auditory symptoms. Few general practitioners will be prepared to admit so sweeping an assertion. Would the author have us believe that in the vertigo of seasickness, which is now pretty generally attributed to the disturbance of the visual reflex, there is also a morbid state of the labyrinth? If so, his dictum in regard to the ever-present auditory symptoms does not hold good here.

After admitting the implication of the semicircu-

lar canals in aural vertigo, it still remains a difficult matter to explain the vertiginous symptoms and loss of hearing upon this hypothesis in all cases. The first case which I have reported might easily have been regarded as one of Meniere's disease, and yet there is no reason to suppose that the vertigo and deafness were due to disease of the semicircular canals. I believe that the function of these canals in the maintenance of equilibrium has been much over-estimated, certainly too positively inferred in view of the slight physiological and pathological data which we have as yet for such an inference. Simple puncture of the auditory nerve in rabbits gives rise to rotary movements on the part of the animal, and it is a well-known fact that injection of water into the external ear, as well as inflammation of the middle ear, causes vertiginous sensations. In these cases there is present the sensory-motor disturbance, but can we suppose that in all of them the semicircular canals are so grossly affected as to be the only immediate cause of the vertigo?

Both Steiner and Sewall carefully removed the semicircular canals from the shark, whose auditory apparatus is practically identical with man's, without obtaining any disturbance of movement. The former experimenter believes that the loss of equilibrium results from lesions of the brain or its membrane, causing alterations of pressure, for he has again and again destroyed the canals in sharks, frogs and lizards without injuring the brain, and discovered no disturbance in the power of equilibration. After careful investigation Böttcher and Baginsky have come to the conclusion that the cause of the rotation of the head in Flourens' and Goltz's experiments was the injury done to the brain, and not merely to the semicircular canals. Böttcher marks the fact that the auditory nerve is not bound down at any point between the brain and the labyrinth, and that if one is careful not to pull upon this nerve the vertiginous sensations are not awakened by the injury of the semicircular canals. The slightest traction upon the auditory nerve injures its attachment at the medulla, and so gives rise to the symptoms described by Flourens, Cyon, and Goltz. In the experiments of Böttcher the head, furthermore, did not always rotate in accordance with the particular canal injured, as Goltz had formulated. The identity of these canals with the cochlea in the embryo, their continuity with the epicerebral space through the aqueductus vestibuli, and their ever-shifting relations amongst themselves in the quadruped, which go about sometimes in the horizontal and sometimes in the erect position, argue strongly against the special function of these canals being the maintenance of equilibrium. In the discussion of my paper upon the same subject before the Philadelphia Neurological Society, Nov. 24, 1890, Dr. Dercum reported some observations he had made of the comparative anatomy of the labyrinth for the purpose of securing new light, if possible, upon the function of the semicircular canals. He said: "They bear a distinct relation to the lateral line organs of fishes, the nerve hills of the latter being identical in structure with the macula acoustica. Just as the inclosure of these nerve hills in tubes seems to have for its object the gaining of distinctness and definiteness of impression, so the inclosure of the macula within the semicircular canals seems to have the same object. It is significant that each macula is

situated at the end of a canal, and this suggests that the canal is a kind of conduit to carry off vibrations after they have made their impression on the utricle; and further, that if interference of vibration occurs, it occurs at a point *distal* to the utricle. Confusion of sound is thus avoided. The inference from physiological experiment that these structures have for their special object the maintenance of equilibrium, has always seemed to me open to a serious objection." It is a well-known fact that many fishes have a utricle and three semicircular canals, while some have only one and two canals. Amongst the lowest vertebrates the lamprey has a sacculus with auditory hairs and otoliths in communication with two semicircular canals, while the maxine or hag has only one canal. Doubtless there are important sensory impulses of a special character which pass through these organs, but equilibration, due as we have seen to the fusion of a vast complex mass of sensations pouring in upon the brain from all sides, can not possibly be the result of merely a single set of impulses from such an end-organ as the semicircular canals. The very nature of vertigo involves the idea of more or less loss of consciousness, and this alone would seem to indicate a higher cause for the trouble than simply these canals.

If it be granted that the pathological cause of this vertigo is to be found in the semicircular canals, it is hard to understand how in all cases the cochlea or the cochlea branch of the auditory nerve should necessarily be affected. In Flourens' experiment, the entire removal of the canals did not impair the hearing. So striking was this fact, that Flourens as well as others was led to believe that the branch of the auditory nerve which supplies the semicircular canals subserves motor purposes only. On the other hand, if Gelle's experiments are to be trusted, the cochlea is in no way the source of vertiginous impressions. Simple continuity of structure will not account for the loss of hearing when the lesion is a hemorrhage into the canals, and pressure alone will not answer as a cause in all cases of so-called Meniere's disease. In the first place, there is no regular correspondence between the amount of deafness and the intensity of the vertigo; secondly, with total loss of hearing in Meniere's disease all known methods of diagnosis prove that the nerve itself, and not merely the internal ear, is affected; thirdly, physiological experiment shows that simple pressure does not cause total loss of hearing when no injury is done to the cochlea or cochlea branch of the auditory nerve; and finally, no case has ever been reported in which the cochlea was primarily affected with consequent involvement of the canals and vertigo, though in blood supply and anatomical structure the cochlea and canals are similar. Hence, in Meniere's disease, I conclude that the lesion must concern the whole labyrinth or lie entirely outside of it.

It was Dr. Wilks of England, I think, who held that Meniere's disease was a neurosis of the centers of audition and equilibrium, and in its paroxysmal form at least was much like migraine with its eye complications. While this explanation cannot be adopted for all cases, there is little doubt about the central nature of the disease in many of its aspects. Burnett declared that "the neuropathic diagnosis is well marked in most cases of aural vertigo." The grouping of the symptoms, as well as the proximity

of the tracts of the brain to the centers of equilibrium, indicate a common origin of the symptoms. The disturbance, whatever it is, is a disturbance of the sensory-motor centers of the brain.

Running between the superior and inferior roots of the auditory nerve, at the junction of the posterior division of the inferior root, is the posterior root. According to Spitzka and others, the posterior root transmits sensory impulses, while the anterior root is the path for the efferent impulses that assist in the determination of the equilibrium. Some of the motor fibers of the auditory nerve pass to the ampullae of the semicircular canals, while others are doubtless associated with the anterior root in particular and the peduncle of the cerebellum. Thus the close connection between the nerve of hearing and the sensory-motor tracts in the medulla, as well as the proximity of the auditory and pneumogastric nuclei, account for the frequent association of the symptoms, deafness, vertigo and vomiting. Any disturbance, then, in the course of the auditory tract, such as in the case I have reported, is liable to give rise to Meniere's symptoms. The lesion may assume many forms, but the important point is, that it need not be necessarily limited to the labyrinth. In many of the cases reported the probability is that it was altogether extra-labyrinthine.

In conclusion, I would assert that in Meniere's disease the source of irritation may sometimes be in the semicircular canals, just as sometimes it may be in the eye and in the stomach, but that the immediate cause of the vertigo can not be there for several reasons:

1. If the above explanation of the nature of vertigo be correct, it is a condition dependent upon the inharmonious interaction of the sensory-motor centers of the cortex.

2. If equilibrium depended solely upon the semicircular canals, there could be no rational explanation for the ocular and stomacheal vertigo.

3. If the proximity of the various nuclei within the medulla be a sufficient explanation of the association of the symptoms, vomiting, unconsciousness, vertigo and loss of hearing when the semicircular canals are affected, why, we may justly ask, do we not in stomacheal, lithemic and other vertigos of reflex origin have more frequent and more marked auditory symptoms?

4. Experimental injury to the semicircular canals is not followed by true vertigo, loss of hearing and the other constant symptoms of Meniere's disease.

5. Pathological data do not entirely and satisfactorily support Meniere's hypothesis. His only case with autopsy can easily be explained upon other grounds, and nearly all of the other cases reported by Politzer, Volodini, Knapp and others, and severe cerebral lesions, sufficient to account for the symptoms presented or were unproved by post-mortem examination.

Finally, it is to be noted that of Bezold's carefully collected forty-six cases of neurosis of the labyrinth, only twelve manifested symptoms of vertigo.

Burnett says, "aural vertigo may be termed a reflex cerebral phenomenon from irritation in the auditory apparatus." That may be true as far as it

goes, but, from what I have endeavored to show, aural vertigo may not be aural at all, except only so far as having certain aural symptoms associated with the vertigo; and we are not justified in view of the few physiological and pathological data still at hand, in assigning all cases of vertigo with loss of hearing to an unknown and undemonstrable lesion of the internal ear.

Dr. HENRIE.—I believe that we are approaching a better explanation of the vertigo connected with Meniere's disease as well as vertigo connected with cerebellar diseases. If we adopt the current explanation of labyrinthian vertigo what are we to do with the vertigo from a stomal lesion? What are we to do with vertigo caused by irritation in other peripheral areas and what are we to do in regard to the cerebellar vertigo? Now if you look into the results of therapy in these cases, the history of cerebellar abscess as well as of Meniere's disease in connection with the treatment as it usually suggests itself, you will find that the symptoms of vertigo are very greatly ameliorated and often caused to disappear entirely under judicious treatment to diminish the irritation, of which the author speaks in his paper, which gives us unequal arterial blood supply in all probability. That thing was very forcibly impressed upon me a number of years ago in a case which was reported in a journal of nervous and mental diseases, of cerebral vertigo in which the individual described had the gait characteristic of cerebellar disease, had the vertigo characteristic of that disease and was disposed to walk in a circle after the manner of birds experimented on by Flourens, when he first promulgated the doctrine and gave us the clue to the characteristic symptomatology, or what we supposed to be the characteristic diagnostic symptomatology of cerebellar disease. The first case in which I observed this and the beneficial results of treatment, keeping the portal circulation constantly depleted, the bowels active without fail each day, and putting the patient under bromids, and strychnia, resulted very satisfactorily, the patient was enabled to go about the streets of St. Louis unaccompanied and presented the appearance of a person who was recovered; so much so that his wife believed him recovered, and yet the man actually died suddenly of a rupture into the fourth ventricle, the cerebellar abscess having found its way thither. The case is on record and well known. The first case that called my attention to the fact that it was possible to ameliorate and obliterate the distinctive vertigo of cerebellar disease was this, and yet the cerebellar disease persists and the same has been found true in my experience in regard to labyrinthian vertigo, and I believe that clinical observation confirms the suggestions made by the author in his paper.

ADDITIONAL EXPERIENCES IN THE HYPODERMIC USE OF ARSENIC.

Read before the Section of Neurology and Medical Jurisprudence, at the Forty-fourth Annual Meeting of the American Medical Association.

BY HAROLD N. MOYER, M.D.

Adjunct Professor of Medicine, Rush Medical College; Fellow of the College of American Physicians.

In a former communication¹ we called attention to the value of the hypodermic method of giving arsenic and reported some eight cases all told in which it was employed. Since that time a large additional experience with the method has but confirmed our previous good opinion. The last now

includes twenty-eight cases of chorea, three of paralysis agitans and eight cases of neurasthenia.

The hypodermic use of Fowler's solution has been recommended by numerous writers. Hammond² claimed that the dose which could be administered in this way was much greater than could be safely administered by the mouth. He says:

"I have frequently given as high as 35 drops of Fowler's solution as an initial dose. It is very certain that the stomach would not tolerate this quantity. Again, I have often carried the amount given by the mouth to the utmost bounds of prudence—till the eyes were puffed and vomiting almost incessant—and then have continued the arsenic in larger doses, by hypodermic injections, with the result of the cessation of all gastric symptoms and the cure of the disorder."

Dr. Frühwald treated twenty-two cases of chorea minor by this method. He says that redness of the skin at the site of the punctures was common, and two or three abscesses formed. The dose was from 5 to 20 drops, and after the use of thymol and deeper injections no further trouble was observed.

Grunnack³ treated one hundred cases of goitre with hypodermic injections of Fowler's solution, 1 part to 4 of water.

Dumont⁴ treated twenty-six cases of goitre with injections of 10 minims of Fowler's solution.

It has been noted by former experimenters who have employed arsenic hypodermically that there was a decided tendency toward the development of abscess as well as painful cutaneous inflammation. These writers have invariably employed Fowler's solution and its irritating effects were attributed by some to a septic condition of the solution and by others to the spirits of lavender used to color it. Prof. W. S. Haines suggested that the irritating properties of Fowler's solution when injected into the cellular tissue was probably due to the free arsenious acid usually contained in the preparation as found in the shops, and that these might be obviated by using the arseniate of sodium, a stable salt, readily soluble and of definite composition. Dr. Haines recommends that the pure anhydrous salt be used; as ordinarily found in the shops it may contain from four to twelve molecules of water of crystallization. If this be driven off by heating to 300 degrees the resulting salt has a definite composition with the formula $\text{Na}_2\text{H}_2\text{AsO}_4$; a 1 to 100 solution of this salt contains 53 per cent. of the arsenic found in Fowler's solution, so, approximately, the dose of such solution should be about twice that of the liquor potassii arsenitis.

Arsenic is one of the peculiar and exceptional remedies that is much less poisonous when exhibited beneath the skin than when given by the mouth. The reason for this is shown by the fact that arsenic like several metallic poisons focuses itself largely about the upper end of the small intestine, stomach and liver, and toxic symptoms even if the arsenic is given in large doses under the skin will not appear largely in those organs. Thrown into the cellular tissue it is at once absorbed into the general circulation and is distributed to all parts of the system, while if given by the mouth it may make the rounds of the portal circulation several times before entering the general circulation. It is this peculiar fact that makes arsenic

¹ Nervous Diseases.

² Jahrbücher für Kinderheilkunde, 1887.

³ Schmidt's Jahrbücher, xxx. p. 196.

⁴ Carr. Bl. für Sch. Ärzte.

treatment. I think in a large majority of cases that time alone will effect a cure; I will not say despite the arsenic, but I will say that time and rest are the essential remedies, and those remedies which conduce to rest of the central nervous system are the important factors; that is why we get cures from chloral given every night and in the daytime as some of our German friends do. That is why you get it from giving the child a vacation, taking it away from school, giving it a change of scene. One of my patients was cured within the last six weeks on a very simple prescription. The child took a vacation and went off to Texas and got well by traveling.

THE CHAIRMAN—I would call attention to the fact that the principal point of this discussion is the hypodermic use of the arsenate of sodium.

DR. FRANK R. FRY, of St. Louis—I think the doctor has fully demonstrated the advantage of his method. I have used the arsenic hypodermically, though I have never used Fowler's solution in that way, but a solution of equivalent strength made aseptically, and I have had a great deal of irritation from it, though I have never had an abscess, but so much irritation that I have abandoned it long ago in the majority of cases, only occasionally employing it when the stomach was absolutely intolerant; and therefore I can corroborate the statement that the doctor has made that it is not the aseptic properties nor the irritating properties of the lavender water or spirits of lavender in the solution that make it irritating, but the salt itself. Furthermore, in having these solutions prepared I was always careful to get a chemically pure salt.

DR. ELMORE S. PETTYJOHN—These cases are usually found in young persons, and there might be a great deal to overcome in giving these injections. How does the doctor manage that matter to the satisfaction of his youngest patients?

DR. MOYER—I regret, since the discussion has taken the range that it has, that I have not here to present to you some of my clinical histories. I did not at first desire to burden this Association with an account of a lot of choreic patients. I conceive that we all see a vast number of them; but I will say to the gentleman who first made some inquiry that I have treated inveterate chorea and the recurrent chorea and chorea in its chronic forms, and I have treated acute chorea in fact all varieties by this method. Of course the value of any therapeutic measure depends upon the experience of the man that proposes the method, and I can not bring you anything to support it more than my individual assertion. I have treated 500 cases with arsenic given by the mouth and 28 by this method, and I am absolutely surprised and amazed at the results that I have obtained. I certainly think that the average duration of treatment has been very much less than six weeks. I do not think that under this method it has averaged over two weeks. I fully agree with Dr. Hughes regarding many things in the treatment of chorea. It is a self-limited disease; it is a disease whose natural tendency is to get well whether you employ treatment or whether you do not; the patient will get well in the great majority of instances, but I contend that in my experience, specific treatment is useful, and of all methods arsenic is by far the most useful and of all the arsenic methods the hypodermic use of the drug is the best. You can get a much larger quantity into the patient's system without any toxic effect, and you produce a very profound impression indeed, and it has not been an infrequent occurrence with me to have the choreic movements lessen or cease entirely within three days. I understand that there are a great many hygienic measures that can be employed in the treatment of chorea in the better class of patients, but the majority of my cases are

out patients in a large dispensary, seven to fifteen years of age, the disease rarely affecting those below the seventh year, and I have been wholly unable to control their diet, and habits of living; many of them are children employed in factories and shops, belonging to the lowest classes in a large city, and it is among this class of patients in which you can do nothing for them except what you do medicinally that I would above all things recommend the trial of the hypodermic use of this drug.

Regarding Dr. Pettyjohn's question, I would say that the patients perhaps object to it—the little ones do—those that are eight or ten do not seem to care very much. The younger ones you simply take by the arm, the mother holds the other hand, and you give them the injection; that is all there is to it. If they cry a little, why let them cry; but as a rule I have not found much difficulty in giving injections, even in quite young children. The slight prick may be objected to at first, but after one or two injections they generally do not care very much about it.

THE FUNCTION OF THE RIGHT TEMPORO-SPHENOIDAL LOBE.

Read before the Section of Neurology and Medical Jurisprudence at the Forty-fourth Annual Meeting of the American Medical Association.

WM. J. HERDMAN, Ph.B., M.D.

ANN ARBOR, MICH.

In an authoritative work on "Diseases of the Nervous System" recently published, the temporal lobe of the brain on the right side in man is spoken of as one of the "latent regions of the brain, destruction of which, and irritation of which, produce no special or distinctive phenomena." Clinical and pathological evidence bearing upon the functions of the temporal lobes is acknowledged to be scanty at present by no less a specialist on this subject than David Ferrier; and the discrepancies in the results of the many experimental researches upon animals conducted by him, Victor Horsley, and other observers of undoubted merit, cause us to welcome any additional light, however meager, that will aid in clearing up the darkness that still surrounds this region of the human brain.

A most novel and interesting case recently came under my observation in consultation, which terminated fatally within five weeks from the beginning, and in which I had the good fortune to obtain an autopsy, that may in some small degree add to existing knowledge as to the part taken in cerebral action by the right temporo-sphenoidal lobe.

Mrs. G. E., a native of Michigan, 45 years of age, spent the greater part of her life on a farm and was always a hard worker. Her constitution and general health had always been good although she was not robust. She has given birth to two children the younger now being 15 years of age. A few years prior to her last illness she consulted an oculist for a slight impairment of vision in the left eye but it never gave her much trouble. She never had rheumatism, gout, syphilis, cancer or any other serious disease or injury, but she has been a sufferer from headaches for many years. Her father died suddenly, presumably of heart disease in some form. Two of her uncles have died of brain trouble and a sister has epilepsy-graviter; two sisters are subject to severe headaches. Her habits and modes of life were always exceptionally good and regular and her hygienic surroundings were always of the best. She was of a lively and sociable disposition, active and efficient in her circle of acquaintance and much employed with church and Sunday school work. About five years ago she changed farm life for village life and has for four years successfully managed the finances of a moderate estate which devolved upon her at the death of her husband.

On April 3, 1893, while about her household duties she felt

dizzy and sick at the stomach, and she stated to her son who came into the house soon after and found her lying on a couch, that she had fainted in the kitchen and after regaining consciousness which could have been absent but a few moments, she had without assistance walked into an adjoining room and laid down on the couch. While talking with him she had what seems to have been a spasmodic seizure and again became unconscious. Her physician was summoned who on arriving within half an hour found her with all muscles relaxed except the inferior recti which seemed to be contracted. The heart's action extremely feeble. Ammonia carbonate was injected hypodermically and effluvia of amyl applied to the nostrils. In about twenty minutes some signs of improvement were noticed in the circulation and at the end of three hours the pupils returned to normal condition. She would then swallow liquids placed in her mouth if requested to do so by speaking loudly close to the ear (right).

There was no motor paralysis attending or following this condition for she freely moved both arms and legs, and there was no disturbance of the facial expression, but the intellect was profoundly clouded.

April 4.—Spent a restless night, respiration moaning and sighing, with an occasional exclamation of "Oh dear," but no satisfactory response could be gotten to the inquiries as to the cause of her distress. Temperature 101, pulse 100.

April 5.—Slight improvement in the intellect but still unable to recognize those about her. Kept carrying her hands to her head and exclaiming "Oh my head," at frequent intervals. The distress in the head seemed to be constant and mainly over the left frontal region. She took nourishment when it was given to her but gave no sign of recognizing the need of it. Very restless, tossing herself about in the bed. Temperature and pulse the same as the day before.

April 6.—Some improvement; answers when spoken to but often irrelevantly. Complains of severe pain in frontal region. Temperature 100, pulse 94.

April 7.—Further return to consciousness; calls friends by name but with some hesitancy. Seemed to have no memory of what had happened and expressed surprise when told she had been sick; said if it were not for her headache she would be quite herself again. Headache constant and frontal; other symptoms remain unchanged.

April 8.—No change; still restless and severe headache.

April 9.—Headache less severe, mental conditions still further improved, more mental activity but attacked by hallucinations; able to recognize friends. Temperature and pulse normal. She was given a dose of castor oil which ordinarily was extremely disagreeable to her and swallowed it without remark. In health the taking of castor oil was a thing she declared she could not do. Afterwards when reference was made to it, she remarked that she must have been very sick if she took castor oil and did not complain of the taste.

April 10 and 11.—Headache less acute and constant; mind clearer; she called to mind events that had occurred and began to take interest in the household duties; still troubled with hallucinations, but they were of a pleasant type and she laughed when relating them.

At this time it was noticed that, although her mind had regained its activity, hearing on the left side was dull and confused; as she expressed it she "heard double."

April 12.—Began to sit up a little; headache not constant. Hallucinations of being away from home, out in company and having a good time.

April 13, 14, and 15.—Very little change except gradual improvement; less aberration of the mind. Sat up a good portion of the day.

April 16.—All pain in the head gone; mind clear and she felt quite like herself; got up and dressed and was about the house all of the day. Much pleased at the visits of her friends. Laughed and joked with them and they could not see but that she was quite well. She took her meals at the table with the family. With the exception that her hearing was imperfect especially upon the left side, and the taste remained blunted, there was at this time no evidence of sensory, of motor or mental disorder.

This marked improvement continued until April 22. She planned to resume her household duties and discharged all attendants and appeared quite like her natural self. No abnormality in mental action or in movements was observed by anybody about her.

April 22.—The attending physician was again summoned; found her complaining of much frontal headache. The temporal arteries were distended, but there was no abnormal

action in the pupillary reflexes, nor was there any confusion of the mind. He was again summoned on the night of the 23d and found her unconscious, respiration slow, pulse feeble, pupils normally dilated. No marked spasm of any muscles. Cardiac and respiratory action soon improved and after a few hours she could be so far aroused as to be induced to take liquids and swallow them.

April 24.—Still comatose but could be aroused somewhat by loud talking. Temperature 101. Pulse 96; respiration 24.

April 25.—Condition unchanged except the coma was not so pronounced. She would often carry her hand to her head exclaiming, "Oh my head."

April 26.—Condition much the same, except at intervals she recognized members of the family about her.

April 27, 28 and 29.—Gradual improvement in the mental conditions, intellect sluggish and unable to fix her mind for any length of time upon any subject. Eyesight normal with the right eye but with the left unable to count fingers at a distance of twelve inches. Complained of much headache and some pain in the base of the brain; took abundant nourishment.

In the afternoon of April 30, the nurse discovered that the left side was paralyzed throughout, the facial muscles and the tongue being involved; she was unable to turn the left eye outward. Involuntary actions of the bowels and bladder.

May 1 and 2.—Remained the same; speech and swallowing imperfect. The patient was left handed.

May 3 and 4.—Improvement in speech and swallowing, and began to get voluntary control of the left arm and leg.

May 5.—Respiration normal; some voluntary control over the action of bowels and bladder regained. Still some disturbance of speech and deglutition and the face remained slightly drawn to the right. The tongue when protruded turned to the right, was red and clean. Vision much improved in left eye and right eye normal. Left eye cannot be turned outward; mental action dull, but able to recognize friends. Thoughts disconnected and disjointed. She was able to sit up in bed for a few moments and to move from one side of the bed to the other.

May 6.—Continued to improve. Took nourishment readily. Strength in right arm and hand increased. She was able to grasp the hand of the nurse quite firmly. Eyes normal in appearance but the left still impaired in action of external rectus. Vision unchanged. The temperature on this and other days after April 30 did not exceed 99.2. Speech was now quite distinct. Mind clear but inactive. Headache which had been light returned with great violence towards evening.

May 7.—Passed a restless night, manifesting more than her usual timidity. Clung closely to the nurse. Had several general convulsions in the morning from 8:30 to 9:30 during which the left eyelids were open and the pupil contracted. The pupil of the right eye was widely dilated, the lids closed. The headache seemed very severe as evidenced by her moaning and carrying her hands to her head after the convulsions ceased. Stupor followed the convulsive seizures and gradually deepened into coma, though consciousness was retained long after she was able to utter a sound. Hearing was not abolished up to within an hour or two of death for she would squeeze the nurse's hand in response to inquiries uttered in a loud tone; but she lay upon the bed in such a manner that she could not be approached only upon the right side, and hearing upon the left side was not tested during the last weeks of her illness.

NECROPSY.

Eighteen hours after death. Skull unusually thick. Dura mater congested and apparently thickened. Superior longitudinal sinus empty; venous congestion of the pia mater; the arteries moderately full. No naked eye appearance of special abnormality about the frontal lobes, although the anterior cerebral arteries seemed somewhat more anemic than others. A clot of dark semi-coagulated blood about two inches in diameter occupied the right middle cornu, and the walls of this cornu were extensively disintegrated and readily gave way. The disintegrated tissue involved the anterior half of the hippocampus, the anterior extremity of the superior temporal and the anterior third of the middle and inferior temporal gyri. The gyrus hippocampus was largely undermined although its surface remained intact. The island of Reil was softened. Blood coagula, more or less firm and recent in formation, filled the lateral ventricles, the third ventricle and the infundibulum, and extended through the aqueduct of Sylvius into the fourth ventricle. No softening or disintegration had taken place

except in the right temporo-sphenoidal lobe. The time being limited other cavities of the body were not explored.

I need scarcely say to you who have been able to follow me in this hurried recount of bedside observations, that the revelations of the autopsy were something of a surprise to me. In the light of the discoveries then made I was compelled to admit to myself that I had, in constructing a theory of causation of the clinical phenomena observed, placed too much stress upon certain prominent symptoms. I saw the patient twice for about half an hour each time. On the first occasion, the suddenness of the onset of the symptoms; the mental confusion; the severity of the headache, which was frontal and left-sided; the impairment of vision of the left eye; the entire lack of motor and sensory abnormalities (for this was at a time when she was beginning to recover from the first attack) impressed me quite forcibly, and I was confident there was an arterial embolus obstructing the left anterior cerebral artery. The subsequent complete clearing up of the mental cloudiness and the subsidence of all other symptoms only confirmed me in this opinion. The only thing that was suggested to my mind that threw doubt upon this conclusion was how to account for the dullness in hearing in the left ear. But in the apparent harmony of the more prominent symptoms in accord with my theory, this did not seriously attract my attention. The perverted or impaired taste was not an observation of my own, but was a fact learned from inquiry of the attendants subsequent to the autopsy. The theory of embolism seeming to account for the symptoms following the first attack, the phenomena attending the second attack, which occurred after twenty days, and when many of the disturbances resulting from the first had subsided, presumably because of some degree of collateral circulation being established, were accounted for on the assumption that a thrombus had formed posterior to the embolus and its backward growth had, in all probability, crossed the anterior communicating artery and suddenly plugged the other anterior cerebral, as at this time, you will observe, there were no spasms, no paralysis, simply an obscuring of mental faculties which again largely cleared up within a few days.

The autopsy revealed that the original attack had been due to a hemorrhage, not very extensive, inferior to and at the lower extremity of the right lateral cornu. Softening followed, involving the hippocampus major at its lower extremity, the anterior extremities of the superior middle and inferior temporal convolutions.

The hemorrhage from its location might have caused pressure on the optic commissure, especially its left side, together with interruption in the circulation through the anterior part of the circle of will in rendering the anterior cerebral arteries anemic. At the second attack the hemorrhage, still more extensive and far reaching, had extended into the lateral ventricles and the third, even passing into the infundibulum and distending it, causing pressure on the pituitary gland. The third attack, from which she never rallied, was attended by an escape of blood from the same source, but in addition to flooding the lateral and third ventricles it had passed through the aqueduct of Sylvius into the fourth ventricle.

I think we are justified in the assumption that as far as any symptoms observed in this case can be

justly referred to the lesion in the right temporal lobe, they tend to show that its function is of the same nature for the left side of the body that Ferrier has found the left temporal lobe to be for the right, a cortex center for hearing and taste.

My experience in this case has impressed upon me more strongly than ever the necessity of a systematic and thorough examination in detail of all the sensory and motor tracts in every case of central lesion, and that according to a definite plan should, wherever circumstances permit be rigidly carried out, even through certain symptoms may seem to show that such extended investigation is superfluous.

DR. KIERKSA—As Dr. Herdman has indicated in the first part of his paper, it is well known that lesions of the right temporal lobe give fewer special symptoms than lesions in any other part of the brain. It is in some respects the almost latent region of the entire brain. Doubtless it has its functions. The doctor has suggested in his paper that the functions of the right temporal lobe are the same for the left side of the body as the left for the right, but the functions of the left temporal lobe, at least the principal part of the left temporal lobe, are largely for hearing, which is not a function for either the one or the other side of the body, and in many cases the left half or left side of the brain in certain functions, acts for both sides of the body. It is interesting, however, in this case, to note that the patient was left handed. Now, ordinarily, I have no doubt, that while the right third frontal convolution and the right upper temporal convolution and the temporal convolutions generally are comparatively latent, yet they are centers for these functions potentially, before the left side of the brain is developed. Here it would seem to me to be the reasonable explanation that probably both the right third frontal and the right upper temporal, in accordance with what we find in left-handed cases, had taken on the functions of the left side of the brain more largely than is usual. I have had several cases of lesion of the right temporal lobe. One of the most interesting cases that I have ever seen is recorded in my paper on cerebral localization, and it was also reported by Dr. H. C. Wood, whose case it was in fact. It was originally a case of tumor of the right temporal lobe. This tumor grew and radiated in various directions. Finally hemianopsia and other symptoms indicative of lesion of the occipital lobe were present, and then Dr. Wood in consultation with ophthalmologists and Dr. Agnew, decided on an operation, and the patient was trephined over the occipital lobe of the right side. The patient latterly had lateral hemianopsia. Dr. Agnew came down on really a radiation of this tumor, but doubtless that which produced the hemianopsia. The patient died; an autopsy was made. I saw the specimen which was an immense tumor involving the entire right temporal lobe, or very nearly so, and thence had grown backward into the occipital lobe. There was a record of observations of this patient for a long time which showed that this tumor had been in the lobe with some development for a long time, but the practical point about it was that the lobe usually, so far as we know, is latent in symptomatology and that both neurologists and surgeons should pay very strict attention to the possibility of symptoms indicative of occipital or other lesions being really the symptoms of the final development of a right temporal lesion. I had one other case which I have also reported; a glioma of the right temporal lobe, the patient dying from intercurrent hemorrhage.

Blank applications for membership in the Association, at the JONES ST. office.

LAWS OF GROWTH OF BACTERIA APPLIED TO ASEPTIC SURGERY.

Read before the Section of Military Surgery, at the Annual Meeting of the American Medical Association, September 7, 1892.

BY ROBERT REYBERN, A.M., M.D.

PROFESSOR OF PHYSIOLOGY, SCHOOL OF MEDICAL SURGERY, UNIVERSITY OF MICHIGAN, ANN ARBOR, MICHIGAN.
HOWARD UNIVERSITY, WASHINGTON, D.C.

It has been well said by a great operator that every surgical operation is a study in bacteriology. There will be found, we believe, at the present day very few surgeons who will gain-say the above statement, and yet it may be worth our while to examine the question whether our surgery, as practically carried out, is in perfect accordance with the laws of bacterial growth which are the underlying basis upon which aseptic surgery has been built. To return to elementary principles: let us inquire what are the three essential conditions favoring the growth of bacteria and other microorganisms? The answer, of course, that would be given by every tyro in surgery would be the well worn statement: heat, moisture and atmospheric air. In other words, the very same conditions which favor the growth of bacteria are precisely the same conditions that are essential to the growth and repair of all the tissues and organs of the human body.

The logical sequence of this results in the following statement, viz: That no treatment of the tissues or organs of the body involved in surgical operations can be successful, which seeks by the action of powerful chemical agents to destroy bacteria in and around wounds; for if powerful enough to accomplish that object, the tissues themselves must be destroyed or injured.

A surgical operation is to a certain extent the opprobrium of medicine, for in having recourse to it we thereby confess the failure of our science. The ideal surgical operation, therefore, is one that removes the diseased or injured portion of the body with as little disturbance of the normal conditions of the tissues as possible. Repair without inflammation is, as all know, the motto of modern surgery. How preposterously absurd, therefore, is it for us, after having removed, let us say, a tumor or limb from the body, to douche the seat of the operation with solutions of mercurial chlorid or other powerful irritant, producing necrosis of the tissues and thus preventing the very end we seek to attain.

Notwithstanding the profound respect that all surgeons feel for the work and self-denying labors of Sir Joseph Lister, yet there can be no questioning the fact that the theory and practice of antiseptic surgery are rapidly being abandoned, and the more perfect science and art of aseptic surgery are being substituted in its stead.

To Prof. Lister we owe the grand idea of excluding the bacteria and other germs from wounds, thus creating the new science of antiseptic surgery. It is perfectly true that aseptic surgery, as now practiced in this country and in Europe, is very different from, and far superior to, the cumbersome procedure and dressings devised and practiced by the father of antiseptic surgery. The carbolic spray, once universally applied, has been almost entirely abandoned, and during my recent visit to Europe I never saw it once used. The many layers of protective gauze, mackintosh, etc., are now replaced by a single layer of iodoform gauze, with an abundant layer of aseptic cotton firmly retained by bandages.

Another remark, made at the meeting of the American Medical Association, in 1892, was that the use of mercurial chlorid as a germicide was without warrant, and has been shown to be without warrant. The same may be said of the use of corrosive sublimate, and the other solutions of mercuric compounds. Mercuric chlorid has been used as a germicide, and sheet anchor as a germicide. As a germicide, it is one germicide after all, it never kills, it never kills, and rely on that. Yet the germicide is not the work of tearing down, it is the work of tearing down, they have not left us this. Recently, St. Louis, carried on at Johns Hopkins University, operated in the Johns Hopkins Hospital, on April 1891, pp. 50-60, by Dr. A. C. Adams, and Corrosive Sublimate as a Disinfectant against Staphylococcus Pyogenes Aureus, on page 59, at the end of a very elaborate series of investigations on this subject, he says: "It is seen that under the most favorable conditions, a given quantity of corrosive sublimate has the property of rendering inert only a given certain number of individual organisms." (Ibid, page 60, he summarizes his results in the following words: "In the light of these experiments and those of the experimenters quoted in this paper, it is plain that for use in surgical practice, the solutions of corrosive sublimate do not possess all of the advantages hitherto attributed to them. The employment of the sublimate solutions upon wounded surfaces is plain there exist at least two serious objections: First, the albumen of the tissues and fluids of the body tends to diminish the strength of or render entirely inert, the solution employed; and second, the integrity of the tissues is materially injured by solutions of this salt."

Investigations made at the University of Michigan (published in the *Medical News* of October 1 and 8, 1892), have shown that solutions of mercuric chlorid when used as a germicide are often inert, and still often actually injurious to the tissues when applied during surgical operations.

Dr. Charles T. McClintock gives in the above paper (*Medical News*, October 8, 1892, p. 399), the following summary of his experiments, viz:

"1. The high rank heretofore given to corrosive sublimate as a germicide is without warrant and was based on faulty experiments.

"2. The very varying power of resistance in different cultures, as pointed out by E. March and insisted on by Gruber, is an all important factor to be noted in determining the germicidal power of any agent.

"3. That sublimate forms with cellulose, as with filter-paper, etc., with silk, with albuminous bodies, with some part of bacteria (probably the envelope, a chemical compound that can not be removed by any amount of washing with water.

"Thus the sublimate, when acting upon a germ, forms a capsule around it that protects the germ for the time from the further action of the sublimate, and in turn forms an impenetrable barrier to the growth of the organism unless it be removed. This barrier may be removed with salines, and is more rapidly removed in proportion to the renewal of the salines, conditions that are fulfilled in the circulating blood.

"The above named experiments would seem to warrant the expression of the opinion, that the use of solutions of corrosive sublimate in surgical operations should be limited to the clearing of the sur-

face of the part to be operated on, and to the disinfection of the hands and arms of the surgeon; and furthermore, that such solutions should never be applied to surfaces denuded of epithelium, or cut surfaces of the body made during surgical operations."

Antiseptic surgery endeavors to destroy the micro-organisms in and around the wound, and thus prevent their development. How futile this effort must be, when we consider that these organisms are everywhere and at all times present with us. They are in every breath we draw, in much of the water and in many of the articles of food that we consume; and indeed, exist always in the alimentary canal and all parts of the body exposed to the air. But on the other hand, it must be remembered that there are bacteria and bacteria. There are some species of bacteria which, when planted in a wound, will bring forth as the result of the poisonous materials formed by them, the formation of pus with the resulting septic fever, as certainly as the acorn when planted and nourished will develop into the sturdy oak. There are other species which when they come in contact with a wound are practically harmless. Of course we can not with the naked eye distinguish between the poisonous bacteria and the harmless ones, and hence our only safe plan is to as far as possible exclude them altogether from wounds, whether made by violence, or those made during surgical operations. How, then, can this be done? The first point to be observed is, to use as little water or watery antiseptic solutions as possible in contact with the wounds made during surgical operations. The reason for this course is that by so doing we remove one of the essential conditions necessary for the development of bacteria, and thus prevent or at least hinder their growth.

It is practically impossible to diminish or prevent the growth of bacteria in a wound, by either raising or lowering the temperature of the wounded parts; hence we can only endeavor to accomplish this object by making use of the other two methods of limiting bacterial growth, viz: to keep all wounded surfaces as dry as possible, and exclude them from the action of the atmospheric poisonous germs during the process of repair.

Simple and self obvious as these principles of treatment may appear to be, yet they are largely neglected and ignored by very many surgical operators at this very time. Often during an operation performed even by a most eminent surgeon (let us say an amputation), we see the field of operation deluged with a solution of boric acid, a solution of carbolic acid, or worse still a solution of mercuric chloride. This seems to be radically wrong in practice and entirely inconsistent with the elementary principles of aseptic surgery. Of course, in operations which require the opening or removal of large suppurating cysts or cavities, it is necessary to wash them out. This should be done, we believe, with fluids as near the composition of blood serum as possible. That wonderful operator, Lawson Tait of Birmingham, England, who has nearly completed his third thousand of operations upon the abdominal cavity, uses no fluid to wash out the abdominal cavity during his operations, excepting recently boiled water.

For use in surgical operations the following fluids only are necessary, viz: recently boiled water used tepid (about the temperature of 100° F.) and normal salt solution (0.75 per 1000) easily made by dissolving

one ounce, avordupois, of common salt in a gallon of boiling water).

Aseptic surgery therefore, after all is nothing but cleanliness, but when we say that, we mean cleanliness carried to a microscopic degree of perfection, and far surpassing the ordinary ablutions by soap and water. What we endeavor to do at the present time, before any surgical operation, is to so thoroughly cleanse the patient, the surgeons, assistants, nurses, surgical appliances and dressings (of course including the hospital and all its surroundings) so that no germs of poisonous bacteria can infect the wound, and cause suppurating fever, and perhaps the death of the patient operated upon. Modern surgery starts out with the assumption that in an operation aseptically performed upon an aseptic patient, and by an aseptic operator, there should be neither suppuration nor fever following any surgical operation. This of course is the ideal of surgery, which can not always be realized, but nevertheless it is the goal towards which we should aim, and which we should always endeavor to attain.

Every instrument and surgical appliance must be sterilized shortly before the operation, either by boiling in water containing 1 per cent of carbonate of soda (commonly called washing soda) half an ounce to three pints of water, or by being exposed to a dry heat above the temperature of boiling water (from 230 to 240 degrees Fah.) for one-half hour before the operation.

This can be done in the various patterns of steam and dry sterilizers which are now on the market, and can be procured at a moderate cost. But my principal object in writing this article is to call attention to the fact that aseptic surgery can be practically carried out without the purchase of any apparatus whatever. A tin wash boiler, which can be found in the humblest home is just as good for sterilizing surgical instruments as Arnold's, or other of the steam sterilizers now in use. A still more simple sterilizer for small instruments is the ordinary oblong tin baking pan, so familiar to our eyes in our youthful days. This pan when filled with boiling solution of carbonate of soda, may not look quite so ornamental as a porcelain evaporating dish, or a forty dollar copper sterilizer, but it will do just as good work. As before mentioned, to the above must be added absolute cleanliness of the operator, assistants, nurses, and in fact of all who come in contact with the patient. It is scarcely necessary here to say that the part operated upon, and the arms of the operator, assistants and nurses must be thoroughly scrubbed first with soap and water, and then with solution of one to 2000 mercuric chlorid, just before the operation.

One incidental and very great advantage in operating in private houses, providing they are clean and in good sanitary condition, is that the germs of poisonous bacteria are for obvious reasons not so liable to be found there as in the air of crowded hospitals. In regard to the sterilization by the dry method, the only thing that is absolutely necessary to be purchased is a good thermometer, graduated to a temperature of 300 degrees Fah. Of course it is convenient, and perhaps more surgical looking to buy a dry sterilizing apparatus, but it is by no means essential. The oven of a kitchen range or that of an ordinary cooking stove will answer every purpose. Take a common pasteboard box, such as letter

envelopes are packed in, place in the bottom of it a layer of aseptic cotton about two inches in thickness, lay on this your instruments and surgical appliances (bandages, etc.) with your thermometer, and your apparatus will then be complete. Place in the oven and expose to a temperature of 230 to 240 degrees Fah. This temperature can be easily regulated by a little practice, and is lower than the temperature required for ordinary baking purposes, which is said to be 270 degrees Fah. Finally, allow me to add the following maxims: 1. Never use a drainage tube in a wound unless you are absolutely certain you can get union by first intention. 2. If you have an amputation to perform, ligate every vessel requiring it with aseptic catgut, silkworm gut or silk; cut the ligatures off close to the vessels and leave them in the stump, close the flaps with similar sutures, and use no adhesive plasters in contact with the flaps of the stump. After you have stitched up the flaps, dust their surfaces with iodoform, boric acid, or subnitrate of bismuth. Place over this a layer of iodoform gauze, then an abundant layer of aseptic cotton, and over all this two layers at least of a well-fitting bandage. The reason why I do not use adhesive plaster in contact with the flaps of the stump, is that it can not be properly sterilized, and is very often the means of infecting the stump.

Above all things, never open a stump for ten or twelve or even fifteen days after an amputation, if the temperature of the patient is at normal point, or even a degree above. The last limb I amputated was dressed for the first time on the sixteenth day after the operation. On the other hand, if the temperature goes up to 102 or 103 degrees, open up the stump at once, and find out the cause of the trouble. In Bichat Hospital (located in Paris, France), I saw a number of stumps of amputation in the summer of 1892 which had only received two dressings, one on the fifteenth day; and the other final dressing on the twenty-eighth day after the operation.

ADDRESS.

CHAIRMAN'S INTRODUCTORY ADDRESS.

Read before the Section on Ophthalmology at the Forty-fourth Annual Meeting of the American Medical Association.

BY S. D. RISLEY, M.D.,
PHILADELPHIA, PA.

I can not refrain from expressing my high appreciation of the honor you have conferred in calling me to preside over the deliberations of the section. Permit me to extend my most cordial greetings and to express the personal gratification I feel in again meeting my colleagues in ophthalmology from all sections of our country. It is fitting that I should congratulate the section that its members have again been spared through the toil and vicissitudes of a year and are still actively engaged and deeply interested in this beneficent work. The activity displayed everywhere as set forth in a rapidly growing special literature is encouraging, not to say inspiring. Not only are periodicals devoted to ophthalmology multiplying, but the character of the papers published are rapidly improving. Careful scientific work is obviously on the increase and the clinical papers also portray a class of work far superior to that of only ten years ago. To me this has been a source of great encouragement and to us all just cause for

congratulation. There can be no question as to the large share the members of this section of the American Medical Association have had in this advance. It is my ambition to see it assume the role of authority in our special work in the United States, so that its utterances shall be regarded as the expression of the latest and best opinions. In uttering this sentiment I am sure that I but voice the feeling of every member of the section. If this ambition is to be realized, however, to any higher degree than in the past, it must be through the unselfish devotion of every member, not only in his everyday individual work in laboratory and library, clinic and consulting room, but devotion also to the interest of the section. While I have no doubt this feeling of devotion has been entertained by every member, our methods of section work have not afforded adequate means for its expression. The fault, if any, has been in a lack of careful organization. There has been no lack of material; indeed, we have been overwhelmed with the abundance presented for consideration and discussion, but we have been too prone to content ourselves with the simple recording of the facts of our experience. Paper after paper has been presented, manifesting the most painstaking and interesting observation of unusual experiences. Some discussion has followed or similar experiences have been doubtfully reported from memory, thus adding to the richness of material, but in the end much loss has been sustained, both from want of time for adequate discussion and from the want of classification of reported facts. I fear I shall take too much of your valuable time by attempting to present this in all its bearings, so content myself with the statement that our design should be, first of all the presentation of the carefully prepared papers, and for this the greatest latitude should be accorded. To adopt any method which would hamper this feature of our work would, I am sure, be a great mistake. But in order to secure the highest usefulness it would be of great service if each member should study the list of expected papers and prepare for the discussion by reviewing his own experience in the same direction. By this means we would secure a consensus of opinion and the section speak as a body in its transactions, instead of presenting simply collections of individual views as expressed in the published papers. In the second place, special provision should be made for the elaborate study of some special topic or some form of disease which has baffled our skill or about which there is diversity of views as to nature and treatment. For this purpose I would suggest that at each annual meeting a commission should be appointed for the investigation of some selected subject, to report at the following annual meeting. By way of illustration, who of us would not like to have the report of such a commission, e.g., hemorrhagic glaucoma or retrobulbar neuritis, or the pathogenesis of the myopic eye, or the nuclear palsies of the ocular muscles, or the anomalies of ocular balance. Then a carefully organized discussion of the report of the commission would secure a valuable review of the subject and the consensus of opinion of the section, which would find place in special literature, be widely quoted and the reputation of the section and of American ophthalmology be greatly increased. Such studies would render the sessions of the section so valuable that

none of us could afford to miss its annual meeting and thus the prosperity of the section would be generally enhanced. In the publication of our special bound volume I would suggest that the discussion should also be included so that any unusual views presented by the author of a paper should stand in juxtaposition to the expressed views of his colleagues.

PANNUS AND ITS TREATMENT BY THE DIGESTIVE FERMENTS.

Read in the Section of Ophthalmology, at the Forty-fourth Annual Meeting of the American Medical Association.

BY JAS. A. LYDSTON, M. D., Ph. G.

Formerly Professor of Inorganic and Medical Chemistry and Lecturer on Diseases of the Eye and Ear, Chicago College of Physicians and Surgeons, Chicago, Ill.

The etiology and course of pannus are so fully appreciated that it will not be necessary to consume valuable time by entering into a lengthy description of the disease; suffice it to say for the purposes of my paper that inasmuch as pannus is one of the most frequent sequelæ of trachoma I shall limit my remarks to the so-called granular pannus; that is, that form in which the formation of granular masses in the corneal layers has caused infiltration and vascularity of the corneal surface.

In this type, the morbid changes first begin to assert themselves in the upper margin of the cornea at the limbus conjunctivæ and we note further that its tendency to clear is in direct proportion to the degree and duration of the inflammatory process; in other words, the further the process departs from the character of a simple infiltration throughout the more ominous will be the prognosis and, indeed, in the light of our present knowledge bearing on this subject we know that complete reparation after pannus which implicates the deeper corneal layers is a forlorn hope; but in all cases in which the cell migration which constitutes the infiltration in pannus is confined to the corneal region lying between the anterior elastic lamina or Bowman's membrane and the corneal epithelium there is an intrinsic tendency to clear. In proportion, however, to the increased aggregation of cells, Bowman's membrane undergoes atrophic changes and finally is obliterated, thus permitting the process to extend more deeply. From a histological standpoint, pannus proves to be a layer of newly formed, soft, cellular tissue greatly simulating in appearance the infiltrated trachomatous conjunctiva. This tissue is more or less vascular and occurs in more or less typical layers imparting an uneven nodular aspect to the growth. Special terms have been assigned to the disease which are to a certain extent descriptive of pannus in the several types; thus we have pannus tenuis, which indicates a recent pannus exhibiting no great thickening; again, pannus vasculosus, signifies the vascular type, and pannus crassus or carnosus implies a very dense pannus; still further, we have pannus sarcinatosus, which is an unfortunate term, inasmuch as it gives an association with neoplasms; finally, we have pannus cicatricialis which is mostly composed of connective tissue containing few or no blood vessels.

The management of this class of cases the practitioner heretofore has been to cure the corneal inflammation from which the disease takes its origin and to be held that the pannus will sponta-

neously disappear; with this object in view various therapeutical measures have been resorted to, such as are usually exhibited in the treatment of trachoma; for example, nitrate of silver in solution or substance, sulphate of copper in solution or in the form of "blue stick" as it is called, and the various antiseptic measures have all found fitting application, and even the more radical measure of inoculation, either with the pus of an acute blepharorrhea as advised by Piringer and Jaeger, or the milder method of jequirity treatment first advocated by De Wecker. In conjunction with the foregoing ponderous array from the therapeutical armamentarium the surgical procedures of synechotomy, iridectomy and sclerotomy, and even an attempt at radical removal of the growth by scraping as advised by Grüening have all been utilized in these cases, and notwithstanding the great mass of literature that has accumulated in the course of time, we are still far from a unity of views with respect to the treatment of pannus. Within the last year I resorted to a mode of treatment which was particularly pleasing to me in its results and I herewith present an outline of the course adopted, not with any idea that it will wholly supplant the foregoing measures, but if it proves as efficient in the hands of others as in my own, that it may become an advantageous auxiliary in the management of such cases. I refer to the treatment of pannus, particularly that type characteristic of trachoma by the digestive ferments. The first case in which I employed a digestive ferment was in that of a man aged 45 who had suffered with trachoma and its ravages for a period of eight years. Papillary hypertrophy and trachomatous granules were still quite noticeable, together with very perceptible atrophy of the conjunctiva tarsi and a very pronounced pannused condition of both corneæ, which rendered it impossible for the patient to get about unattended. Entropion had also supervened. Viewing pannus as a new growth more or less vascular in type, I surmised that if I could but bring a medicament in contact with it that possessed powerful digestive properties I could favor its removal, and with this object in view I resorted to daily inspersions of powdered papoid with boric acid. Papoid is the new proteolytic agent derived from the carica papaya or papaw plant, and bids fair to become a most valuable addition to our materia medica. This agent exhibits the power of digesting all types of protein and albuminous substances, both in a coagulated and uncoagulated form, and its digestive properties are still further enhanced by the fact that it acts in acid, alkali and neutral media, though, as my experience demonstrates, more pronounced in alkali solution. So true did this medicament maintain its digestive powers that the remaining trachomatous granules gradually disappeared, and the pannus began to thin perceptibly; finally, after a course of constant medication with the before mentioned medicament, extending over a period of three months, such a marked change had transpired that the patient was able to get about unattended, and with the application of suitable glasses can read ordinary newspaper type at the distance of twelve inches and Snellen's D-18 at eighteen feet. When the process of clearing had reached its maximum degree the admirable operation designed by Dr. Hotz was instituted for the removal of the entropion, and thus the lids were placed more nearly in normal

opposition to the eyes, and the gentleman took his place in a very fair amount of vision in spite of many gloomy predictions to the contrary. The second case was that of a woman aged 30, who was suffering with chronic granulations and a papilled state of both cornea, though the pannus was not quite so dense as in the preceding case. Here the same favorable results ensued, the granulations gradually absorbing, the hypertrophic papillae disappearing and the pannus progressively diminishing in density until a fair amount of vision was restored to an individual who had abandoned all hope of ultimate recovery. The granulations melted away like a piece of ice in full sunlight and apparently had no tendency to reappear. A third case in which I applied the remedy is that of a woman aged 35, who had sustained a siege of trachoma affecting both eyes with consequent pannus of the vascular type, and in this case as in the preceding, a diminution of all the inflammatory symptoms ensued together with pronounced thinning of the pannus, and perceptible clearing of the cornea with great improvement of vision, and I am convinced by the foregoing cases that we have in the digestive ferments, particularly papoid, a very efficient and safe digestant applicable in these cases.

The argument will no doubt be advanced that it is not possible to digest living animal membrane to a degree sufficient to warrant the application of the remedy in such cases, but in opposition thereto, I hold that the new growth is necessarily of low vitality, depending as it does for its nutritive pabulum upon the conjunctival and embryonic vessels peculiar to itself, and is largely composed of lymphoid structures which have appeared to be particularly susceptible to the digestive influence of the ferment. In order to demonstrate its powerful digestive qualities I immersed a densely leucomatous eye which had been blinded by smallpox and recently enucleated and present it herewith for your inspection. You will notice that it is almost completely digested. It is now one week since the eye was thus treated, the strength of the solution being 30 grains to the ounce, and indeed it had reached its present state of digestion on the second day of its immersion which indicates that papoid exhibits powerful digestive qualities when brought in contact with animal membrane, and certainly if it is capable of virtually digesting the cicatrized envelope of an eye, which as we know even in a normal condition is quite resistant to the action of chemical agents generally, its effect in this instance is strikingly suggestive, and leads to the conclusion that its digestive properties have not been over estimated. In an article entitled, "Some Observations on the Clinical Uses of Papoid," by Dr. Arch Dixon of Kentucky, he states that "he has used papoid with marked benefit in diphtheria, membranous croup and indolent ulcers, and as a solvent for dead bone." My own experience while still limited, leads me to confirm his conclusions when he says, "that papoid under papoid conditions produces greater results than pepsin under pepsin conditions." I have made application of pepsin, both in solution and in powdered form in cases of granular conjunctivitis associated with pannus, and have not reached the satisfactory results that I was able to obtain with papoid.

Dr. TAYLOR—In what proportion is papoid and borie acid used, and how often is the application made?

Dr. LANSOE—Papoid is applied to the eye in the form of ment of patients, the quantity being about 20 grains to the ounce, that often, after a few days, only a very small use equal parts of papoid and borie acid.

Dr. BERRY—In what strength does papoid dissolve, and how do you apply it to the eye?

Dr. LANSOE—I take equal parts of papoid and borie acid, after mixing them thoroughly I dust them into the eye by means of a camel's hair brush, only a slight reaction following.

SELECTIONS.

Pathological Models at the World's Fair.

In order to draw attention to some of the exhibits from the Pathological Institute of Berlin University, now on exhibition at the World's Fair, we reprint herewith Dr. BERLINER's account of these from an article originally published in the *Deutsche Med. Wochenschrift*:

"Plastic Reproductions of Preparations from Pathological Anatomy," by Dr. PAUL BERLINER, Berlin, Germany. In any demonstrative science, clinical instruction is of the greatest importance, therefore every teacher of medicine, whenever possible, endeavors in his lectures to help his hearers to an easy comprehension of his subjects, either by exhibition of a patient, of pathological preparations and instruments, or corresponding illustrations of the same. For this reason, also, medical literature contains abundant illustrations, for the production of which all forms of graphical methods are brought into use. However, notwithstanding the perfection of photographic, chromographical and similar illustrations, medical science often presents to the student cases in which the mere physical aspect, or gross anatomy, is insufficient, and a plastic representation is necessary for a clear understanding thereof. This is especially true when applying to dermatology, embryology, or normal and pathological anatomy. If, therefore, from the plastic reproduction or representation the model is perfected by careful coloring copied from the original, it should certainly be the most complete way of permanently presenting those natural objects which are themselves rapidly perishable, and retaining the peculiarities of their changeable, or temporary appearances and conditions. The combination of "polychromy" with plastic art makes it possible to produce objects wonderfully similar to the fresh, natural preparation.

The idea of perfecting plastic preparations is not a new one. At first it was confined to only normal anatomy and later pathological anatomy. Preparations were formed out of various materials chiefly wax, and brought together in collections.

In literature, only isolated notices are occasionally found of such collections, which I have gathered together as far as possible without attempting completeness.

Hyrthl, in the preface to his *Anatomy of the Human Body*, states that Emperor Joseph II. had presented to the school of military surgeons in Vienna a new extension of the most world-renowned collection of anatomical wax preparations, equaled only by a similar one in Florence, where the collections were made under Fontana's direction by the Italian artist Gaetano Zumbo and the Spaniard Novesio.

The anatomical museum in Vienna contains a few wax models made by Dr. Dom. Bastren, a practicing physician of that city in the latter part of this century. At the present time these anatomical wax preparations are made principally

pally in Paris and Lille, from whence they are exported all over the continent. Most of that class of models exhibited in Germany, particularly those of a pathological character, are of French origin. Most famous in Paris, is the Muséum Baretta in the Hospital St. Louis, as is also the syphilographic collection of "Jumelin."

Among other manufacturers should be mentioned "Tramond" of the medical faculty of Paris University. He has published a voluminous catalogue of his preparations.

The department of Pathological Anatomy of the Berlin Charité, possesses a collection of models which were made by Dr. Felix Thilbert of the Paris University.

Prof. Schüller, in a recently published account of his travels, states that most of the North American Universities also make use of wax models in their didactic and clinical lectures, and Prof. Schüller informs me these have also been imported from Paris.

In Germany, models of normal anatomy are manufactured in Munich and Dresden, and a Dr. A. Ziegler of Freiberg, furnishes preparations for the study of embryology.

Herr Lassue of Berlin, has directed his attention to the plastic reproduction of skin diseases, and has laid the foundation for a large collection of dermatological wax models which are reproduced from material furnished by his clinics.

As for myself, I at first made plastic preparations from only the skin clinics of the Breslau University, but soon made use of them in other departments of pathology, especially from diseases peculiar to the viscera. I believe I can claim the right of priority in the introduction of the last named preparations. My intention is to introduce this method of reproduction more generally by such preparations, and I believe it is deserving of more attention from the medical profession than has heretofore been accorded it. The practical advantages of these preparations from whatever medical specialty they be taken, is that while in possession of these artificial reproductions one has always at hand an exact imitation as to size and coloring of the original, and can make use of them while teaching, either for demonstration or comparison with other preparations. Herein lies also the advantage of this method of illustration over the use of the originals, which being preserved in fluids are subject to constant change in form and coloring. Also the rapidly changing appearances on the living subject afford only a more or less unsatisfactory objective picture of the disease in question, and therefore with the model we possess a permanent reproduction or appearance of the different morbid conditions and are not obliged to depend on memory, or the individual conception of a single observer.

There are important manifestations of certain diseases which the medical man during his student years finds no opportunity to become familiar with, perhaps because of the lack of clinical material or because during his course of clinical study these diseases were not prevalent at the time, but nevertheless diseases which every physician must be familiar with; as for instance the exanthema of typhus, etc. In such cases a model perfectly true to nature may well serve for instruction and demonstration, in default of clinical material. Among the various departments of medicine in which these plastic preparations are serviceable besides dermatology, is normal and pathological anatomy, and all the different newer methods of surgical operation, which can be well demonstrated on the plastic models. Also certain conditions and appearances which are continually observed on the patient, resulting from various causes, can be permanently fixed and reproduced by this plastic method. I have thus illustrated by the models in the skin clinics of the University of Breslau, the various manifestations of lupus affections which

took place under the tuberculin treatment of Koch. This should clearly demonstrate the value of these plastic preparations, for now that the above treatment has been abandoned, they offer for present and future consideration a vivid conception of those therapeutic measures which caused so much excitement in the medical world. On the other hand, they will serve as objects for comparison and demonstration in case of renewal, improvement or adoption of another method of treatment.

During epidemics, pathological changes in single organs, which differ according to the virulence of the poison, can be obtained and preserved in the same manner.

These preparations are made by first taking a plaster cast of the subject to be reproduced. This mold is then filled with wax made liquid in a water bath, and a positive is thus produced. The model is then carefully painted with oil colors, true to nature. Later, various varnishes are applied to give to it the moist appearance of the fresh or living tissue, and upon the correct imitation of which it depends.

The most difficult part of the work is the correct coloring, and this is especially true in pathological more than in dermatological preparations. In skin diseases the lesions are generally more scattered and better defined, while in pathological subjects the whole surface must be correctly reproduced in its natural coloring.

Among the preparations exhibited by Dr. Berliner are mentioned the following:

1. Uterum, showing a placental changes of the mucous membrane. Five cm. from the anus a scar contraction. On the anus itself, a large hemoroidal tumor. Further, a rectal ulcer after catenization with the Papanicolaou, showing where healing had commenced. Slight edema seen in the lining and pigmentation of the mucous membrane. The submucosa and muscular coats are plainly shown in the drawing.
2. Kidney of a newborn infant, with uric acid infarcts (see concentric).
3. Aorta—end arteritis—4 forms—(with atheromatous degeneration). Chronic enlargement (or dilatation) of the aorta.
4. Stomach, with ecchymosis in the pylorus, showing scattered spots or areas of hyperemia on the mucous membrane.
5. Stomach with secondary carcinoma of mucous membrane (metastatic).
6. Liver—Chronic interstitial hepatitis with jaundice (cirrhosis).
7. Lungs, with emphysema, collapsed after opening chest cavity. Bronchopneumonia (or hepatization) in lower lobes.
8. Lungs, showing active hyperemia.
9. Section of lung with multiple cheesy deposits (pneumonia). Bronchial and peribronchial inflammation.
10. Section of lung, showing recent pleurisy. Excessive thickening of the pleura.
11. Larynx, with polypus on under half of right vocal cord.
12. Larynx, with epiglottic ulceration of the epiglottis.
13. Larynx, with tubercular changes.
14. Pericardium, with simple infection.
15. Bladder, with 1 right and 1 left ureter.
- NOTE.—Nos. 1 and 2 are in the possession of Herr G. Lewin, director of the skin clinics of the Royal Charité.
- Nos. 11, 12 and 13 are in the possession of Herr Prof. Dr. Frankel, director of the clinic for throat diseases of Royal Charité Hospital.

Memorandum of a Case of Hydatids of the Kidney, with some Remarks.—By JOHN B. HAMILTON, M. D., LL. D., Chicago, Ill. Professor of principles of surgery and clinical surgery in Rush Medical College.

In January, of this year, a young Dane came into my clinic as a patient, complaining of occasional attacks of renal colic. On inquiry he stated that he had noticed after these attacks, certain white substances which his imperfect knowledge of English prevented him from describing. I directed him to return when he was next attacked by colic, and enter the hospital.

About the first of February he returned and I was enabled to see the substances passed with the urine, and I found them to be capsules of echinococci. Careful examination was then made by abdominal palpation and the kidney was found enlarged to a considerable degree. The patient's general condition did not seem to be affected, and his sole annoying symptom was the recurrent attacks of renal colic.

Examination of the urinary deposit under the microscope showed the hooklets of the echinococci in limited numbers, and on February 4, 1893, at the Rush Medical College

clinic, I cut down upon the kidney by lumbar incision, made parallel with last rib. The kidney was exposed and the perinephritic space packed with iodoform gauze, and an incision made directly through the kidney toward the pelvis. The fluid contents of the cyst escaped through the wound, and daughter cysts round, white and shining, rolled out of the incision in great numbers. Irrigation was then practiced, and the parent cyst having been entirely emptied of its contents was flushed with iodine water, and the wound was packed to the bottom with iodoform gauze. The patient was comfortable after the operation, progressed toward a rapid convalescence and was well in four weeks.

Although hydatids of the liver are comparatively common, those of the kidney are infrequent, and it is on account of this circumstance that I venture to present this brief case report. There is now little dispute concerning the treatment of echinococci of the kidney, when a diagnosis is made; free incision is obviously the only correct procedure, but there is yet much to learn concerning the etiology and mechanism. The dog, wolf and kangaroo have the general reputation of being the original host of these echinococci. Their habitat is in the small intestine of those animals. There is circumstantial evidence to corroborate this reputation in the fact that it is precisely in those countries where dogs and the animals named are more common that the echinococcal disease is most prevalent. Iceland and Australia have the prominence in frequency. Cobbold states that in Iceland one-sixth of the mortality is caused by hydatid disease.

Thomas published statistics of 7,156 cases of echinococcal disease observed in the hospitals of Australia. He found 59.06 per cent. located on the liver; 16.44 per cent. located in the lungs; 2.55 per cent. located in the epiploon and peritoneum, and 1.80 per cent. located in the muscles. Thomas, in 307 cases, found only two located in the kidney, but in Davaine it is stated that of 500 cases of echinococcal disease, thirty had their seat in the kidney. One fact is noted in regard to hydatids of the kidney which seems to have no reasonable explanation; that is the greater frequency of the disease in the left than in the right kidney. I am not prepared to offer even an hypothesis as to this fact which has been noted by all systematic writers on the subject.

The allegation that the disease is more frequent in women than men might have an explanation in their greater fondness for pets, and the habit of kissing them.

The statistics of ages of persons known to be affected by hydatid disease, vary from six years to sixty-five years, but the average is between twenty and thirty years.

The practical lesson from these cases is that the disease is preventable, and appropriate hygienic measures should be adopted by those engaged in the slaughter of animals. These measures consist in the care to be taken that no cystic tumors shall be allowed to go with the other offal, but be burned in a crematory, and by persons handling dogs that they do not kiss them, or allow the dog to lick the face. My patient admitted that he had eaten raw meat, and kept several dogs, from either of which sources he might have obtained the ova of the cestoid.—*Kansas City Medical Leader*.

Calomel as a Topical Application to Hemorrhoids.—Dr. J. B. James has written in favor of the above treatment, in *British Medical Journal*. He states that he has for several years made use of calomel as a topical application to piles. His success has been quite marked, especially in cases where inflammation has been produced in the abnormal tissues, characterized by mucous discharge and hemorrhage. Under this simple treatment the annoying symptoms were generally soon relieved, and the patient absolved from the necessity of undergoing a perturbing course of treatment.

This method leads to the free introduction of the parts, and cleanliness is of itself a guarantee of a successful cure. The calomel is a cleanly kind of application, and commends itself to the patient for frequent and regular application. It is readily applied and does not stain the clothing.

SOCIETY NEWS.

American Dermatological Association.

Abstract of the Proceedings of the Society for the Study of Dermatology, held in Montreal, Quebec, Sept. 24th, 25th, 26th, 27th, 28th, 29th, 30th, and Oct. 1st, 1893.

Dr. E. B. Brissson, of New York, followed with a paper entitled:

THE TREATMENT OF PRURITUS.

The author said in the management of *pruritus*, generally, as of any other disease, the first consideration should be directed to what caused the trouble. The adoption of measures tending to remove any accidental conditions or influences through which pruritus might be occasioned is important. Such causes include, besides various local sources of irritation, certain remote or general diseases and furnish the *calentamiento* of its limits more limited sense. This, however, states the scope of the problem only partially. What is of more importance is to establish principles of treatment fitted to those more special and more essential causes that constitute the necessary conditions of the disease and whence we derive the *dermatitis*. Those causes are traced under etiology, and it is they which must afford the only intelligent basis for the therapeutics of pruritus.

The chief underlying condition in pruritus is hyperesthesia, whether in its common significance of an excessive irritability of the sensory nerves, or in the sense of an excess or engorgement of sensation. The prime indications, then, are to allay irritability and to divert or annul the excess of nervous excitement. Measures to remove local excitants include, first of all, such as directly tend to prevent scratching. To admonish the patient to refrain from this is usually of little avail. Restraint may be possible during waking hours, but at night, when the trouble is always at its worst, and especially during the state of somnolence midway between sleeping and waking, no power can prevent it. It can only be avoided by first mitigating the lesion through the aid of anti-pruritics. Sedatives when used internally are apt to be disappointing. The degree of general sedation that is required to affect the nerves of the skin in so intense a disturbance as pruritus often is, affords a sufficient reason why this method of treatment is usually objectionable. Further than this, the depressing and atonic after effect on the nervous system tends to exaggerate the general hyperesthesia which is already essentially an atonic condition, and thereby increases the tendency to itching. Especially objectionable are most of the narcotics. The bromides, on the other hand, are often indispensable and may be required in liberal doses. It is important to avoid the enervating effects of loss of sleep, and for this purpose sulphonal or some other hypnotic is occasionally needed. In connection with this, two internal remedies which have been recommended by Bulkley are worthy of mention, and they are cannabis indica and gels-minum. The former is known to be a cutaneous anesthetic as well as an analgesic, and by virtue of the former quality should be useful in pruritus.

Carbolic acid is the most reliable and most generally useful anti-pruritic which dermatologists possess. It was well named by Unna "the opium of the skin."

The following "anti-pruritic oil" has been much employed by the author for years, both in local and so-called universal forms of the disease, with no more untoward results than now and then a trifling dermatitis, when through oversight the patient has been allowed to make the applications too frequently, or has continued them too long. The formula is:

R. Carbolic acid, 5i-ii.

Liquor potass., 3i.

Oil, lini, 5i.

Sig.: Shake before using.

To correct the disagreeable odor of the linseed oil a drop or two of benzoin may be added. Salicylic acid and salol though less energetic in their effects, act similarly to the carbolic acid. Thymol is also an admirable anti-pruritic.

but on account of its irritating effect can not be used when the skin is sensitive.

The author then dwelt on sensory stimulants, substitutive irritants, alternatives of cutaneous nutrition, and motor depressants. In pruritis hiemalis an all important measure of treatment is protection against cold. The sole cause of winter pruritis, aside from a special predisposing hyperaesthesia, is lowered temperature.

DR. JOSEPH ZEISLER of Chicago, Illinois, read a paper entitled

ANGIOKERATOMA.

and reported the following case. The patient was a German, and 53 years of age, butcher by occupation. Had never had any severe illness, but had malaria once. Present illness began somewhat gradually about four years ago with red spots and verrucae on the skin of different parts of the body. He was under medical treatment and says he improved for a time. He states that some of the red spots gradually disappeared at times, but returned and new ones arose in different localities. During all this period his general health had not suffered in the least. No anorexia, headache, nor any other complaint. There is no pain or itching in the skin lesions. Patches of vitiligo of large size are found on the front and sides of the abdomen and on the right side of the thorax. Some small patches in right axilla. Faint patches on right side of chest posteriorly and on the neck. Large patches on the penis and scrotum and small ones on the inner surface of the thighs. There are some old marks of tinea favus on the scalp. Navus-like spots and small tumors are scattered over the body as follows: On posterior surface of right ear are two small warts, red in color and vascular; one on posterior aspect of left ear. On the ulnar surfaces of both forearms, beginning over the olecranon, are found red navus-like patches of irregular contour and smaller isolated ones in the form of small pedunculated tumors. The patches vary in size from three or four inches in circumference to the size of a dime. They are red in color, vascular and slightly raised above surface of surrounding skin. On the right forearm are numerous small tumors varying in size from minute spots to some the size of a hazel-nut. The larger ones are all pedunculated, firm and vascular. On the left forearm they are fewer in number. Considerable edema in the right hand and fingers. Only one or two small warts on the extensor surface. On palmar surface there are some on every finger except the index, and none on the wrist and ball of the thumb. One was removed and found to consist of an outer layer of thickened epidermis surrounding a very vascular center. Microscopical examination was made by Dr. Zeisler. Some of these tumors sprang out from beneath the finger-nails. On the left hand the verrucae were not so numerous and inclined more to the small vascular variety with two exceptions. Large irregular red patches were also found over each patella, and a few smaller ones irregularly scattered over anterior aspect of the legs and thighs; also a few smaller ones over the posterior aspect of thighs and one over the back of each ankle. Two small pedunculated warts were also found on the back of right leg, another with some of the red patches on the nates near the gluteal fold. No patches or tumors were found on abdomen, thorax or upper part of arms.

The author reported this unusual and interesting case to show that the clinical picture of the disease is evidently not yet quite complete, and hoped that new examples of the disease would arise which would throw more light on the pathology and etiology of the affection.

DR. J. A. FORDYCE of New York, read a paper entitled

A CONTRIBUTION TO THE PATHOLOGY OF ACNE VARIOLIFORMIS (CHEREA).

Dr. Fordyce called attention to the case described by Dr. Brinson and himself in 1891 under the title of "Acne Varioliformis of the Extremities," which was at that time shown to originate in or about the coil glands. This was identical

with the cases since reported by Politzer, Dubreuilh and others under the name of hydradenitis, and should go on record as a example of that affection. While clinically it presented many points of similarity to acne varioliformis

its histological anatomy was quite distinct.

Dr. Fordyce had examined microscopically a number of sections of papulo-pustules from two typical cases of the disease and was able to trace its beginning to an infection of about the middle and upper portions of the coiled ducts and their sebaceous glands, while the coils themselves were shown to be outside the inflammatory area.

Enormous numbers of staphylococci were found in sections from one of the cases examined which readily stained with Kühne's carbolio-methylene blue solution. These organisms were especially numerous about the middle and deeper portions of the hair follicles and contained within the external and internal root-sheath, in the connective tissue about the coil glands and in the subcutaneous connective tissue. In considering their number, distribution and presence in the diseased area before the epidermis was involved, the writer was disposed to consider them a direct influence in producing the lesions. In a secondary infection they would scarcely be found at so early a period in the evolution of the papule.

As a result of his investigations, Dr. Fordyce concluded that acne varioliformis (Hebra) was an inflammation of the pilo-sebaceous system, of microbial origin, leading to destruction of these organs, and that Bazin was correct in naming the disease acne pilaris.

The members of the Association, at the close of Dr. Fordyce's paper, participated in a general discussion on pityriasis rosea, and pemphigus.

The following officers were elected: President, Dr. Robert B. Morison of Baltimore, Md.; Vice-president, Dr. George T. Jackson of New York; Secretary and Treasurer, Dr. Charles W. Allen of New York; Member-at-Large of the Council, Dr. J. A. Fordyce of New York.

On motion, the Association adjourned to meet in Washington, D. C., in May, 1894.

The Missouri Valley Medical Society, at its meeting held in Council Bluffs, Iowa, Sept. 22, elected the following officers:

President, Dr. A. F. Jonas of Omaha; first vice president, Dr. A. L. Wright, of Carroll, Ia.; second vice president, Dr. Daniel Morton of St. Joseph, Mo.; treasurer, Dr. T. B. Lacy of Council Bluffs; secretary, Dr. F. S. Thomas of Council Bluffs. The next meeting place will be at Omaha.

The Cedar Valley Medical Society.—The annual meeting of the Cedar Valley Medical Society will be held in Dubuque, Iowa, Tuesday, October 10. Papers will be read by the following: Drs. J. W. Jaggard, Chicago, Ill.; J. S. Lewis, Dubuque; G. F. McDowell, Clear Lake; W. Woodbridge, Central City; E. C. Dudley, Chicago; A. R. Brackett, Nashua; E. Hornbrook, Cherokee; C. L. Whitmire, Waverly; H. C. Jungblut, Sumner.

The meeting will be followed by a luncheon. Dr. I. S. Bigelow is president of the Society and Dr. W. B. Small, of Waterloo, is secretary.

The Southern Surgical and Gynecological Association will meet in New Orleans on the 14th, 15th and 16th days of November. The medical profession are cordially invited to attend. Dr. Bedford Brown of Virginia is president, and Dr. W. E. B. Davis of Birmingham, Ala., secretary.

ASSOCIATION NEWS.

We clip the following from our valued and always welcome contemporary, the *Occidental Medical Times*:

OREGON AND THE ASSOCIATION.—Dr. Plummer informs us that a member of the Association from Oregon writes to say that he wishes to present the different sections with a souvenir of their visit to the Pacific coast that shall be typical of the State of Oregon. This incident indicates the interest in the Association that is being rapidly developed, and augurs well for the success of the meeting.

THE SAN FRANCISCO COUNTY MEDICAL SOCIETY.—At the last meeting of the San Francisco County Medical Society, Dr. C. G. Kenyon, the President of the State Society, brought up the subject of the meeting of the Association in '94. After some discussion the Society appointed a committee to cooperate with the Committee of Arrangements of the Association.

COMING TO CALIFORNIA.—Dr. H. Bert Ellis of Los Angeles the Assistant Secretary of the Association, informs us that he is already constantly in the receipt of letters from members of the Association who are preparing to attend the meeting. He says that several of his correspondents want to come on in advance and stay all winter—we presume in Los Angeles.

THE Journal of the American Medical Association PUBLISHED WEEKLY.

SUBSCRIPTION LIFE, FIFTY DOLLARS
PER ANNUM, IN ADVANCE
SINGLE COPIES, FIVE CENTS

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 N. WABASH AVE., CHICAGO, ILLINOIS.

All members of the Association should send their Address to the
Treasurer, RICHARD J. DUNCANSON, M. D., Lock Box 1274, Philadelphia, Pa.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION

This is obtainable, at any time, by a member of any State or National Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Duncanson, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues and subscription for THE JOURNAL. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

SATURDAY, OCTOBER 7, 1893.

THE PLACE OF ERGOT IN OBSTETRIC PRACTICE.

There is probably no therapeutic application of a drug so constantly carried out as the administration of ergot in obstetrics, and yet this being the case there is no doubt that in many instances it is wrongly administered because it is not needed, because it will do harm and finally because it is given at such a time that uterine contraction is voluntarily or artificially produced by other means before the ergot is absorbed, and so it exerts its action long after the object of the physician has been accomplished. On the other hand, as pointed out by BOHX in the JOURNAL of Sept. 23, 1893, there are very good reasons for this routine practice. It is positively certain that postpartum hemorrhage can almost always be avoided, even in feeble patients by its use, and in cases where there is no trained nurse in attendance and the doctor can not remain for some hours near his patient it must be given, without exception, if the safety of the case is to be assured and the physician is to have his mind at rest. In the discussion of the paper it will be remembered that DUFF expressed doubts as to the harmlessness of the routine use of ergot, as he had already done in a paper in the *Therapeutic Gazette*, in which he asserted that ergot was apt, by producing contractions of the uterine muscle at the cervix, to lock up debris which might when imprisoned produce septic trouble. Practically, however, we do not believe that such an accident is liable to occur. On the other hand, it is undoubtedly a fact that the contraction of the uterine walls produced by ergot, drives out of its cavity blood and other materials, and finally it is certain that these substances are more septic in themselves and are not readily changed to a septic state, unless the obstetrician has passed his hand or instruments into the cavity of the uterus and so infected them.

The rule with ergot is, if the case is one in which labor is hard, to give it. As with the use of any other drug, the judgment of the physician is the only guide. The law, Ergot must not be used too early, too late, and neither be increased, neither must it be used too late. As it takes almost an hour for the dose to be absorbed, when given by the mouth, the influence of the drug on the uterus can not be felt for that period, and there is therefore no danger in giving the drug as soon as the physician is certain that labor will be over, at least so far as the truth of the head is concerned, in half to one hour. We therefore believe that ergot is to be used in almost every case where the physician can not be at hand the instant hemorrhage or uterine relaxation is threatened, and that the practice so generally followed is productive of an amount of good which far outweighs the few instances in which it may not produce the best of results.

PROPHYLAXIS OF CHOLERA—RAPID DISINFECTION.

At the session of the Academy of Medicine of Paris on the 19th of September, M. LE FORT presiding, M. BROUARDEL invited attention to the fact that at the preceding session M. BABES had read a memorial showing that in 1890 Roumania, contrary to other countries of Europe, had escaped the cholera epidemic, thanks to quarantines which, following the ancient system had been applied in all their rigor. This rigor had been such that they had not hesitated to shoot two persons who had tried to force the land quarantine. On the contrary, in 1893 when the quarantine had not been applied, Roumania had been invaded by cholera in the same measure as the neighboring countries. From this M. BABES has leaped to the conclusion that the Dresden conference had in suppressing land quarantines adopted a fatal measure. "It is not doubtful," said M. BROUARDEL, "that the suppression of quarantines, pure and simple, without replacing them by similar measures, more simple than the former, in effect exposes Europe to the cholera infection, but such is not the result of following the conference of Dresden."

In the presence of the great inconvenience of the quarantines, which permitted disinfection, vaccination and, above all by time, it was asked if it were not possible to obtain the same result by means of rapid disinfection. It is easy to see that the existing measure adopted by the powers represented at Dresden, are precisely those which were the objects of the conference as indicated in the question proposed. These measures were pointed out to be such as disinfection by sterilizers, isolation of the sick, traveling card to be carried by well persons, etc. These statements of M. BROUARDEL are reassuring.

for they show that inspection is not proposed to be abandoned by the French, but only simplified and hastened.

EDUCATIONAL MODELS.

We print elsewhere a report by DR. BERLINER on the method of preparation of models which will be read with interest for, although originally printed a twelvemonth ago, the bringing of some of them to America as part of the German educational exhibit at the World's Fair, makes the description fresh and entertaining.

Teaching is but dry work without models or demonstrations, and one might as well undertake to teach practical anatomy by book, as pathology without diagrams and illustrations; as well also might the student learn the art of opera dancing by nightly observation of the ballet, as to learn the delicate handling of the scalpel without long practice on the cadaver. Our students require more practical training than ever, for it is not less true now than in the days of KING AGESILAUS, whose answer, when asked what a boy should learn, was, "that which they ought to do when they become men." Medical colleges have been rather slow in the adoption of the educational methods in use in other branches of learning, but they now seem pressing forward in the right direction and, as in agriculture, certain preparation of the soil must precede the planting, so the object lessons of the schoolroom prepare the mind of the student for the technical models of the medical school, and for the severer test questions of daily life, when school days are long past.

THE SANITARY MODE OF OATH ADMINISTRATION IN THE COURTS.

The *London Lancet* and the *Sanitary Record* have been foremost in counseling abandonment of the "kissing of the book" by witnesses in the courts of justice. It is practically an act of injustice, oftentimes, this long standing custom of bringing together, through the medium of the book, face to face and mouth to mouth, the cleanly and healthy, the uncleanly and infected. A physician of London has recently been the subject of considerable public comment for declining, on sanitary grounds, to take the book oath. The following is a condensed account of the recent occurrence taken from the *Pall Mall Gazette*:

"The kissing of the book" is likely before long to become one of the lost arts. Another objector to the practice has turned up in the West London Police Court in the person of Dr. Morris Wallace, called to give evidence in a case where one woman was charged with stabbing another in the eye with a fork. The doctor said he had no religious scruples, but he considered that there was a risk to health involved in putting to his lips a book which had already been kissed by other people. The magistrate suggested as a compromise kissing the inside of the volume. But here, too, the doctor objected "on sanitary grounds," and he was finally sworn by holding up the right hand."

This may be the beginning of a "reform movement;" and if so, it is only natural to see a medical man stepping to the front. Not a few of our medical acquaintance habitually adopt the oath by affirmation, instead of the traditional method, in regard to which, it is no slander to remark that it is more honored in the breach than in the observance.

MEDICAL EDUCATION.

The Illinois State Board of Health at its last meeting, decided to resume the publication of the reports on medical education. For the last two years, owing to various causes, none have been printed. DR. J. COLLINS WARREN, President of the Section of Pedagogy of the Pan-American Medical Congress, in his address, after reviewing the subject in this country, says:

"The reports on medical education by the Illinois Board, I do not hesitate to say have exerted a more powerful influence on the movement in education than any other publication which our medical literature has produced."

This is undoubtedly true. These reports were object lessons to the profession and to the schools, and presented truthfully the status of the colleges. DR. F. W. REILLY is now engaged in preparing the forthcoming report. He is eminently qualified for the task, having assisted in the preparation of nearly all the reports that were issued by the Board.

CHICKEN POX OR SMALLPOX.

The death of DR. THOMAS RICHARDS at North Brothers' Island of smallpox is very sad. It may be said to be the result of mistaken diagnosis, and carelessness upon his part in not being properly protected by vaccination. He contracted the disease from a case of supposed chicken pox that was brought before the Vanderbilt clinique, which afterward proved to be smallpox.

This is not the first time that a mishap of this character has occurred. It is simply impossible always in the early stages to differentiate these diseases. The man who says he can always diagnose a mild case of smallpox or varioloid has only encountered typical cases, or has had but a limited experience. Experience has taught that the only safe way is to treat such cases as suspects, and wait for development. Bringing uncertain cases of this character before classes during a clinique is unsafe, so long as all unexposed persons are unprotected by vaccination.

French Sanitary Commissioner at Constantinople.—Pursuant to a request from the Ottoman Government M. Charte-messe has been sent by the French Government to preside at the inauguration of the measures of combating the cholera which has been active in that city.—*Bulletin Medical*, Sept. 20.

RUPTURE OF SMALL INTESTINE—LAPAROTOMY—ONE DEATH, TWO RECOVERIES.

BY H. C. DALTON, M.D.

ST. LOUIS.

Professor Abdominal and Clinical Surgery, Marion Sims College of Medicine; late Superintendent St. Louis City Hospital.

Rupture of the intestines is so rare that I am sure the report of the following cases will prove of sufficient interest to the Association to justify me in taking up a few moments of your time. The cases particularly emphasize the urgent need of early interference in such injuries, if we would save our patients from rapid peritonitis and death.

CASE I.—RUPTURE OF JEJUNUM AND MESENTERY—LAPAROTOMY—DEATH.

J. W., *et. 22*; laborer; entered the City Hospital in October, 1893. Twenty hours before admission, while stealing a ride on a freight train in Illinois, he fell from the top of the car striking his belly against the handrail in the descent. He was brought to the hospital at 1 p. m. next day. His temperature at that time was 103 F. Pulse 120 F. Percussion gave dullness in the dorsal gutters, and resonance anteriorly. He was at once prepared for laparotomy. Dr. D. H. Mudd, who was holding a clinic at the time, kindly assisted me in the operation. After thorough antiseptic precautions a median incision eight inches long, was made. The cavity was found full of clotted and fluid blood. The necessary handling of the intestine caused fresh bleeding which was at first thought to come from the liver, but a careful search revealed a complete transverse laceration of the jejunum at its spinal attachment, the end of the gut being separated to the extent of an inch or more. The mucous membrane was greatly everted. The tear extended an inch into the mesentery and owing to the depth of the rupture it was manipulated with great difficulty. The mesentery was closed on both sides with interrupted iron dyed silk sutures. An ordinary canalic needle two inches in length was used. The upper end of the gut was inserted into the lower and the serous surfaces brought together by the interrupted Lembert suture, a large number being required. The blood was washed from the cavity and the surgical wound closed. Drainage was not used. The patient never rallied from the shock, and died a few hours after the operation. I can but believe that this patient would have recovered had he been brought to the hospital the day before. The intestine was quite red though not adherent, peritonitis not having advanced sufficiently far to produce that effect.

CASE II.—RUPTURE OF JEJUNUM—LAPAROTOMY—RECOVERY.

John I., *et. 17*; hostler; entered the City Hospital at 9 a. m. Feb. 8, 1892, a half hour after being thrown from a horse. The horse also fell and rolled over on the boy, boring the horn of the saddle into his belly. A scalp wound four inches in length was found three inches above the left ear, from which a considerable quantity of blood had escaped, sufficient to thoroughly saturate the patient's clothes. Although the patient admitted shortly after admission that he was suffering considerable pain in the abdomen, he afterwards denied it, referring all the pain to the scalp wound. I learned later that a patient in an adjoining bed had warned him that if he admitted having pain in the belly the doctors would "cut him open." Five or six hours after admission he reluctantly gave me the above history. Careful inspection of the abdominal surface failed to show the least bruise or abrasion, but deep pressure gave pain in the umbilical region, and percussion gave dullness over the left side of the belly. There had been considerable vomiting. His pulse was now 105 F., temperature 101.5 F.

The scalp wound had been cleaned and closed shortly after his entrance into the hospital. After thorough antiseptic precautions a medial incision five inches long was made. The small intestine was found collapsed. This was followed to the upper portion of the jejunum where a transverse rupture an inch and a quarter in length was found. Considerable blood and fecal matter was found in the left dorsal gutter. This was washed out with warm physiological salt solution. The wound in the gut was closed by interrupted iron dyed silk Lembert suture. A glass drainage tube, surrounded by iodoform gauze, was placed in the pelvic cavity and the belly closed. The tube was cleaned every hour for twelve hours. Then at increased intervals for four hours, after which it was removed.

The patient rallied nicely. His temperature for four days varied between 100 F. and 101 F., after which recovery was rapid.

At the time of the removal of the tube, an accident occurred which had happened in several of my previous cases, i. e., portions of the omentum had become strongly attached to the openings in the tube. I found it impossible to detach the omentum until I had excised the invaginated portion. The fistulous track left by the tube was filled with iodoform gauze, and a snug dressing applied. The patient was discharged well March 20, twelve days after admission.

CASE III.—RUPTURE OF ILEUM—LAPAROTOMY—RECOVERY.

Peter M., *et. 20*, was admitted into the hospital at 4 p. m., Nov. 20, 1891. Three hours prior to admission, while feeding a circular saw a piece of wood became detached, and with great force was thrown against his abdomen. In a few minutes he grew faint and was compelled to lie down. Vomiting soon developed, and pain became intense. When admitted to the hospital he was in great pain paroxysmal in character. Shortly after this he again vomited. His pulse was 116 F. and weak; hands and feet cold. The face wore an anxious expression. The respiration was hurried and superficial. Examination of the belly showed a very slight abrasion four inches in length, extending from right anterior superior spinous process to umbilicus. Percussion over this region gave a tympanic note. There was also some swelling at this site, as well as great tenderness and pain on pressure. The urine was drawn and found normal, indicating an intact bladder. His rectal temperature was 105 F.

At 7:30 p. m., three and one-half hours after admission, I opened the belly. Prior to doing this, however, I had in the presence of Drs. French and L. I. Mathews (who were visiting me at the time), made the diagnosis of ruptured intestine. An incision four inches long was made in the right linea semilunaris which bisected the abraded portion about its middle. Upon drawing out the ileum a transverse rupture about an inch long was found. This was closed by five or six interrupted Lembert iron dyed sutures. The omentum was also stitched to the wound. A small quantity of fecal matter and a large quantity of peritoneal secretion was sponged from the cavity, after which it was closed without drainage, save a small piece of gauze which was left in the lower angle of the wound. This was removed on the second day with great difficulty owing to the firm adhesion of the gauze. Peritonitis had not developed.

There was some contusion and hematoma in the adjoining mesentery. The cavity was not irrigated, but the intestinal coils, while out of the belly, were washed with the salt solution. As in the preceding case, the small intestine below the rupture was collapsed. (This condition is almost always present in such cases as well as in intestinal obstruction.)

(An interesting feature of this case was that a Meckel's diverticulum was found a short distance below the rupture. It was an inch in length and about the same in width.) The wound healed by first intention, and the patient's recovery was rapid and uninterrupted. Flatus and feces passed for the first time on the second day.

I attribute the success in the last two cases to the early operation. I believe, in the hands of a careful surgeon, almost all such cases can be saved. Of course the main point is to make a correct diagnosis. The symptoms following the injuries to the abdominal viscera are usually sufficiently plain. I lay most stress upon the character of the pain. It is usually intense and paroxysmal in character. It is nearly always accompanied by vomiting.

Blows upon the abdominal wall, unaccompanied by rupture of the viscera rarely give rise to such

grave symptoms. Usually a soothing application and rest will give relief. If in spite of this simple treatment severe paroxysmal pain continues for some hours we may be sure, almost beyond doubt, that we have to deal with a grave condition for which laparotomy affords the only relief.

Should the injury cause internal hemorrhage, percussion of the dorsal gutters will give dullness and thus make the diagnosis more certain. Many such cases are lost by the so-called conservative surgeon waiting for symptoms of peritonitis. Symptoms of peritonitis mean peritonitis and the operation is then, in the vast majority of cases, followed by the usual result—death.

After such injuries the patient should be carefully watched for a few hours, and a few hours only. For my part I would rather make a mistake and operate immediately than to fail to operate in a single appropriate case. For in the inappropriate cases, a simple exploratory operation would rarely result in death, and would add but little to the gravity of the case, while delay in appropriate cases would almost certainly result in death.

I do not deny that blows on the abdomen may give rise to the described grave symptoms without visceral injury, but I do emphatically deny that such symptoms will continue for hours after the injury. I am also not unmindful of the fact that in grave visceral injuries patients have recovered without surgical interference, but I desire to ask the procrastinating surgeon how many he thinks would recover without such aid,—how many such cases he has seen? Should he tell of such cases I would be glad to ask him if he was sure his diagnosis was correct, and to give us the reason for his faith.

Cases of rupture of the liver and spleen are very much more liable to recover without surgical aid than rupture of the intestine or bladder. In cases of the former kind, (i.e., of the liver and spleen) unaccompanied by evidences of hemorrhage, an operation might be delayed many hours. In such cases the surgeon should not hesitate to operate as soon as he is well satisfied that the expectant plan will fail, and this means that he should do it before the development of peritonitis.

NECROLOGY.

Dr. Clarke of San Francisco, died Sept. 14, 1893.

Dr. George G. Shively of Waynesboro, died Sept. 20, 1893.

Dr. J. E. Roche of Chicago, died Sept. 29, 1893. The doctor's life was lost by an accident. His horse ran away and the vehicle upset, throwing him into the river. His body was not recovered for several days.

Dr. Walter Vought of New York City, died of typhoid fever September 24. He was a native of Buffalo, N. Y., and educated at Yale College, Columbia University, at Heidelberg and Vienna. He made nervous diseases the subject of special study, and was chief of clinic in that branch at the Vanderbilt Clinic. He was a member of the New York Academy of Medicine, Pathological and other scientific societies. In the summer of 1892, his name became a household word by reason of his having been appointed to the charge of the Fire Island station for cholera suspects. He was 31 years old at the time of his decease.

BOOK NOTICES.

A Dictionary of Medical Science.—Containing a full explanation of the various subjects and terms of anatomy, physiology, medical chemistry, pharmacy, pharmacology, therapeutics, medicine, hygiene, dietetics, pathology, surgery, bacteriology, ophthalmology, otology, laryngology, dermatology, gynecology, obstetrics, pediatrics, medical jurisprudence and dentistry, etc., etc. By ROBERT DUNGLISON, M.D., LL.D., late Professor of Institutes of Medicine in the Jefferson Medical College of Philadelphia. Edited by RICHARD J. DUNGLISON, A.M., M.D. New (21st) edition, thoroughly revised, greatly enlarged and improved, with the pronunciation, accentuation and derivation of the terms. In one imperial octavo volume of 1,181 pages. Cloth, \$7.00; leather, \$8.00. Philadelphia: Lea Brothers & Co., 1893.

In a recent issue we announced the early publication of the new edition of this great work and favorite American dictionary.

It now lies upon our table, and in examining it we are pleased to note, that all the old features that have made Dunglison's Dictionary so popular in the past have been retained. Many new improvements have been made, to bring the work up to date. No previous edition has witnessed so many additions and changes, in which the editor has apparently been greatly aided by the many dictionaries that have appeared since the last edition was issued.

A perusal of the book will convince any one, that the "Dunglison" will still retain its well earned place in the medical library for a long time to come, as a monument to American scholarship.

Bellevue Hospital and Its Internes.—A presentation copy of this interesting book, "An Account of Bellevue Hospital, with a Catalogue of the Medical and Surgical Staff from 1736 to 1894," is before us. It is from the De Vinne press, and faultless in its typographical dress. It is abundantly illustrated, and attractive beyond anything of a medico-historical nature that has hitherto fallen under our notice. About one-fourth of its letter-press is given up to the history of the hospital and about three-fourths are needed for the catalogue. The latter part is that which must necessarily have entailed the laborious efforts of the editor, Dr. Robert J. Carlisle, to gather together the records of a thousand or more names of practitioners who have gone forth from Bellevue's wards to the four corners of the earth. Dr. Carlisle has done his work patiently and fully, and he is to be congratulated if he has survived his labors and has his health. A number of good portraits adorn the book, among the best of which are the faces of the late Drs. Alonzo Clark and Henry B. Sands. The book is published under the auspices of the Society of the Alumni of the Hospital, which may be addressed at No. 5, West Fifty-eighth Street, New York City.

Alabama State Medical Association.—Transactions for 1893. The transactions of this Association appears in its usual well-written form, contains some excellent papers but, above all, shows the most careful organization of probably any State society in the United States. The report of the board of censors, annually published by this Association is unique. It includes the reports of the examinations made by each county board of censors of candidates for admission to practice, with the comment of the censors thereon, a roll of county societies, the annual oration and various interesting papers. The book is highly creditable to the Association and the publication committee. The secretary is Dr. Jas. R. Jordan of Montgomery, Ala.

New York State Medical Association.—Transactions for 1892. By all odds the most complete and comprehensive transactions that have reached our table thus far, are the trans-

actions of this Association, comprised in a handsome volume of 831 pages. It has been carefully edited for the Association by Dr. O. C. Ludlow of New York. The papers include the following: "President's Annual Address," by Dr. Jackson B. Andrews of Erie County. "Pneumotomy for Abscess of Tubercular Abscess and Gangrene of the Lung; Two in the Same Patient," by Dr. John Blake White of New York County. "Traumatic Osteo-Arthritic Lesions which Involve the Proximal Segment of the Ankle Joint; Their Pathological Anatomy and Treatment," by Dr. Thomas H. Marley of New York County. "Muscular Traction for Hip Joint Disease," by Dr. Thomas M. Ludlow Chrystie of New York County. "Some Recent Cases of Appendicitis," by Dr. Nathan Jacobson of Onondaga County. "Ectopic Pregnancy," by Dr. Henry D. Ingraham of Erie County. "Antiseptic Vaginal and Intra-Uterine Injections Unnecessary, if not Injurious, in the Daily Practice of Obstetrics," by Dr. Darwin Colvin of Wayne County. "The Palliative Treatment of Such Cases of Cancer of the Uterus and Its Adnexa as are not Amenable to Radical Operative Measures," by Dr. J. E. Janvry of New York County. "A Case of Puerperal Eclampsia at the Seventh Month, With a Few Thoughts from Practical Experience as to Treatment," by Dr. Douglas Ayres of Montgomery County. "Tumors of the Orbit. A Detailed Account of Nineteen Cases Illustrating the Paper on the Same Subject Presented to the New York State Medical Association at Its Meeting in 1891," by Dr. Charles Stedman Bull of New York County. "Paraplegia," by Dr. Charles W. Brown of Washington, D. C. "The Question of Maternal Impressions," by Dr. H. S. Williams of New York County. "Clinical Contributions to the Subject of Brain Surgery," by Dr. Roswell Park of Erie County. "A Plea for the Early Extirpation of Tumors," by Dr. John W. S. Gouley of New York County. "Remarks on a New Method of Intestinal Anastomosis," by Dr. Benjamin M. Ricketts of Cincinnati, Ohio. "A Report of Some Cases of Compound Depressed Fracture of the Skull," by George D. Kahlo of Indiana. "The Achievements of American Surgery," by Dr. Frederic S. Dennis of New York County. "Memoranda, Practical and Suggestive," by Dr. H. D. Judama of Onondaga County. "Acute Pleurisy," by Dr. Frank S. Parsons of Northampton, Mass. "A Clinico-Pathological Study of Injuries of the Head, With Special Reference to Lesions of the Brain Substance," by Dr. Charles Phelps of New York County. "The Etiology of Gastric Ulcer," by Dr. Charles G. Stockton of Erie County. "The Examination and Commitment of the Public Insane in New York City," by Dr. Matthew D. Field of New York County. "Mitral Stenosis in Pregnancy," by Dr. Zera J. Lusk of Wyoming County. "The Use of Electricity in Midwifery," by Dr. Ogden C. Ludlow of New York County. "The Role of Microbes in Disease," by Dr. N. B. Sizer of Kings County. "Abdominal Hysterectomy for Myoma," by Dr. Frederick A. Baldwin of New York County. "Extraction of Steel from the Interior of the Eye with the Electro-Magnet," by Dr. Alvin A. Hubbell of Erie County. "The Mental Symptoms of Fatigue," by Dr. Edward Cowels of Somerville, Mass. "A Review of Some Injuries of the Upper Extremity," by Dr. E. M. Moore of Monroe County. "Fractures of the Patella Treated by Continuous Extension; Patients not Confined to Bed," by Dr. Joseph D. Bryant of New York County. "Winter Cholera in Poughkeepsie," by Dr. James G. Porteous of Dutchess County. "Suggestions Relating to Improvement of Quarantine," by Dr. Stephen Smith of New York County. "The Limit of Responsibility in the Insane," by Dr. John Shady of New York County. "Some Personal Observations and Reflections upon Alcoholism, the Effects of Alcoholic Abuse upon Posterity, and the Treatment of Alcoholism," by Dr. H. Ernst Schmid of Westchester County. "Climatology in Its Relation to Disease," by Dr. S. J. Murray of New York County. "Pelvic Version," by T. J. McGillivuddy of New York County. "Should We Treat Fever," by Dr. S. T. Armstrong of New York County. "Brief Comments on Materia Medica, Pharmacy and Therapeutics of the Year Ending November 1, 1892," by Dr. E. H. Squibb of Kings

County. "Gynecological Hygiene," by Dr. J. B. Rogers of Erie County. "The Superior Cervical Sympathetic in Local Anæsthesia," by Dr. J. B. Rogers of Erie County. "The Hygiene of the Larynx," by Dr. J. B. Rogers of Erie County. "The Hygiene of the Larynx," by Dr. J. B. Rogers of Erie County.

The Neurology Report, by Dr. J. B. Rogers of Erie County, deceased, 1891-92. The volume is 100 pages long. It is published by Dr. J. B. Rogers of Erie County, N. Y.

The Association is also indebted to Dr. J. B. Rogers of Erie County, N. Y., for the organization of the Association for the year 1892-93. Those who adhere to the regulations of the American Medical Association have well performed their part. Dr. J. B. Rogers, M. D. of Troy, N. Y., is the secretary.

Pennsylvania State Medical Society.—Transactions for 1892. The transactions of this Society are comprised in a handsome volume of 288 pages, containing the minutes, the annual report and the papers read at the meeting. The volume contains papers by such well-known authorities as Price, Shoemaker, Roberts, Tyson, Dixon and Mills. Several of the papers are handsomely illustrated, and the book is well printed. Wm. B. Atkinson, M. D. of Philadelphia is secretary.

DOMESTIC CORRESPONDENCE.

Antisepsis as She is Taught.

Cleanliness is next to godliness.

To the Editor:—Some of the requirements of modern antisepsis, such as shaving the pubes, sealing vagina and anus, and banishing pater-familias, ante-partum must impress the veteran obstetrician much as the swallow-tail coat and standing collar did an untutored savage in process of civilization. Delighted and tractable he was until he came to put on these articles of apparel, when suddenly disrobing he resumed his war paint and feathers and with a "whoop" disappeared in the bush.

C. M. FENN, M.D.

San Diego, Sept. 18, 1893.

MISCELLANY.

The Health of the British Army.—The report of the British Army Medical Department for the year 1891 has recently been issued. The delay in its appearance is allowable when it is considered that reports have to come in from all parts of the world before the consolidation in the office of the director general can be made. In turning over its pages the tabulated statistics naturally attract our attention first; and we are gratified to find that in the presentation of our own army medical statistics our military brethren are in no ways behind those of her Majesty's service. We observe that the latter purport to give the rating of sickness under certain specified conditions of disease for the year and the average ratios for the previous ten years; but as a matter of fact the average ratios are given only for the years 1881-90, and a note at the bottom of each page of the tabulations announces that "the average ratios for ten years will be given in future years. The average ratios for the six years, 1886 to 1891, will be given in the report for 1892; those for the seven years, 1880 to 1892, in that for 1893, etc." The reports of the surgeon general of the United States army for several years back have given the ratios for the preceding decade that the value of the ratios for the year reported may be appreciated the more readily. Again, the tables of the United States reports give the data for a larger number of specified diseases than are found in that now before us. By way of illustration, the

latter furnishes us with the rates for diseases of the respiratory system in gross, while the former specifies the rates of catarrhs and common colds, bronchitis, pneumonia, pulmonary phthisis and pleurisy, and bundles up by themselves only the remaining unspecified diseases of this system. Similarly, our tables give much more information as to the prevalence and severity of wounds, accidents and injuries.

The strength of the British army was in round numbers 200,000 men; half of these men were on the home stations, and two-thirds of the other half in India. Malta and Gibraltar were the largest of what may be called the small military settlements, the former with nearly 8,000 and the latter with 5,000 men. Canada had only 1,500.

The admissions on sick report of the home service troops amounted to 772.2 per thousand of strength. This seems to intimate that there was much less sickness among these men than in our army during the same period, for our admission rate was 1364.78 per thousand; but notwithstanding their relatively small number of cases our British friends had 41.66 men constantly sick while we had only 42.01. The average duration of each case was with them 19.69 days, with us 11.2 days. It is seen, therefore, that the admission rate means little. Our medical officers place men on sick report for trivial disorders that do not meet with official recognition in the British army. The non-efficient rate, based on the number constantly sick, is the proper rate for measuring the relative amount of sickness in different armies, and as these rates are 41.66 and 42.01, our disability during the year must be regarded as practically the same as theirs, notwithstanding their smaller number of cases. Their death rate was 4.94, ours 8.06; but the latter includes the men who were killed in the Sioux campaign. Their rate of discharge for disability was 14.51, ours 17.23.

When we consider that the 100,000 men who furnished these statistics were stationed on what in this country would be called fancy duty, we have reason to be gratified with the comparison, for many of our men during the year were exposed to all the discomforts and insanitary conditions incident to a state of war. When the British troops on foreign stations are brought into the calculations the general death rate of their army rises to 9.13, and the constantly non-effective from sickness to 55.56. Their heaviest death rate was reported from the Mauritius, 25.87, half of which was caused by enteric fever. India gave 16.36, the main factors enteric fever and cholera, and the West Indies 13.69, in part due to yellow fever. The highest non-effective rate was given by the troops in the Straits settlements, 93.48, more than half of it the result of venereal diseases. India had 80.22 constantly sick and the West Indies 75.53.

But it is with the record of the home service troops that we are chiefly interested, as permitting us to compare the morbidity among our own troops with that of men who are stationed in a healthy climate and have the best medical and sanitary care. Enteric fever caused only 1.1 admissions per thousand of strength, as compared with 3.35 in the United States, but in considering these rates it is to be remembered that a large number of other continued fevers were reported in the United Kingdom many of which would probably have been called typhoid fever in this country. As in previous years, the station at which there were most cases of enteric fever was Dublin. Influenza prevailed as much in Britain as in the United States. Although the custom is generally entertained in this country that drainage and efficient cultivation have banished malarial fevers from the British Isles, we find that there were 18 admissions in Scotland, 3.0 in Ireland and 9.6 in England and

Wales. The greatest prevalence in the United States was 546.05 in Oklahoma, but the average of the army was only 62.63. If the sickness from all forms of venereal disease is taken together the British admission rate amounted to 197.4, and the constant sick to 15.34. Our figures compare favorably with these, only 72.46 admissions and 5.00 non-efficient; but if all our garrisons were in the neighborhood of cities, as are most of the English stations, it is possible our rates might be as high as theirs, for their highest admission rate, 280.0, in the Channel Islands, was nearly equalled by our recruits at Columbus Barracks, Ohio, who had a rate of 266.06. It is alcoholism, however, that must be regarded as the special vice of our troops when compared with the British, if any faith may be placed in the statistics. Only 24 admission were recorded, while the United States rate was 40.01. We know that our men go on sick report when they are suffering from the effects of dissipation, but the figures fail to give us any idea of how this may be in the English ranks. We have recognized already that their trivial cases are not taken on the sick report, and a little cerebral congestion or gastric irritability due to the conviviality of the evening before may be regarded as one of the trivial cases. The admission rate for injuries was 105.1, and the mortality .70, as compared with 248.91 and 3.02 in the United States. They had a total of 19 deaths from gunshot wounds in their 100,000 men; we had 87 among our 25,000; they had 27 deaths from drowning, we 18; they 25 suicides, we 22; all of which seems to indicate that on home service Tommy Atkins has a quieter and easier life than he would have if he emigrated and took service under the stars and stripes. Out of a total of 35,678 operations of vaccination of soldiers 68.31 per cent. gave perfect results, 18.87 per cent. gave modified results, 12.82 were failures.

Of 6,132 recruits inspected 37.88 per cent. were rejected. We are more exacting in our requirements, for of 25,050 candidates we rejected 63.84 per cent. The average British recruit is young and undeveloped, age 19.6 years, height 65.6 inches, weight 122.3 pounds, and chest measurement 33.4 inches. On account of our short term of enlistment and the inclusion of our re-enlisted soldiers in the list of accepted men, our average recruit is a much better man. Age 24.43; height 67.43 inches; weight 145.35 pounds; circumference of chest at expiration 34.16 inches; at inspiration 37.02 inches.

In the appendix to the Report Brigade, Surgeon Lieut.-Colonel J. Lane Nottter reviews the progress of hygiene for the year 1892. He speaks highly of the work of the Massachusetts Board of Health, and cites from a paper by Mr. Fuller on the differentiation of the bacillus of typhoid fever in water. The method of Dr. Theobald Smith for distinguishing the typhoid bacillus is also given. Special note is made of the efforts in France to reduce the prevalence of enteric fever in the army by the substitution of pure for polluted water, or in default of this, by subjecting the impure water to a filtering process by the Chamberland filter. Wherever an epidemic broke out the water supply was found to be contaminated. In 1867 the enteric fever cases numbered 6,881; since then they have been reduced 52 per cent. The filter is composed of Chamberland bougies, system Pasteur, placed in concentric circles in the inside of a metallic reservoir capable of receiving water under a pressure of three atmospheres. For a company of infantry a filter of twelve bougies is allowed, with a reservoir having a capacity of 150 liters. The officers of the medical department are responsible for the proper working of the filters.

Epidemic of Typhoid in Allegheny, Pa.—An epidemic of typhoid fever has broken out in lower Allegheny and invaded the Western Penitentiary. Two deaths in two days occurred in the prison. Eighteen other prisoners are in the hospital suffering with the disease and some may not recover. Outside the prison there are scores of cases. The drinking water pumped from the Allegheny River is given as the cause of the epidemic.

New Hospital at Kansas City.—The University Medical College of Kansas City, have leased All Saints' Hospital, and organized a new staff. Dr. B. E. Fryer is President of the Board of Managers.

The New City Hospital at Minneapolis was opened for occupancy October 1.

Health of New York.—During the month ending September 30, the lowest mortality thus far of the year 1893 was reached in the city of New York. The total number of deaths reported was 678, which is 53 below the average of the corresponding weeks of the past five years, and represents an annual death rate of only 18.54 for each thousand of the estimated population. Notwithstanding the generally improved condition of the health of the city, however, there was an increase of seven over the previous week in the number of deaths from smallpox, which amounted to ten. On account of the increase in this disease the health department is making use of extraordinary precautions, and has just secured from the Board of Estimate and Apportionment the appropriation of \$3,000 for the payment of fifteen extra physicians to serve in the free vaccinating corps. Dr. Nagle, registrar of records of vital statistics, reports that epidemic influenza has again made its appearance in the city, a month earlier than last year. During the week two deaths were recorded as due to this cause, and they are the first reported from la grippe, since the week ending July 1, when there were also two fatal cases. Last year the first death from it was reported October 29, and up to the close of the year the deaths amounted to twenty. From January 1 to July 1 there were 182 deaths. During the week there were thirteen deaths from typhoid fever, two from scarlet fever, twenty-three from diphtheria, four from cerebro-spinal meningitis and eight from measles.

A Simplified Formula for a Much Litigated Article.—A nostrum that has been much in the papers and much in the courts, and is nevertheless still doing a considerable business, it is said, is the subject of an exposure in the *Dentists' Circular and Chemical Gazette*. The object of the article is to present a prescription which, while not coming in conflict with the patent rights of any microbe destroyer, will have all the desired or desirable potency. It has been declared by Dr. Eccles of Brooklyn, in the journal above named, that the Kadam's Microbe Killer contains sulphuric acid for its main support in the realm of germ-slaying. The prescription, simplified from the analyses of Eccles and others, reads as follows:

Sulphurous acid, U. S. P., four ounces; sulphuric acid, commercial, four drachms; muriatic acid, two to ten drops; red wine, one ounce; water, sufficient to make one gallon. In former analyses, the muriatic acid had been found in larger proportions. That was "one of the best of the ingredients," as Dr. Eccles reported in 1889, whereas now it is almost eliminated and sulphurous acid has taken its place. Dr. Eccles states later that he is informed that the formula used by the Canadian branch excludes the red wine, one ounce to the gallon.

Pigmentation Treated by Tattooing.—According to Dr. Paschke, in the *Archiv für Dermatologie und Syphilis*, Heft. 3, 1893, tattooing may be made use of in the relief of pigmentations of the skin. The material chiefly used by him has been baryta-white, which latter may be toned to the color of the surrounding integument by a judicious admixture of browns and reds. A little experience, with a good eye for color, will bring about a considerable improvement of the unsightly parts.

Dr. Ohmann-Dumesnil of St. Louis, has shown that tattooing may be removed by tattooing. His method involves a new principle; namely, the digestion of the subcutaneous pigments by papoid. The tattooed parts having been well washed with soap and water, a bunch of cambric needles—six or eight—bound together with silk thread is used. This medical tattooing implement is dipped in glycerol of papoid, and driven with a sharp blow into the tattooed part. This is repeated over the entire stain, and must be thorough to be effective. A peculiarity about this method is that it causes no inflammatory reaction observed in tattooing with Indian ink or other pigments. Dr. Ohmann-Dumesnil considers that the digestive principle of the papoid is disseminated about the deposit of pigment thus liberating it. A portion is absorbed, in a finely divided state, by the lymphatics; another part probably finds its way into the upper layers of the epidermis and thence to the surface; and in this manner the pigment disappears.

Elected Mayor of Woodward.—Dr. Melton of Denver, Colo., was one of the "boomers" that went to the Cherokee strip, and when the land was thrown open to settlement and the people had selected their locations and erected their tents a municipal government was organized by the election of Dr. Melton of Denver, as mayor; Attorney Lame of Denver, city attorney, and a board of aldermen consisting of five members, three from Denver, and two from Texas. On Sunday two services were held, and Woodward has started on its career with as good and even better prospects than any settlement in the strip. Following precedent, a new medical society and medical journal will doubtless soon be added to the attractions of the infant city.

The Anti-Rheumatic Ring.—A writer in *Science Gleanings* says that two thousand years ago the Greeks believed that there was virtue in finger rings as against rheumatism. Galen, in the second century, gave heed to some of the popular fancies of that day, and recommended a ring of jasper with an intaglio of a male figure wearing about his neck a bunch of herbs. Marcellus, in the time of Marcus Aurelius, prescribed a ring of pure gold, with certain Greek letters inscribed thereon, to be worn for pain in the side; the circle was directed to be worn on the side opposite to the pain. The decrease of the moon was propitious to the plan of cure. "And these rings," says the writer, "had quite as much medical value as those that are now being sold for the relief of rheumatism."

Bequests to New York Hospitals.—The will of the late Hon. Hamilton Fish provides that St. Luke's Hospital shall receive \$5,000, and the Bellevue Training School for Nurses \$2,000. These are gifts additional to former ones made during the lifetime of the donor.

Fatality Following the Administration of Chloroform.—A death after chloroform occurred at the Methodist Episcopal Hospital at Brooklyn, N. Y. The patient, an adult male, had been brought to the hospital for the reduction of a dislocation of the arm, due to a fall from a wagon. Full anesthesia had not been induced before syncope set in, which could not be removed by the restoratives used.

Examinations of Manitoba University Medical Department.—The program of examinations is as follows:

Wednesday, Sept. 20—9-12 A. M. Algebra, med. entrance and previous supp.

2-5 P. M. Canadian hist. and geog., med. entrance and previous supp., chemistry.

Thursday, Sept. 21—Euclid, med. entrance and previous supp.

2-5 P. M. Arithmetic, med. ent. and Latin, prev. supp.

Friday, Sept. 22—9-12 A. M. Physics, med. ent., trig., prev. and pass.

2-5 P. M. Latin, Virgil, med. ent., French, previous studies, pass.

Saturday, Sept. 23—9-12 A. M. Latin, Caesar, med. ent.

2-5 P. M. Botany, med. ent.

Monday, Sept. 25—9-12 A. M. Grammar and rhetoric, 1½ composition, 1½.

2-5 P. M. Optional subject, poetical literature.

Dr. J. L. Wilcox of Springfield, Ill., has been recently appointed Collector of Internal Revenue for the Pekin district.

A Cottage Hospital is to be built at Woodstock, Ont., at a cost of \$10,250.

THE PUBLIC SERVICES.

HEAD-QUARTERS OF THE ARMY, ADJUTANT-GENERAL'S OFFICE
WASHINGTON, September 22, 1893.

GENERAL ORDERS, NO. 78.

By direction of the Secretary of War, upon the recommendation of the Surgeon General of the Army, the faculty of the Army Medical School, established by General Orders, No. 31, June 24, 1893, from this office, and regulations for the government of the school are announced as follows:

FACULTY OF THE ARMY MEDICAL SCHOOL.

Colonel Charles H. Alden, assistant surgeon general, U. S. Army, pres.

The Journal of the American Medical Association

VOL. XXI.

CHICAGO, OCTOBER 14, 1893.

No. 16.

ADDRESS.

INTERNATIONAL CONGRESS OF PUBLIC HEALTH.

ADDRESS OF THE PRESIDENT,¹

SAMUEL H. DURGIN, M.D.

BOSTON, MASS.

PRESIDENT OF THE AMERICAN PUBLIC HEALTH ASSOCIATION.

As co-workers in the field of sanitary science, and its practical application to the prevention of disease and death, we have again assembled from different parts of this and other countries to join hands, and to take counsel with each other.

We have met this time under most unusual circumstances, and with surroundings and conditions of world-wide interest.

The Columbian exposition marks an era in the world's history. Around us are gathered the evidences of advance in all lines of industry, of talent, and of thought. There has been a peace congress, a congress of religion, a congress of charities and correction and innumerable other gatherings for the purpose of comparing notes and showing the great advance in our civilization in all lines of thought and endeavor.

Among those who have died since the last meeting is Dr. Edward H. Jones, who for twenty-seven years occupied the position of Assistant Sanitary Superintendent of New York. He was also Secretary of the American Public Health Association for two years.

His contributions to the first three volumes of the Transactions, were characterized by care and painstaking, and of a decidedly practical character.

He was much interested in his chosen work and was a modest, upright, conscientious man.

Other workers have also passed away, and tributes to their memories will be paid by the Committee on Necrology.

AMERICAN PUBLIC HEALTH ASSOCIATION.

The great trust which this Association took upon itself twenty-one years ago has been worthily held, and the work to which it has addressed itself in the interest of humanity, has been diligently pursued. It is fitting, perhaps, at this time, when we may be said to have attained our majority in years, to take a retrospective glance of public sanitation, and to note the possible results of its application in the relief of human distress. The work of the sanitarian is manifold, and deals with the most vital of our personal and social interests. It deals with the air we breathe, the food we eat, the water we drink, the soil we live upon, and with the general welfare of mankind. It means the investigation of the rise, progress, and decline of epidemics, and a fostering growth of works and projects designed to prevent and remove the causes of disease.

AIMS OF SANITARY SCIENCE.

The sanitarian concerns himself but little with the cure of disease. The problem which he seeks to solve is how disease can be averted. The pathologist establishes the nature of morbid processes, and his investigations suggest to us the appropriate remedy. The aim of the sanitarian is to seek out and remove the cause or causes which produced these processes. It has been said that preventive medicine embraces everything which relates to the physical well-being of our fellow-men, so that it has to deal with all physical evils and, incidentally, many of a moral character. Its object is the health, and therefore the happiness and prosperity of man.

It is sometimes objected that public hygiene can not lay claim to the possession of the qualities of an exact science, that its data are too partial, its generalizations too sweeping. Unfortunately some reason for this feeling exists on account of the enthusiasm of certain writers who exaggerate what is seen, guess at what is unseen, and shape their conclusions accordingly.

True sanitary science, however, is built up slowly by patient observation of facts. Sanitary science is not altogether of modern growth. It may be said to have experienced several revivals, but its real history is almost as ancient as history itself.

HYGIENE AMONG THE ANCIENTS.

The ancients fought against evil smells as vigorously as the moderns. A process of disinfection was adopted by Ulysses, and described by Homer. Hercules too, was a practical sanitarian, but of all the ancient sanitary reformers, Moses was the most thorough and practical. He gave us the principle of the modern earth closet, although the animals of the field may be said to have anticipated him in that device. During the best times of Greece and Rome, public sanitation was much studied, and the supervision of hygienic arrangements was an office of dignity among the Greeks and the Romans. The cleansing and disinfection of streets and sewers were placed under a high officer of state, because as Justinian tells us "uncleaned and unrepaired sewers threaten a pestilential atmosphere, and are dangerous."

Sanitary science owes something to the fathers of medicine also. Hippocrates was the first sanitarian who wrote an entire book on public health, and his discourses upon pure air, pure water and pure soil are instructive reading at the present day.

It is exceedingly interesting and suggestive to find these ancient writers elucidating principles which the exact investigations of our time have demonstrated to be the true foundation of sanitary science.

In Mexico it has been shown that sanitary science must have reached a high degree of perfection in its history. Previous to the conquest of the country by the Spaniards, the towns were thoroughly and efficiently supplied with water by the most perfect sys-

¹ Read October 10, 1893.

tem; but the teachings of these early times were not permanently effective. The magnificent civil works were doomed to suffer ruin, and the world passed through dark ages of mental and physical barbarism.

The devastating epidemics of the middle ages which cut off one-quarter of the population of Europe are well known. Filth, instead of being abhorred, was almost sanctified. The monks imitated the filthy habits of the hermits and saints of early Christian times, and the early fathers commended them. Even St. Jerome used to praise the filthy habits of hermits, and especially commended an Egyptian hermit who combed his hair on Easter Sunday only, and never washed his clothes at all. Monks up to the time of the reformation thought, or professed to think that, by antithesis, pollution of the body indicated cleanliness of the soul. Practically, indeed, it might be said to have helped to it, because the odor of sanctity which infected these monks and hermits helped them to keep apart from the temptations of the world; for the world scarcely cared to come into too close contact with these odoriferous saints.

MODERN SANITATION.

The science of public sanitation as practiced in our day is a growth of recent years; a reaction from the ignorance and negligence of previous generations in the matter of sanitary administration. This reaction may be said to have dated from 1838, when the English Poor Law Commissioners instituted an inquiry into the health of towns with a view to remove by public authority some of the evils incident to poverty for which the poor are not responsible, and which they can not themselves remedy. The active movers in this work were Dr. Southard Smith, Mr. Edwin Chadwick, Dr. Arnott and Dr. Farr, and it is to their labors and testimony that much of the present enthusiasm concerning sanitary investigation and administration is due. The work begun by these pioneers has been carried on with increasing zeal from that time forward. It has enlisted the active interest of a multitude of intelligent, earnest men, who have patiently and persistently devoted their energies to the investigation of the causes of disease, and a constantly increasing interest is being manifested among the people concerning all matters looking toward a more perfect conservation of the public health.

Employers have found that there is a financial aspect to the sanitary questions of the day, and that more work and better work can be obtained from men in health than from men diseased.

Legislation has been influenced by the researches into the causes of disease, and has followed the lead of the investigators.

The schools of Europe and America have one by one added to their requirements for a degree in medicine, a knowledge of sanitary science. It is becoming more and more apparent that the first and largest interest of the State lies in this great agency of human power, the health of the people.

What practical results have followed from all this? What has sanitary science done for man as an individual and for mankind collectively?

In the first place, it can be shown that man to-day has a greater expectation of life than any of his progenitors. He may more reasonably look forward to a long life, and to a life less exposed to devastating sickness. His vitality has been expanded, his

strength increased and his days on earth prolonged.

From this brief review of the general subject of sanitary science let us turn to a more specific and practical consideration of some of its principles, and I will ask your attention for a few moments to the topic of *municipal sanitation*.

MUNICIPAL SANITATION.

The municipal health officer on entering upon his duties finds himself confronted with innumerable questions as to the sources of danger to the public health, of which he has been selected as guardian.

He first pictures to himself an ideal sanitary condition, for example: a clean, dry surface; a well-drained soil; good public and private sewerage, the immediate destruction or removal of all decomposable wastes, wholesome food and water supplies, with a sufficient equipment to preserve all of these favorable conditions, and then his work of construction and maintenance begins.

It would be impossible within the scope reasonably given to a single address to more than touch lightly upon the large number of topics, and the variety of each which falls under the care of the municipal health officer. I shall, therefore, delay you by a consideration of only a few of the more important subjects which affect the health of cities.

WATER SUPPLY AND DRAINAGE.

The difficulty of finding a pure and uncontaminated water supply in sufficient quantity to meet the ever increasing requirements of modern civilized life, has confronted every large city on the globe. With the increase of population it is not possible to find a watershed which is not more or less polluted by the wastes of human life. Our great lakes even at certain points upon their shores have become at times sources of disease. And some of the cities of the old world recognizing the difficulty of procuring waters which are not contaminated by sewage, have almost by force of necessity adopted a suspicious supply, and have trusted to methods of filtration for the removal of the disease producing elements. London and Berlin afford examples of the immunity from infectious diseases attending the use of waters so filtered. A variety of opinions is held among sanitary engineers as to the best method for sewage disposal. The opportunity for the ultimate disposal of sewage is not the same for all cities. One city has the opportunity to discharge its sewage into deep tide water under such conditions as to give rise to no evil results, while other cities are not so favorably situated. It would be a safe principle to follow, however, never to discharge sewage matter into any river, lake, or body of water which is likely to be used as a source of water supply.

DRAINAGE.

Although I am not prepared to say that through the scientific experimentation now going on in the filtration of sewage-polluted waters, the time may not come when the waters of any river or lake may be used as a source of water supply, and the sewage resulting therefrom then be returned to the streams in a state of comparative purity which will render them available for domestic uses. However much we may disagree as to the ultimate disposal of sewage, there seems to be a general consensus of opinion that the water carriage system must supercede all others in its cheapness and capacity for a rapid and safe translation of our sewage from its

initial starting point to a proper and safe outfall, where it may be disposed of without offense and danger to the inhabitants of the city.

It is generally conceded that when this material is confined within its proper channels and constantly undergoes rapid removal it is harmless, and does not deserve the opprobrious epithet which it incurs under opposite conditions, namely, when stagnating without or even within its channels.

Under these favorable conditions, the problem of the ventilation of sewers becomes extremely simple by harmless open grate covers over the manholes in the streets. The public sewers thus supplied with the proper and continuous incline to secure the rapid and continuous flow, are ready to receive the private drainage from dwellings and factories and other sources.

The question of private or house drainage is more complex, and should be constructed only under regulations prepared by competent sanitary engineers, by plumbers who have shown their competency for such work to a proper board of examiners, and have been licensed therefore. The material for this work should be strong, tightly jointed, securely trapped and ventilated above the top of the house.

With a system of sewage thus supplied, the privy vault and cesspool, which have been most serious menaces to the health of cities, should cease to exist.

It is easy to see that with such suitable provisions for the complete and rapid removal of all sewage, the escape of noxious emanations from the sewers into the streets and dwellings would be impossible.

The conditions under which sewer gases are generated and penetrate into houses are from the stagnation of sewage, by its putrefaction when the consequent generation of poisonous vapors are favored, and the absence of sewer ventilation, by consequence of which these vapors are confined and pent up, until they acquire a sufficient degree of tension to force the barriers by which we vainly attempt to exclude them from our homes. By the rapid removal of sewage, on the other hand, its putrefaction in our midst is forestalled, the generation of noxious gases within our drains and sewers is reduced to a minimum or wholly prevented. The ventilation of sewers is rendered easy and harmless, and finally such air, gases and vapors as must be contained within the sewers, being no longer confined, find an easy escape into the open air.

In the city of Boston our private drainage, like that in most cities, is unsatisfactory, and the cause of an immense amount of inspection, complaint and annoyance, and undoubtedly the cause of much ill-health. We have statute laws and city ordinances which specify the method, material and workmanship necessary for the construction of house drainage. Plans for construction and repairs are submitted to, and the work approved by, the inspector of buildings.

The board of health is called upon to find defects and to order repairs, and such repairs each year number about 4,500.

For the purpose of ascertaining to what extent defective conditions of plumbing exist, and to what extent traps are supplied, and water closets substituted for privy vaults, we have taken a large number of blocks of dwellings, both new and old, each season for thirteen years, and made house-to-house inspection, with the following results:

Want of traps, first five years, averaged	
During thirteen years	2
During the last year	22
Defective conditions of plumbing first five years, averaged	46
Whole thirteen years	30
During the last year	34
Use of privy vaults, first five years	28
For thirteen years	14
During the last year	3

This means not only a very poor state of plumbing, but a want of commendable progress in the substitution of a better condition. It indicates poor construction and inefficient repairs.

It is my opinion that the regulations, supervision of construction and repairs of plumbing should be in charge of one department. The old privy vaults and cesspools, with their accumulation of filth, which were once so common, are now rapidly disappearing from the city. Nearly seven thousand of these privy vaults have been demolished in as many years, and the few remaining where a public sewer abuts the premises are under orders to go. The yard cesspools, which are also common nuisances, are being changed from receptacles for sink and other house drainage to those for surface drainage only.

DISPOSAL OF WASTE.

The removal and disposal of refuse material has become a very serious question to the city as a corporation, and to the individual citizen. There are now in vogue several different methods for the disposal of the kitchen refuse, all of which are more or less objectionable. In one city it is carried away and dumped into the sea, in another it is collected and sold to the farmers to be fed to swine, and in another it is removed to a distance from the city and buried or consumed by fire.

In the city of Boston, where the principal part is sold to farmers, and the remainder carried out to sea, the cost of collection and transportation has reached the annual sum of one hundred and seventy thousand dollars, or considerably more than the entire appropriation for the health department, which includes the maintenance of harbor quarantine, free public baths and urinals, hospitals for contagious diseases, disinfection, public vaccination, the care of public burial grounds, the inspection of nuisances, and other incidental expenses. This large cost can not be diminished by any of the present methods in use, but must necessarily be increased by the growth of population, by hauling to a greater distance, or by the process of cremation, which is now in use in many of our cities.

It must be admitted that the storing of this material in our yards, and its subsequent transportation through our streets, creates a nuisance of a most disgusting character, and it seems to me it should not be looked upon by sanitarians as harmless, or as a satisfactory method of disposal, to say nothing of the enormous cost to the city.

It has for many years seemed to me, that the kitchen wastes should, by some special provision in the kitchen stove, be disposed of as soon as they are formed. By this means, all subsequent nuisance and expense would be avoided.

The other wastes of the city which are now dumped into the harbor, and into other bodies of water, or upon vacant lots for filling, which are largely composed of combustible material, should undergo cremation, and their ashes used for filling.

STREET ENGINEERING.

The construction and care of our public and private streets have a sanitary side to be considered, especially when we remember the considerable proportion of the area of our cities which they occupy, and the frequent unsanitary condition in which we find them. While the construction of streets is almost purely a matter for the engineer, the health officer has frequent cause to complain of their filthy condition. Most streets in all cities present a more or less unclean and offensive surface. This condition may be due to a faulty pavement, want of pavement, or a lack of care, which is supported by a popular notion that an unclean and muddy condition of the streets has no appreciable effect upon the public health. Macadamized streets where much used, are unclean and offensive most of the time.

It would be in the interest of the public health, a cleaner atmosphere, greater public convenience and economy, if all of the much used streets of our cities were paved with material which would present an even, durable and non-absorbent surface.

The private alleyways are not only disowned, but generally uncared for by the city. For the most part they are found to be unpaved, uncleaned, and a source of much complaint. Any attempt on the part of the health officer to cause these places to be cleaned by the abutters is attended with great difficulty, delay and frequent disappointment. It would be far better to place these private ways in charge of the city, and tax the people for properly paving and keeping them clean.

MORTALITY STATISTICS.

Under the head of *mortality statistics*, the health officer finds a valuable guide to important sanitary work, although it is to be regretted that much of the data found under this head is untrustworthy. These mortality tables, properly prepared will show the extent of mortality, and to what extent it is excessive in any portion of the community, and its relationship to age and nationality. They will also show us the nature and causes of the diseases which occasion the excess of deaths and to what extent, and by what means, these diseases are preventable.

This work begins with the physician, and ends with the registrar of vital statistics. Many physicians perform the duty of certifying the cause of death with great care and exactness, while others perform the same service with very little knowledge of the disease of which the person died, and with corresponding ignorance of the use and value of correct mortality statistics.

Unfortunately in many States there is no legal discrimination between the duties and privileges of the educated and the totally ignorant practitioner of medicine. The registrar who receives these certificates should be a well educated physician, with considerable experience so as to be able to reject fraudulent and worthless certificates. Every one who has had experience in the registration of mortality reports, understands how difficult it is to secure correct data from irresponsible persons. The cause of these shortcomings is partly insufficiency of diagnosis, due either to the difficulties inherent in obscure cases, or to imperfect medical training, and partly to lack of conscientiousness in the performance of a registration whose objects and importance are not appreciated.

Obscure cases will occur in the practice of every physician, and due allowance must be made, and yet after reasonable allowances have been made, there still remains a degree of carelessness for which there is no excuse.

It is a common thing to find on death certificates instead of the morbid process which caused death, such indefinite information as "disease of bowels," "disease of brain," "disease of skin," "stomach disease," "ascites," "convulsions," "dropsy," "fever," "debility," "teething," "inflammation," "infantile," "heart failure," and other unlikely causes too numerous to mention, and which ought never to be used upon the records as causes of death.

In my own city, such certificates are rejected, and a competent physician sent to view the remains, and consult the family or friends of the deceased for information, with which to make a proper certificate.

It is to be noted, however, that information gathered in this way can not be regarded as wholly trustworthy, and often results in the statement of "*unknown cause of death*."

It would be in the interest of correct mortality statistics if the registrar could be authorized, in case of insufficient information, to cause such postmortem examination by a competent physician as will enable him to record the true cause of death.

An examination of the mortality statistics will also betray the fact that we have an excess of deaths from contagious diseases and from diarrheal diseases among children, and while these facts open up a wide field of labor for the municipal sanitary officer, we shall have time to mention but a few of the most troublesome of these diseases.

INFECTIOUS DISEASES.

Smallpox, through the great discovery of Jenner, the ease of making an early diagnosis and its perfect and easy control by isolation and disinfection, is now one of the easiest and rarest comparatively of the contagious diseases with which we may deal.

Now and then our legislatures are obliged to listen to the petitions of a few anti-vaccinationists for the repeal of compulsory vaccination laws. I have too much faith, however, in the intelligence and sound judgment of our people to believe that these wholesome and necessary provisions will ever be effaced from our statute books.

We should not, however, in the absence of smallpox in our country, allow ourselves to grow indifferent to the necessity of keeping the susceptibility of our people to smallpox exhausted by means of early and successful vaccination of infants, and the subsequent and most important revaccination of adults.

The mention of cholera, like that of smallpox, strikes terror to the people of this country, and while the deaths from these diseases are infinitely small, the fear of them has served the municipal health officer in securing almost unlimited facilities for their prevention and control, which means may be largely converted to the care of other more common and destructive contagious diseases.

We have in diphtheria and scarlet fever, diseases which are not only endemic in most of our cities and large towns, and of most difficult control, but diseases for which there is as yet no known prophylactic. It is easy to say, and it is equally true, that perfect isolation and disinfection in all cases would soon annihilate the two diseases, but here is where the

great difficulty begins. We do not know where the infection is, in a very large percentage of cases, and therefore can not make anything like a complete application of our disinfecting agents.

The diagnosis of diphtheria and of scarlet fever is not always possible in their early but contagious conditions, even by our best physicians, but with the multitude of ignorant and indifferently so-called practitioners of medicine, who are called to attend such cases, and the many instances of mild attacks which do not attract attention, to say nothing of the semi-popular prejudice against the hospitals, we have the causes of the lack of information to the sanitary officer, the possession of which might lead to the control of the diseases.

These diseases are spread largely by children while in the early stages of the illness, or having mild and unsuspected attacks, and by those who are prematurely released from isolation through ignorance and fraud, and allowed in the streets and in our schools.

It would be out of place, as well as presumptuous on my part, to delay you at this time with the details of necessary public interference which would secure a mitigation of the prevalence of these two diseases. I will say, however, that I believe in early and continued hospital isolation, and that all cases should be supervised, and released from isolation only by medical officers appointed upon merit by the health authorities; the same medical officers to be inspectors of schools, in which there is much valuable work to be done in detecting the early symptoms of contagious diseases, pointing out the many unobserved and growing defects in development and disabled senses of the children, reporting to the board of health the overcrowded and unsanitary condition of the school room, inspiring an interest and pride on the part of all teachers to develop an aptitude in detecting early symptoms of disease, defective senses and deformities in children, and in developing a more popular interest in the needed reforms in school hygiene.

At a very small cost, we might bring to bear the powerful influence and unoccupied energies of a large corps of talented young physicians, aided by over thirty-five thousand teachers, for the public and individual welfare of nearly thirteen million children in the public schools of the United States.

Consumption, the most destructive malady to the human race in our country, has received the necessary attention of the bacteriologist. He has demonstrated to us satisfactorily, the cause of the disease, the methods of its transmission, and the means for its prevention.

I am sorry to say that as practical workers in public sanitation, we have sadly neglected to apply the means which we believe would prove effectual in largely abating the prevalence of tuberculosis.

The isolation of all persons suffering from consumption, would be impracticable and perhaps unnecessary, but the use of small sputa cups containing a disinfectant, at home, and bits of absorbent napkin used and securely concealed in traveling, to be burned or otherwise disinfected on returning, should at least be urged by public health officers, and popularized as much as possible.

In this way we should try to counteract the indiscriminate and disgusting habit of careless spitting in all public and private places, where the sputa are soon dried, and in the form of dust, start on the mission of deadly infection.

It is interesting in this connection, to note the fact that from experiments conducted with the tubercle bacilli, the sputa from consumptive patients have been found to retain their infective power for several years, also the fact that at a recent international congress on tuberculosis, one of the questions discussed was the necessity of obligatory cremation of the remains of consumptives.

Earth worms, it was urged, bring to the surface bacilli which infest the dead body, and in dry weather they may be inhaled in the form of dust. This, it is suggested, is the reason why the health resorts of the south of Europe are centers of tubercular contagion.

Drs. Lortet and Depuignes of Lyons, related cases of such infection, and described experiments which they made which led them to demand obligatory cremation. They mixed the sputa of consumptives in earth which they placed in pots. A month later the earth worms in them were tubercular, and the earth they passed through communicated the disease to animals.

Other experiments were made by placing earth worms on the graves of those who had died of consumption, and it is said the results were confirmatory of the possibility of contagion being conveyed in this manner.

CREMATION.

It should not be necessary to urge the sanitary claims of cremation for dead bodies before an assemblage of intelligent sanitarians. There are in this country already thirty-two cremation societies, fifteen crematories, and in the last five years there have been over two thousand incinerations.

Typhoid fever, like cholera, has been studied most persistently and profitably in connection with our water and food supplies, and we shall have the pleasure of listening to a discussion of the causation of typhoid by infected milk at this congress.

HABITATIONS FOR THE POOR.

Tenement and lodging houses are subjects for the constant watchfulness of the health officer, and they are too frequently found in an overcrowded and filthy condition. They are principally occupied by the poorest classes of people, including the newly arrived emigrant, whose habits of cleanliness are of the lowest order.

It becomes necessary to limit the number of occupants in such buildings on a rule of a prescribed number of cubic feet of space to each individual, by placards posted in each room, compelling frequent scrubbing and disinfection of floors and walls, burning much of the old bedding, frequently disinfecting the remainder by steam, watching them by night and prosecuting every violation of your proscribed rules.

CONCLUSION.

Turning in conclusion from the more onerous everyday duties of the municipal health officer to topics of greater popular interest, we find an increasing growth of public sentiment in all parts of the country favoring the municipal provision of large public parks, free public baths, small open spaces and open air gymnasiums for the enjoyment and sanitary welfare of the masses of people whose whole time is spent in the toil of our large towns and cities. Much of interest and encouragement might be said as to the immense patronage and benefit of these magnificent privileges if time would allow, but

I pass over these and other important topics which, I doubt not, will receive that careful attention and discussion their importance demands during the congress which is now open.

ORIGINAL ARTICLES.

THE TREATMENT OF GRANULAR LIDS.

Read before the Section on Ophthalmology, at the Forty-fourth Annual Meeting of the American Medical Association.

BY C. B. BLURBAUGH, M.D.

PARKERSBURG, W. VA.

Gentlemen:—As an introduction to my article, the treatment of granular lids, I will say that I live in a portion of the Ohio valley where the soil is very sandy for miles from the river on both the West Virginia and Ohio sides. To this fact I attribute, to some extent, the unusual prevalence of the disease in that locality. During the past two years I have been so unfortunate as to have had 205 cases of more or less severity to treat. Of this number 125 were treated with good results by the method I give you to-day, and the rest by all the usual plans of treatment recommended without, in some cases, the success I had hoped for. I find that Drutt, in 1848, suggested scarifying the granulations; then, after a few days, he used lunar caustic on the granulations and applied citrin ointment to the palpebral edges. In 1836, Mackintosh applied blisters behind the ears and dropped wine of opium in the eyes. Gross used Goulard's extract for awhile, but soon quit it, as he found that it encrusted the cornea and produced mechanical obstruction; he then advised shaving off the granulations and applied sulphate of copper or a solution of nitrate of silver, twenty to sixty grains to the ounce of water. Fenner used a strong decoction of phytolacca, and considered the treatment especially good where there was a rheumatic diathesis or severe pain around the eye. Dixon dusted the enlarged and inflamed follicles and papillae with sugar of lead, but relies chiefly on hygiene and tonics to improve the general health; he says of all local treatment, the application of the undiluted liquor potassæ to the palpebral granulations, as suggested by Dr. Bader, has been most successful. It seems to act by saponifying and dissolving away the hypertrophied tissue. Carter uses the *lapis divinus* daily or on alternate days according to the severity, and alternating occasionally with tannin or acetate of lead. For isolated extreme hypertrophy the actual cautery has been used with success.

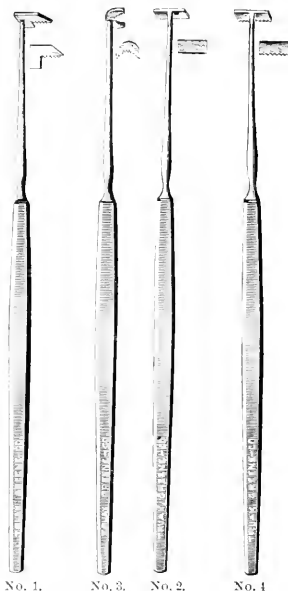
The ordinary general treatment of the disease is nitrate of silver and sulphate of copper. Arlt and Stromeyer called attention especially to the fact that these remedies were not intended to chemically destroy the granulations, but were to be used to maintain a certain degree of hyperemia in order to cause their absorption. I think this important fact has, to a certain extent, been lost sight of, and they have been used to chemically destroy the hypertrophied papillae. I have seen so many ugly, thick lids, with the whole mucous surface a cicatrix, presenting the condition known as xerophthalmia, and certainly the preponderance of cases to the use of these drugs, that I have laid them aside entirely.

For local treatment the four little instruments I have here play an important part, as with them the granulations are removed.

No. 1 has a smooth edge and is used to scrape off slight granulations where there is no general hypertrophy.

No. 2 is the same general shape but has a file-like edge and is used in more severe cases.

In everting the lids we frequently find the granulations thickest and hardest to remove just where the lid curves at the edge of the cartilage; here I use the curved instrument No. 3.



Above this, still, and near the retrotarsal fold, granulations are frequently found which neither of the instruments mentioned will reach; for these I use No. 4, which has a long rake set at right angles to a shorter one, and will reach the high granulations without trouble; while the long rake is removing the upper granulations the shorter one will remove those situated on the curve. Where the whole surface of the lid is hypertrophied presenting a gelatinous, granular mass, I have had, occasionally, to use the scissors. After removing the granulations as thoroughly as possible, I give my patient a simple astringent wash, regulating its strength by the severity of the case; a lump of alum which I direct to be rubbed on the everted lid as the case may demand and let him go home. In some very kind cases I have had to see the patient but once; in a number of them two to eight visits have been necessary. In all my cases I look to the general health of the patient and, unless some special diathesis is present, I have found the best tonic to be a mixture of phytolacca and rumex crispis, especially where the cornea is involved. In the majority of trachoma cases, pannus is present to a greater or less extent. For such a condition where the cornea persists in remaining opaque, inoculation with pus from an active case of ophthalmia has been tried and with some success, as has also the jequirity bean, *abrus precatorius*, a Brazilian plant. Grüning

scrapes the cornea with a small knife, removing the opacity. Where these all fail the cornea remaining opaque and vascular, peritomy or syndectomy has been done by a number of operators. In my own practice I have used jequirity bean twice; in one case the result was all that could be desired. In the other I had to work so hard to save the eye that I have not since entertained a kindly feeling for our Brazilian acquaintance. In my other cases of pannus, from slight to total, I have had my patient spray the eye with a solution of tannin and boric acid in glycerin and camphor water daily, and in addition wash the eye twice daily with a bichlorid solution. A large number of cases of pannus vasculosa disappear when the granulations are removed without any special treatment. The results have been peculiarly satisfactory in all the cases and the point I wish to make, in closing, is the fact that I have used neither nitrate of silver nor sulphate of copper in any case. Of course I scrape off the granulations only in chronic trachomatous cases.

407½ Market Street.

DR. J. L. THOMPSON—I would like to know if when a case comes to us in the first stages we should commence hoeing and scraping at once? In other words, should it be done in the acute stage of the disease, or only after it has become chronic?

DR. SCOTT—I can see no advantage in this treatment over that of expression. It is simply carrying out the same thing, and I am sorry to say that this plan of treatment has not been satisfactory with me. I have used it fully a dozen times, but with very little satisfaction, and in each case had to resort to the jequirity to obtain the desired result.

DR. LEMOND—I think I have treated within the last year near one hundred cases of chronic granular conjunctivitis, a number of which have been treated with Noyes' method of operating. I press the follicles, squeezing the morbid contents of the parts, doing it gently but firmly. I always avoid, as near as possible, not to tear or lacerate the conjunctiva. The sooner you get rid of the spurious material the better it will be for your patient. I usually follow this operation with a mild solution of bichlorid of mercury, using it as a bath for the eye about every three hours. I also direct my patient to use hot water, as hot as can be borne, from nine to ten times a day five minutes at a time; I find it very much better than cold water in these cases. Where I have not followed with the bichlorid treatment I prescribe a saturated solution of boric acid which I think also acts nicely. Among these cases I have had the very best results from this course of treatment. I think in all cases that have assumed a frog pawn condition we should have no hesitancy in resorting to Prof. Noyes' compression; in fact, I think it is the rational thing to do. I am aware that some oppose this method of treatment, but so far as I have found, among those who oppose it are men who have done the operation possibly once and in some instances not a single time.

DR. MURRELL—In my practice I have had many cases of granular lids. I think we have more cases of this trouble and in a worse form in the South and West than in the East. The oculists being few and hard to reach they go on without treatment until the disease gets in its worst form. They come to us with lids shortened and suffering with blepharospasm and we find it necessary to relieve the pressure by performing a canthotomy; I have never performed it on any case where I have regretted it and have had as many as two hundred cases of granular lids myself during the year. The treatment used is such as is suited to the particular case. In suitable cases I use Knapp's expression

forceps principally, sometimes Noyes', but the grattage I do not like. Not every case is suited to the forceps treatment. I have cured many cases by one single treatment with the forceps, followed by the use of the boric acid solution four times daily. I then direct the patient to use hot water as hot as can be borne three times a day letting it remain for half an hour at a time. There are various other remedies we resort to but to be successful with any of them we have to first relieve the pressure on the eyeball by performing a canthotomy.

DR. DENLAVY—It is my misfortune to meet a great number of granular lids. It appears to me that there can be no law laid down as to how to treat a considerable number of them. There is a certain class that can be treated successfully by the conservative method, while there is another class in which nothing short of surgical interference will be of any effect. I use Knapp's forceps, Noyes' forceps or any forceps that I have in my case, my thumb nail or any other means by which I can destroy the granular tissue. I am not one of the number who believe the subsequent reaction is beneficial, but we can not expect to do any surgical work without this reaction. The method of surgical interference, that of making a canthotomy, as referred to by Dr. Murrell is often one of the best steps where there is pressure from the lid, and we can not do it any too early. If the granulations are at all chronic we might begin with our surgical means at once. A class of cases kept well under antiseptic treatment will give very little trouble. With regard to patients getting well with one application, we have all seen them get well with scarcely any treatment at all.

DR. FRANCE—We all have our views as to the surgical treatment, but if a case comes to us and we have it in the acute stage it seems we ought to do something for it before it finally gets to the chronic stage. About two years ago my attention was called to a paper published in the *Ophthalmic Record* by Dr. Hodges in which he recommended the following remedy for granulated lids: There are two solutions used; nitrate of silver 1 dram, water 1 dram and glycerin 2 drams, marked No. 1. Iodid of potash 1 dram, water 1 dram and glycerin 2 drams, marked No. 2. Take 3 drops of No. 1 and 6 drops of No. 2; mix well and apply to the everted lid. I am not sure whether there is anything in the iodid of silver or not, but I am sure from two years experience that in acute trachoma by the use of this remedy twice a day a cure is effected in a considerable portion of the cases within six weeks.

DR. SAVAGE—I will say that the Hodges' mixture has been a wonderfully good treatment in my hands. I hardly know how I could have gotten on without it. We not only have the iodid of silver and the iodid of potassium in the solution, but we have a third ingredient, the nitrate of potassium, as a result of the reaction. Thinking that the virtue of the mixture might be due to the germicidal effect of the nitrate of potassium, for three months I have been prescribing this alone with a view of deciding this point. My experience in the use of the nitrate of potassium alone for this period of time strengthens my belief that Hodges' mixture has for its effective ingredient the nitrate of potassium. I use it in the strength of grs. xx to xxx to distilled water 1 ounce.

DR. MENCASIER—I have seen a number of cases treated with expression and the conclusion I have come to is that Knapp's roller forceps have been better than anything I have ever seen. After the operation I give the patient a solution of boric acid and direct that it be used every few hours during the day, and also direct him to use hot applications several times daily, and have usually gotten good results.

DR. DUDLEY S. REYNOLDS—I fear the gentlemen have con-

founded widely different conditions, and have entirely overlooked the question of the stage of advancement at which the treatment begins. I use no scarification, no scraping and no cauterizations. In the trachomatous and lymphoid forms, expression by Knapp's forceps undoubtedly proves successful in many cases. The hypertrophoid papillæ of the lining of the lid and retrotarsal folds are not to be treated this way without great aggravation of the disease. In the first stages of papillary blepharitis I prefer the solution of bichlorid of mercury and chlorid of ammonium, suggested by McKenzie as a cleansing wash in purulent conjunctivitis. As the purulent conjunctivitis always precedes hypertrophy this may be recognized as an entirely rational plan of treatment, varying the proportions of the bichlorid and ammonium chlorid. I often apply the crystal of muriate of ammonium directly to the everted lid, pressing it gently but firmly for a few seconds at a time. This may be done without pain by a previous application of a solution of cocaine. In some chronic cases an ointment of the yellow oxid of mercury acts well. I know of no uniformly successful plan. I, nearly always, as Dr. Murrell has suggested, practice some modification of canthotomy in the very bad cases whether acute or chronic.

Dr. BURBACH—I think I have been a little misunderstood in regard to the use of these instruments. I do not use them in every case of granular lids, but I have not used nitrate of silver or sulphate of copper in any case. In answer to Dr. Thompson I will say that I do not do the hoeing and scraping in recent cases. I have in a number of cases used some mild astringent wash and if these granules remain I rub the lid with a lump of alum. There are a number of cases in which this is successful; but in other cases where the granulations remain I pick up my little hoe and go at it. Dr. Baker said the cases were a little more numerous in our part of the country than in Cleveland. We have in our country that light, sandy soil and I think that starts cases which develop later on into granular lids or trachoma from lack of any treatment or attention. A large number of these cases were from a portion of the State far from a railroad and where physicians were not numerous. Quite a number had been affected for years and had had absolutely no treatment. I would like to ask Dr. LeMond and also Dr. Reynolds if they have any cicatricial tissue after pressing out the granules with Knapp's forceps?

PHLYCTENULAR OPHTHALMIA.

Read in the Section on Ophthalmology at the Forty-Fourth Annual Meeting of the American Medical Association.

BY DUDLEY S. REYNOLDS, A.M., M.D.

ASSISTANT OF OPHTHALMOLOGY, OHIOHOA, AND MEDICAL SUPERINTENDENT IN THE HOSPITAL COLLEGE OF MEDICINE, MEDICAL DEPARTMENT OF THE UNIVERSITY OF KENTUCKY.

Phlyctenular ophthalmia has been so variously described by writers and teachers it would seem but fair to assume that each may have been faithful in describing that form most frequently observed in his practice. Believing no form of phlyctenular ophthalmia should be regarded as a merely local form of disease, calling for local treatment alone, I am led to introduce the subject in its clinical aspects. It is certain the herpetic disease described by Stellwag is just as much a local manifestation of constitutional dyscrasia as are the seriginous ulcers, or the more common conoidal masses of lymphoid cells described by the old writers as scrofulous and syphilitic ophthalmia. It is very important to distinguish between the phlyctenular diseases of miasmatic and malarious localities, and

those observed in strumous, rachitic and syphilitic subjects. According to some writers it would be difficult to determine the syphilitic from the non-syphilitic cases; but syphilitic keratitis rarely ulcerates, yet it is nearly always attended by photophobia, by anemia and other manifestations of disturbed nutrition. In all forms of circumscribed inflammation it may be fairly assumed the processes of zymosis are going on, fermentation being, in fact, an essential feature of all localized inflammations.

Change of residence, change of diet, in fact, any change in the modes of living result sometimes beneficially. Phlyctenular disease of the cornea, like that of the limbus conjunctivalis, fluctuates according to the state of the patient's general health and nutrition; consequently a great deal has been claimed for local treatment in such cases. In some circumscribed abrasions of the corneal epithelium a small gray speck is seen, called phlyctenular keratitis, often cured by a single drop of atropin solution, just as it would have been by a drop of boric acid solution or anything which would tend to diminish the morbid sensibility in the abraded spot. The more common types of this disease are observed in the early stages as conoidal elevations, surrounded by dilated blood vessels. The oldest cells in the cone break down first, leaving a vesicular appearance at the apex of the cone; presently the walls of the vesicle rupture and the ulcerated stage is present; meantime the eye is morbidly sensitive to light and the patient, if the disease be in the cornea, is harassed with pain and disturbances of the digestive organs with more or less loss of appetite. An aperient containing calomel followed by quinin often cures the patient in three or four days' time. I have frequently observed this course in cases which had been subjected for weeks to local treatment of calomel, mydriatics, myotics and ointment of yellow oxid of mercury, so much in vogue with some of our brother specialists.

Foreign bodies in the cornea often drop out and are washed away with the tears, leaving an epithelial abrasion which in persons of previous good health will disappear without treatment. If infection of this wound should occur the indications of this state are so marked as to mislead no ordinarily careful clinical observer. The treatment in such cases should, of course, be local and at the same time vigorous. If, however, this is observed in children with fever, or even in an adult, constitutional disturbances call for constitutional treatment independently of the disease in the eye.

It is not always easy to discover the cause of phlyctenular ophthalmia, just as it is often difficult to determine the syphilitic from the non-syphilitic subjects among the poorly nourished children which are observed at the public clinics everywhere. It is never safe to rely upon what is known as the history of the case as related by the family, and if I were not addressing myself to a body of gentlemen many of whom have at times engaged in the general practice of medicine, I should say the statements of the family physician are just as misleading and unreliable.

If your patient is the subject of inherited syphilis and has phlyctenular ophthalmia you should not be able to discover the fact by the condition of the eye alone. I have often observed phlyctenular keratitis as a complication of pre-existing interstitial keratitis.

Thus the conditions stated in the description of inherited syphilis in Mr. Hutchinson's famous prize-essay, can not apply to a very large number of cases, and especially in children whose permanent incisor teeth have not yet appeared.

That state of overloaded lymph channels, with enlarged lymphatic glands, at one time supposed to be indicative of tuberculosis or inherited syphilis, and for a long time denominated scrofulosis, is now known to be brought on by excessive indulgence in the glucose types of food; even starvation itself is attended by an abnormal increase in the lymph stream, and enlarged lymphatic glands.

The late Dr. Henry F. Formad, of the University of Pennsylvania, demonstrated certain structural peculiarities in the lymphatic system of subjects of inherited syphilis, the children of tuberculous parents, and in those with acquired struma. His researches show conclusively that some of the forms of mal-nutrition in infants result from faulty development in fetal life.

Inherited syphilis, localized zymosis, mechanical obstructions in the capillary lymph tubes of the conjunctiva may each set up local changes which pass through all the varying stages of cell proliferation, disintegration, ulceration, and partake of those characters called phlyctenular disease, because of their circumscribed nature.

Dr. J. L. THOMPSON, of Indianapolis—The causes and conditions which bring about phlyctenular inflammations vary very much. I meet with it far more frequently during the hot summer months than in the winter. Living in an inland city where we have many sultry days and sleepless nights, cases of phlyctenular ophthalmia are the bane of childhood, especially where the strumous diathesis prevails. I place no reliance in any one remedy unless it be change of climate. When my patients have the means to do so, I urge upon them a change to the lakes, the mountains or to the coast. No sooner is this change made than improvement takes place. Where my patients are poor I urge upon them to keep as cool as possible, cleanliness, avoiding indigestible food, candies and all such trash. Yellow oxid of mercury ointment in cases where the cornea is not ulcerated, and treatment to the alimentary canal when indicated. Very often does this diseased condition hang on with one relapse after another until autumn when it sets in, nor does it stop here but repeats itself the following summer.

Dr. F. C. HORTZ—I do not agree with Dr. Reynolds that phlyctenular ophthalmia is of syphilitic origin in the sense in which we regard interstitial keratitis as a local manifestation of inherited syphilis. Phlyctenular ophthalmia is undoubtedly influenced by any kind of malnutrition, and the treatment of these patients is unquestionably assisted by correcting any disorder of the digestive organs or any other condition which may affect the nutrition. But local treatment is by far the most essential measure for subduing the present inflammation.

Dr. COXON—The best treatment of many cases of phlyctenular disease of the conjunctiva or cornea is a residence in a well conducted children's hospital. Results are here obtained in a few days that require weeks or months of many of these cases. Proper food, sleep, pure air and regularity in treatment are very real factors in these results. Of course, local and general medication are helpful, but the most efficient remedy is a dose of a good children's hospital. I have found this same remedial agent a most satisfactory element in the management of many of the allied affections of the eye in children.

Dr. ZEIGLER—My experience coincides with that of Dr.

de Schweinitz. The immediate origin of phlyctenular attacks is almost always nasal, and not constitutional, as stated by most authors. Examination usually reveals associated lesions of the nostril and eye of the same side. If you treat the nose the eye will frequently recover without treatment. A simple treatment is by the nasal spray, and intranasal applications of tr. benzoin. comp. two or three times a week, applied with cotton on a wire applicator. You may use a simple wash for the eye. An ointment of hydrarg. ox. flav. may prove useful.

Gastro-intestinal disturbances may originate or exaggerate the attack, by causing reflex irritation of the nose.

I agree with Dr. Thompson when he recommends regularity of diet, and especially in children who are continually eating cakes and candies which perhaps do more harm than any other variety of food. But a worse error in diet is the coffee and tea furnished by parents to their children, which soon saps their vitality. The worst examples of this unhygienic regimen are seen in hospital practice, and my formula has invariably been "no tea, no coffee, no cakes and no candy." These alone may bring recovery. Of course the bowels should be kept regular. Salt water baths are excellent for toning up the relaxed surface of the body.

Dr. LEMOX—It seems very singular indeed that a body of men, banded together in the same work and being composed of the very best men in different parts of the country, would have such a variety of views concerning the same subject. And yet it is true.

I believe in trying to build up the general health in this phlyctenular trouble and the child, I tell the mother, should be bathed and rubbed down thoroughly twice a week, until a good healthy action is brought about by the skin, to give it good substantial diet, light supper but lots of good sweet milk. In regard to local treatment I use, usually, the yellow oxid of mercury ointment. I apply this from three to six times a week, owing altogether to the severity of the case, and if there is much photophobia and inflammatory action I prescribe also atropin, instilled into the eye, three or four times a day so as to guard against any ciliary complications.

I protect the eye with dark glasses or by keeping the child in doors during the day and have it take its exercise in the twilight of the evening. If this does not arrest the ulcer in a few days I apply directly to the ulcer, once a day, a solution of argemum nitras, neutralizing the amount that might reach the healthy tissue with a solution of chlorid of sodium.

Under this course of treatment, from one to three weeks, my patient usually gets well. I have, in a few instances, applied the galvanocautery and have got very good results from that treatment. However, in the majority of cases I think this latter treatment a little too heroic.

In applying the yellow oxid of mercury, if you will mix a drop or two of water with the same amount of mercury it gives us a perfectly smooth solution, which it is impossible to obtain by simply mixing with the vaselin.

Dr. MCKELL—I use the yellow oxid locally and have frequently had complaint from its use. In reference to the method of preparing the yellow oxid I think I can suggest something better than mixing the powder first with water and then with vaselin. My druggist for a long time used this method but at my suggestion substituted olive oil instead, which readily blends with the fatty excipient and gives a uniform ointment.

In concluding the discussion Dr. DUDLEY S. REYNOLDS said: Mr. President, I am quite surprised that Dr. de Schweinitz should have misunderstood my remarks in reference to syphilis. I am sure no one would make a diagnosis of syphilis from any peculiar appearance presented in any form of phlyctenular ophthalmia by reference to the eye alone.

I have seen cases which I felt sure were due to syphilis, but other manifestations of syphilis, so distinctly characteristic as to leave no room for doubt were present, without reference to the disease of the eye.

I quite agree with Dr. Gradle that nasal diseases are frequent complications, upon the relief of which, the successful treatment of the eye depends.

My neighbor, Dr. Thompson, points out the value of climatic changes. He frequently observes a large number of these cases in the early summer, and if he is able to induce the parents to take the child away from the city, and remain until fall, he frequently finds no other treatment necessary. I feel impressed these cases fall into the hands of general practitioners, and get quinin, iron, the iodids, baths, outdoor exercise, and the mineral waters, which, with change of diet bring on such improved states of nutrition as to completely remove the constitutional dyscrasia, upon which the local disease in the eye depends.

Dr. Connor of Detroit, expresses an important truth in his statement that hospital cases frequently relapse on returning home, and speedily recover when subjected to the hygiene and improved diet of the hospital.

Eczematous eruptions of the face, and especially about the eyelids, should be treated as complications merely, and not as causes of phlyctenular disease; the yellow oxide of mercury ointment is no doubt valuable; in fact I am sure it is in eczematous complications, and in some chronic ulcerated forms of keratitis, but those are not to be counted as ordinary types of phlyctenular disease.

The point I tried to make plain in my paper is, that all local diseases known as phlyctenular ophthalmia, not clearly due to traumatic causes, should be regarded as local manifestations of a constitutional dyscrasia, that constitutional treatment is always demanded, and local treatment if applied at all, should be mild and soothing, and never stimulating or irritating in character.

Syphilitic cases are to be known by other manifestations independently of the disease in the eye, and call for certain modifications in the constitutional treatment only.

Dr. GRADLE—A number of cases of phlyctenular ophthalmia will get well as quickly whether treatment be applied or not. In other cases local applications change the course of the disease in such a decisive manner for the better, that no doubt can occur as to their efficacy. In many of these cases where we can get a definite history we will find that the phlyctenular keratitis is preceded by a purulent rhinitis, and by proper attention to the nose the patient will often recover more promptly than if the nasal trouble is ignored. Others are caused by adenoid growths in the pharynx and the removal of same very decidedly affects the case.

While admitting the great importance of proper hygiene, rational diet, fresh air and baths in the prevention of relapses I can not say that any personal observation of mine or statements by others have ever seemed to me conclusive as to any influence of so-called constitutional treatment in the course of the attack.

Dr. DE SCHWEINITZ—If I correctly understood Dr. Reynolds that inherited syphilis was one of the causes of phlyctenular ophthalmia, I doubt if evidence to prove this assertion can be produced. In so far as the treatment of phlyctenular ophthalmia is concerned, which I prefer to denominate phlyctenular kerato-conjunctivitis, while agreeing with all that Dr. Reynolds has said concerning the advisability of good food, hygiene and proper diet, I believe local measures are of the utmost importance. I am particularly impressed with the necessity of treating the nasopharynx in cases of phlyctenular ophthalmia of relapsing character, not alone because of the almost constant associ-

ation of catarrhal rhinitis, tumefied turbinals, or adenoid vegetation, which of themselves are probably causative factors, but because their removal often suffices to remove the disease, to prevent a relapse and directly to improve the whole physical constitution of the patient. The disorders of dentition bear some relationship to phlyctenular keratitis. Borrowing an expression from Harrison Allen, I would advocate the exploration of the entire "cephalic mucous membrane" whenever this disease is manifest, and the correction of any anomalies which may be discovered.

In closing, I would refer to the relation of astigmatism to this disease as taught by Martin of Bordeaux, who has pointed out that phlyctenular kerato conjunctivitis is common at that age of life when the habits of the child become such that the effects of accommodative strain, the result of an astigmatic cornea, are likely to become apparent.

Dr. BAKER—This is an important subject to the practical ophthalmologist and is one on which I should like to see more stress laid as to the general treatment. The main thing in the treatment of phlyctenular ophthalmia is the improved general health of the child, and it is not from any direct interference with the eye. I think the best thing that can be done is to take these children away from their families and put somewhere where they can be treated and dieted just as you would have them. I believe that one of the best remedies is arsenic in small doses; one drop three times a day of Fowler's solution.

Dr. GIBSON—I wish to say only a word on this line, in regard to the diet of children. I think this a very important point, at least it has been in my experience. We should study the diet of the children; then we know how to get at the treatment. If we take away from a child what it likes it is not going to do well. We may give maltin or extract of malt to aid in the digestion of starches. Let them have their bread and potatoes. Cod liver oil will supply the food in the line of meats. You can get most children to use cod liver oil without trouble.

PURULENT OPHTHALMIA FROM THE STAND- POINT OF ITS SPECIFIC MICROBIC CAUSE;

WITH A PLEA FOR A MORE ENERGETIC, RATIONAL, ABORTIVE TREATMENT WHERE POSSIBLE.

Read before the Section on Ophthalmology, at the Forty-fourth Annual Meeting of the American Medical Association at Milwaukee.

BY ALFRED HINDE, M.D.

SENIOR SURGEON EYE AND EAR DEPARTMENT, CENTRAL FREE DISPENSARY; OPHTHALMOLOGIST TO THE NEUROLOGICAL CLINIC, AND ASSISTANT TO THE CHAIR OF OPHTHALMOLOGY IN RUSH MEDICAL COLLEGE, CHICAGO, ILL.

Progress is the watchword of ophthalmology, and we all wish to avail ourselves of the garnered harvest of the bacteriologist, and apply his well ascertained facts to the orbital corner in which we are specially interested. So much ink has been used; so many brains employed for so many years on this threadbare subject of purulent conjunctivitis that it would seem to be an act of supererogation to again ask attention to it. Yet when we consider its vast importance as a frequent cause of blindness, another modest effort to simplify the apparently different conclusions of equally authoritative observers is excusable.

Further than a bare hint that the gonococcus occasionally resides in the discharges of an efflorescent purulent ophthalmia, little is usually mentioned of this specific microbic cause in the great mass of contemporaneous literature. It would seem that since Neisser of Breslau, in 1879 discovered this

diplococcus, the peculiarities of its existence, growth, action and habitat have not been as *universally* considered by our clan as the importance of the subject demands, and to this fact is mainly answerable the diverse methods of treatment of the results of this potent microorganism. It is, therefore, in the literature of the genito-urinary tract that we find our richest rewards of observation, and in the subsequent lines the statements made are largely drawn therefrom.

As special students we must extend our observation to all the data of the microbe under consideration, for it is now scarcely contestable that the majority, if not all, the cases of purulent conjunctivitis are produced by this coccus,—as proven by careful microscopical research; and through cultivation or implantation experiments by competent bacteriologists.

This bacterium is variously described as spheroidal,³ ovoidal, hemispherical⁴ or biscuit-shaped with one surface flattened. It appears in pairs, or multiples, with the flattened surfaces toward each other, hence a diplococcus. It multiplies by elongation and division, and a single⁵ germ gives rise to a colony. In size it varies with age but its usual dimensions are about 1.6 micro-millimeters front pole to pole, and in width about 0.8 to 0.6 micro-millimeters. It thrives on mucous surfaces, and best on those covered with a cylindrical or a modified cylindrical epithelium. It stains readily with the basic anilin dyes. Pus spread out in a thin layer on a cover glass, dried naturally, passed rapidly and momentarily through a spirit flame to coagulate the albumen, immersed for one minute in a solution of 1 part methyl-blue, 33 parts alcohol and 66 parts water, then well washed in water, dried carefully, and mounted in (turpentine) balsam or glycerin, and examined with a magnifying power of 450 or more diameters will demonstrate the blue-stained microbe, if present. Steinschneider,⁶ however, regards Gram's⁷ method of staining microorganisms as necessary to the satisfactory study of the gonococcus, as a positive characteristic of it is that by this plan it is not stained, "while nearly all other diplococci found in the urethra are colored thereby." Roux⁸ also agrees with this conclusion after a study of eighty-six gonorrheal patients, and Senn adds: "The entire certainty of this test is rendered absolute by the observation of the further characteristic of the gonococci, namely, that they are found within the pus corpuscles."

Dr. J. Schutz⁹ of Frankfurt, advocates a method of staining that depends on the known resistance of the gonococcus to acetic acid after being colored with methyl-blue. Preparing the cover glass in the usual way it is allowed to remain for five to ten minutes in a cold, filtered saturated solution of methyl-blue in 5 per cent. carbolic water. It is then water washed and dipped for one moment, or until one, two, three, can be counted, in acetic acid water (acid acet. dil. mv: aq. 20 cc.) and immediately washed in pure water. The acetic acid decolorizes all other organisms except the gonococcus which remains distinctly blue: "Double staining with safranin can now be done when the gonococci and epithelial cells show a blue color, while the pus cells and their nuclei are found salmon colored."

Experimental cultivation of the gonococcus is difficult save in the serum of human blood, or less well

in animal serum, either serified.¹⁰ (See 1881, 2, 18.) (M. Huppe.) Inoculation with pure cultures invariably produces gonorrhea in man. In drying the microbe loses its virulence, and pus containing it after desiccation, fails to produce the specific inflammation either when applied dry or when moistened with water. Again, the microbe does not long retain its virulence when kept moist, yet removed from its chosen soil, for Wölander in four implantation experiments made three with pus from one to several days old and in these the results were negative. In the fourth the pus was removed only three hours before and kept at body temperature, and on the third day after implantation smarting was complained of, and two days later a typical gonorrhea developed. Two experiments in which the pus was exposed to a temperature near freezing resulted negatively. Wertheim, however, claims that their virulence is not lost rapidly in artificial culture media, for he found a four weeks' culture in human blood, still very virulent. He says the microbes must be protected against desiccation and that they develop better when protected from oxygen.¹¹ The artificial cultures grow only at body temperature and the colonies readily die off. Subcutaneous injection of gonorrheal pus in animals produced no reaction¹² and in twenty-four hours afterwards the cells remained unchanged but the gonococci had disappeared. Wertheim¹³ claims that it can produce peritonitis in some animals and he found the microbe in the walls of the abdomen, in the epithelium and connective tissue, and that it travels like other pyogenic germs by way of the lymphatics.

During research the gonococcus has been found in the urethra, bladder, kidney, perimetritic abscesses following gonorrhea, in the purulent contents of joints in gonorrheal synovitis, in the conjunctiva, rectum, uterus, cervix, vagina, vulva, and in Bartholin's glands. Its principal habitat in the pus corpuscle is more important than its diplococcus form. When implanted on the mucous membrane of the urethra or on the conjunctiva, its first growth takes place upon the epithelial layer and the deeper parts are not invaded until, by inflammatory or chemotactic changes, the intercellular cementum has been dissolved, thus loosening up the epithelia and opening up *inter* and *sub* epithelial passages. Without these changes deep or sub-epithelial infection can not occur, and Bumm¹⁴ claims that on account of the dense, compact epithelial layer of the adult vagina that a true gonorrhea of this tract is impossible, while it may occur in children. He further states that: "The stratified epithelium of the bladder is impenetrable to the gonococcus." In the incipient stage of infection the secretion is merely an exaggerated physiological one of thin mucous fluid somewhat serum-like in appearance, and containing mainly exfoliated epithelia and a few pus cells with the diplococci present on the surface of the epithelia and a few are found within the pus cells. Soon the microbe penetrates the sub-epithelial lymph spaces and the inflammation extends more deeply and after the second or third day the secretion becomes profuse and contains fewer epithelia with pus cells greatly in excess, and from 2 to 3 per cent. of the latter contain gonococci and usually two or more in a corpuscle. From now on the pus cells increase relatively in number to the epithelia, and more of them con-

tain the microbe until 20 per cent. possess them. When the subacute stage is reached the epithelia increase in number and the pus cells become fewer yet a greater proportion of the latter contain the gonococci, and more numerously. In the fourth week the epithelia are most numerous and possess the microbes while the pus cells are few. It is claimed that the cell nucleus can be invaded, and that the cell may also become distended and ruptured by the number of the contained cocci. Extra-cellular gonococci are also plentiful. Human serum we have noted as the choicest medium for their growth, hence the virulency of this infection in purulent conjunctivitis.

This bacterium produces suppuration only on continuous mucous surfaces, and it results from the irritative effect on the tissues of the absorption of the chemical substances produced by them, because pus cells emigrate to the surface before the microbes have reached the vascular layer. These same pus cells are but dead embryonal cells, or leucocytes, attracted by phagocytosis action to the infected focus in order to prevent the ingress of the cocci, or to destroy them, and by embodying them within their own walls they become ptomaine poisoned themselves and destroyed. The inflammatory exudation of cells, fibrin, and serum tends to loosen up the epithelia and aids their exfoliation. Cessation of suppuration is not synonymous with stoppage of infection for increased irritation may again arouse the chronic inflammatory process still present.

The gonorrheal micrococcus and that of purulent ophthalmia are now almost universally conceded to be identical. Prof. Haab¹⁹ of Zurich, claimed: "That the gonococcus is always present in the secretions of purulent ophthalmia and that it is never present in the simple inflammatory, or catarrhal form." Widmark²⁰ examined the secretion in twenty-four cases of purulent ophthalmia and found the cocci in most of them, free in the secretions, in the pus and the epithelial cells. He believes that during the incubative stage the microbes are only attached to the epithelial cells. This latter observation is in line with that of other examiners and most forcibly suggests an early, rational and effective treatment while the specific microbial cause is encompassable and before its ptomaine poisoning of the tissues has resulted in serious complications—due to impairment of their normal physiological resistance. Before exudative and immediate pressure have resulted in cellular necrosis and molecular death of the ocular tissues, thus producing an *infection atrium* for the entrance of the ordinary pyogenic microbes. Here the omnipresent streptococcus, and may be the staphylococcus, often take up the work of ocular destruction after the gonococcus indirectly has opened the doorway of tissue infection and reduced the resistance of the remaining cornea, and alas! they too often never end until the visual organ is utterly destroyed. That the gonococcus is a pus microbe in the usual sense is still debatable ground, yet cases have been recorded where this microbe has entered the circulation and produced metastatic abscesses after mural implantation in parts distant from the original focus. In these now numerous recorded cases of systemic infection, with septic-pyemic symptoms and occasionally fatal results, we have most often only the fever and the *hematogenous infection* produced by the absorption of the toxins of the gonococcus, followed by the localization of the floating pus microbes in the

affected tissues of various regions of the body. In short, a secondary infection. The gonococci have, however, been demonstrated in the contents of such abscesses, and are also found in the effusions into the joints of gonorrheal rheumatics, and in the blood of such patients.

This condition of secondary infection suggests the query of the harmonious co-existence of the pyogenic microbes and gonococci on the same site. Here there appears to be apparently contradictory statements.

That secondary infection can occur was first positively proven by Breiger²¹ and Ehrlich in 1882, where the pathological product of one infection aids in the localization of another kind of pathogenic germs,—one microbe preparing the soil for the growth of the other. The gonococcus it is claimed²² can so change the resistance of the tissues of the genito-urinary tract, of women especially, so that an easy invasion of pathogenic microbes occurs. As an example is given by Bumm a pure gonorrhea of the vulvo-vaginal glands which after the suppurative stage remains chronically inflamed for months and is followed by sclerosis and atrophy of the glands. But if a purulent infection is added the gland enlarges and suppurates but the contents of the abscess possess no gonococci: "The pus only contains the pyogenic staphylococcus, which has exterminated the gonococcus." Bumm also claims that a cystitis following a gonorrhea; that a suppurative parametritis after gonorrhea is analogous to a gonorrheal bubo, and all are examples of mixed infection, with pus microbes, because: "The gonococcus expends its action in the superficial layers of the mucous membrane exclusively." Delafield and²³ Prudden, however, after describing the location of the gonococcus and its subsequent inflammations write: "Under these complicating conditions the gonococcus may occur alone, or in association with the pyogenic cocci."

Prof Haab²⁴ in Zurich, often met with cases of iritis, irido-cyclitis and conjunctivitis in gonorrheal patients, "without any direct transmission of the urethral discharge" and in such no gonococci were found in the conjunctival secretion and the attacks were mild and readily overcome. These cases were examples of rheumatic and not microbial inflammations. He reports one case of mixed infection with metastatic joint abscesses, etc., with loss of one eye and great impairment of the other, together with persistent fever of many weeks' duration, and threatened death.

Dr. Bedford Brown²⁵ of Alexandria, Va., records a case of gonorrhea followed in three weeks by gonorrheal synovitis of both ankles and knees, with violent inguinal lymphadenitis of both sides, septic endocarditis, and "deep seated pain in the eye without conjunctivitis." The final result on the vision of the affected eye is not stated, and this is unfortunate because it may have been a metastatic suppurative choroiditis followed by phthisis bulbi,—a not very uncommon affection of the eye in cases of septic-pyemia arising from systemic infection with pus microbes.

A personal observation of such result may be given in the following case:

A child twenty-seven months old was taken sick with scarlet fever of mild character. Two days after the onset of the attack the left knee joint became

inflamed and the left eyeball was slightly reddened, and the submental lymph glands enlarged. The knee joint suppurated and was opened two weeks later and its purulent contents removed and finger-sized drains left *in situ* and treatment continued in the usual way. The irregular fever which varied from 99 degrees to 105 degrees F. still continued and septic pneumonia, or other focus, was suspected as the cause of its persistence, but nothing positive could be made out. At the end of six weeks from the onset of the sickness, and after the institution of marked marasmus, the left eyelids swelled up and the eyeball became red and chemotic, and supposedly painful. The appearance was that of a mild suppurative choroiditis and as the inflammation disappeared, the eyeball softened and began to shrink and nine weeks later this eye was sightless, half-sized and boggy. The neck glands did not suppurate and the septic fever gradually subsided and uninterrupted recovery occurred.

Innumerable cases of secondary infection after gonorrhea have been recorded and, amongst others of less severity, one occurred in my own practice in which, after an imperfectly cured gonorrhea, a prolonged cystitis with general septic infection followed, associated with an irremovable and intermittent fever, and exhaustion almost fatal. Recovery set in slowly on improvement of the urethral and bladder condition, the systemic microbes most probably being thrown out through the kidneys, as at no time could any local suppurative focus be outlined in any organ. One year later, after a new exposure and infection with the gonococcus, the cystitis recurred followed by septic infection and a left pneumonia of small area at first, and of insidious onset, and multiple subcutaneous abscesses, together with a profuse suppurative otitis media of the right ear. No crisis occurred but the lung inflammation continued to spread until fever and heart exhaustion, practically unaffected by all treatment, resulted in a fatal issue. In this case the gonococcus twice prepared the soil for the successful implantation *in loco* of the commoner streptococcus pyogenes—as this is the microbe, that is almost solely and invariably found in these cases.

The gonorrheal microbe, however, can not always be blamed for the production of the *locus minoris resistentia* within the ocular tissues. It is well known that floating pus microbes are present in the blood current of many malarial patients. All that is necessary for the localization of these cocci in the ocular tissues is a reduction of the normal physiological resistance of some portion of the eyeball. In these non-resistant cases this can be brought about readily by inflammatory changes and operative procedures.²⁶

Here we have an explanation of those eyes lost in a suppurative process after perfect healing of the corneal wound, subsequently to a smooth cataract extraction. We must invigorate such patients and remove these bacteria before we add operative insult to their tissues. Again, it is well known that pus microbes can long remain quiescent in old osteomyelitic foci and years later become virulent when suitable conditions of tissue injury arise for their multiplication. Have we not a parallel to these surgical cases in those old sympathetically and otherwise inflamed eyes that flare up into acute inflammation as soon as we attempt to remove the

old exudate, or perform an iridectomy. The pathosioned microbes are set free by our manipulations and are again surrounded by a suitable environment for activity and reproduction. For diagnostic purposes the presence of the gonococcus within the pus corpuscle implies a gonorrheal origin of the eye affection, and yet by so many and devious paths it reaches the conjunctiva that in some cases its source is past finding out, and we may, unfortunately, be led to question the specific character of the conjunctivitis, unless we look for and find the microorganism. For a moment we may consider the immediate and remote sources of infection. The essential element is carried to the conjunctiva usually on fingers, linen, or sponges, may be from unclean wash basin or other object in auto or other cases, accidentally or intentionally. Dr. Symes, in the meeting of the New York Academy of Medicine, Nov. 10, 1890, called attention to the supposition of the ignorant gonorrhea sufferers who, in some instances believe that they can get rid of the disease themselves by giving it to somebody else; and at the same meeting Dr. Robert Abbe said that Dr. Willard Parker had given expression to a similar observation. Twice patients of my own have asked me if this unclean intent was not a fact.

Age does not limit the possibilities of an infective source, for catarrhal inflammation, usually of gonorrheal origin, of the vaginal mucous membrane is not infrequent in the newborn, and the infant and youthful vulvo-vagina often equals the adult tract as a prolific focus of infection—the parents, or adults, being the initial source of all such cases. Moreover, the normal puerperal vaginal secretions will not produce a specific catarrhal inflammation of either the vulvo-vagina or the conjunctiva. Potts examined ninety-six cases of purulent vulvovaginitis in children, a majority of whom were under five years of age, and he believed that they were all of some specific infection, and examination of the discharge usually revealed the gonorrheal microbe, and only three cases were due to direct gonorrheal infection. Prochownik found the cocci in seventeen out of twenty-one similar cases, and in these urethritis was a prominent symptom. Sanger thinks that pyosalpinx and pelvo-peritonitis of young virgins is possibly due: "To a gonorrhea contracted in childhood through indirect infection." Spaeth in twenty-one cases of vulvo-vaginitis in girls from three to eleven years old found gonococci in the pus of fourteen, and the urethra escaped in the non-specific cases. On investigating the source he found that the mother had gonorrhea in eleven, the father in two, and violation had occurred in three of the children. Gonococci are most numerous, he says, in the urethral discharge of adult females with gonorrhea.

Dr. Van Arsdale, at the New York Academy meeting already referred to spoke of three cases in young female children, the youngest being only ten months old, and said that he saw about ten such cases yearly and attributed the infection to sleeping with parents. Dr. R. Abbe reported a gonorrhea in a boy three and one-half years old, contracted from a nurse, and gonococci were found. Dr. Hugo Felek of Buda-Pesth, before the twenty-fourth meeting of the Hungarian physicians and scientists at Kronstadt, recently held that blennorrhoea is much more common in women than is generally

supposed, and its consequences more far reaching than would appear. The women are infected in the first days of matrimony by husbands supposed to be but not actually cured of a chronic gonorrhea. He claims that the urethral inflammation may exist for some years without secretion showing, and yet will provoke in women a typical gonorrhea.

From the foregoing, the genitalia of the female would appear to be the most fruitful source of infection, and mothers and nurses the most probable starting point. On this account conjunctival inflammations in females should always be regarded with greater suspicion than in males, and I have very frequently remarked the onset of a purulent conjunctivitis in adult females commencing soon after the initiation of the regular menstrual flow—the auto-infection being most probably due to unclean fingers in infected subjects. For obvious reasons in both sexes a commencing right eye inflammation alone is more liable to be specific than simple. From such frequent possible sources of infection as we have here shown, together with the great frequency of the presence of the gonococcus in the purulent discharge from the genital canal, it would seem to be injudicious in practice to doubt the gonorrheal origin of all our cases of purulent conjunctivitis. Better for our patient's safety if we immediately consider the graver diagnosis and institute correspondingly effective measures of relief.

We have fixed the cause of the disease and located its exact position in the epithelial layers of the mucous membrane, and in those portions of the conjunctival sac covered with a cylindrical or a modified cylindrical epithelium, viz., the palpebral portions and that of the fornices, the very parts that give evidence of the greatest inflammatory reaction. Whereas the ocular or scleral conjunctiva and the surface of the cornea remain practically unaffected, because of their compact, stratified, epithelial layer, until pressure necrosis results in ulceration and secondary infection.

A good prognosis depends upon adequate treatment in the early periods of the disease, and before ocular complications occur.

Prophylaxis is advocated and abortive treatment resorted to in purulent ophthalmia of the newborn eye. Why is it not equally advisable in all eyes so affected irrespective of age? Logic and sound judgment point undeniably in such direction. In all these purulent cases there is a period of apparently simple catarrhal inflammation associated with a lacrymal-mucous secretion. A time during which the microbes are only on the surface of the epithelial cells and before the ptomaine poisoning of the tissues has resulted in attracting the emigrating leucocytes from the capillaries to the surface of the mucous membrane.

The general practitioner is the most favored in seeing these cases in this stage and, unfortunately, he fails too often to recognize its import, and either neglects treatment or prescribes the usual zinc solution, and the case is too often not referred to the specialist until complications have arisen and fear possesses the medical mind. *Without microscopic diagnosis, can one fathern the limits of a conjunctival infection when seen in the earliest stage? Any treatment, however prudent after sufficient time has elapsed, if a serious microbe has been implanted? Careful inquiry during the incubative period of these*

cases often gives positive evidence of a proximate gonorrheal focus, in men especially. Whereas, in women, beyond eliciting the information of the omnipresent vaginal discharge, an inquiry is usually negative. In busy practice we can not easily stop to stain and examine with microscope the discharge in every case of conjunctivitis. *Can we resort then to any therapeutical procedure in all such cases that will prove adequate in the purulent and at the same time harmless in the simple inflammations? We can most assuredly.* The genito-urinary surgeon has authoritatively advocated the abortive treatment of a gonorrheal inflammation in his own domain, and briefly we will refer to his conclusions. At a late meeting of the International Dermatological Congress Prof. Neisser⁶ still maintains the etiological importance of the gonococcus. That microscopic discovery of the microbe in the secretions of gonorrhea is essential to a correct diagnosis. That it is only in the first stages that the virus is accessible in the superficial layers of the epithelium and is then easy to treat. His aim is to prevent an acute changing into a chronic urethritis, and referring to treatment states: "It should therefore be commenced as early as possible after infection."

(To be continued.)

Duels Better Fought in the Early Morning.—The *St. Louis Globe-Democrat* is our authority for saying that the best time for going into battle is just before breakfast. That paper gives us the following item:

"Dr. Bernays greatly interested Surgeon General Sternberg by a proposition he laid down that when a man is shot in the abdomen shortly after eating a hearty meal the danger is much greater. 'A case of that kind should be operated upon in every instance,' said Dr. Bernays. 'If the bowels are empty, or nearly so, the same wound may be treated without operation.'"

"Applying that theory to soldiers?" remarked the Surgeon General tentatively.

"I would say they ought to do their fighting before breakfast," put in the specialist.

From time immemorial, the early morning hour has been the chosen time for the duello, for the "settlement" of private quarrels. It is a logical arrangement, and moreover the appetite for breakfast is not sharp until after the quarrel has been appeased.

¹ Cent. f. Med. Wiss., No. 28.

² Prof. Homb, Zurich, *Der Micrococcus der Blennorrhoea neonat.*, Weisbaden, 1st quoted by Seenn, *Surgical Bacteriology*, 1891, p. 236.

³ Delafield and Prudden, *Pathological Anatomy and Histology*, 1th Ed., p. 572. ⁴ Seenn, *Surgical Bacteriology*, p. 230.

⁵ M. Wertheim, *Annales des Micrographes*, T. IV, No. 7, 1892, p. 59.

⁶ *Lehrbuch Arch. de Physiologie, norm. et path.*, 1887, No. 6. See Seenn I. c., p. 230, et seq.

⁷ Smithhoff, quoted by Seenn I. c., p. 231.

⁸ Quoted by Seenn I. c., p. 230, also, *Medical Record*, March 14, 1891, p. 317. ⁹ Seenn I. c., p. 230.

¹⁰ Delafield and Prudden, I. c., p. 332.

¹¹ *Medical Record*, Nov. 23, 1889, p. 388; Seenn, I. c., p. 232 from "Münch med. Wochschr.," No. 14, 1889.

¹² M. Wertheim, I. c.

¹³ Bülow, Bokar, Boelhardt, quoted by Seenn, I. c., p. 233.

¹⁴ Welander, quoted by Seenn, I. c., p. 233; Wertheim, I. c.

¹⁵ Delafield and Prudden, loc. cit., p. 169.

¹⁶ Reichenow, quoted by Seenn, loc. cit., p. 234.

¹⁷ Loc. cit., 18 quoted by Seenn, loc. cit., p. 235.

¹⁸ Quoted by Seenn, loc. cit., p. 235. ¹⁹ Ibid.

²⁰ Berl. Klin. Wochenschrift, 1882, No. 11, quoted by Seenn, loc. cit.

²¹ Bülow (Le Bull. Mcd., Dec. 25, 1887), quoted by Seenn, loc. cit., pp. 230-231. ²² Loc. cit., p. 169.

²³ Correspondence, *British Med. Jour.*, June 2, 1888.

²⁴ *Medical Record*, Nov. 27, 1891, p. 187.

²⁵ See H. Knapp's "Experiments on the Action of Bacteria on Operations of the Eye." *Archives of Ophthalmology*, March, 1886, pp. 215-50.

²⁶ *Medical Record*, Dec. 20, 1890, p. 711.

²⁷ Loc. cit., pp. 711-712.

²⁸ Delafield and Prudden, loc. cit., p. 378. ²⁹ *Noyes* loc. cit., pp. 290-300.

³⁰ *Arch. Gynaek. R. XXIII*, Heft, quoted by Seenn I. c., p. 235.

³¹ Loc. cit. and Ibid. ³² *Medical Record*, Dec. 20, 1890, p. 711.

³³ *Atlanta Medical and Surgical Journal*, Chicago Medical Bulletin April 1, 1893.

³⁴ *Trans. Cor. of the Johns Am. Med. Assoc.* quoted by the *Medical Record*, Nov. 4, 1888, p. 532.

³⁵ *Arch. Ophth.*, *Hopkinst.*, Oct. 13, 1891, quoted by *Medical Record*, March 30, 1892, p. 317.

METHYL-VIOLET—ITS PLACE IN THE AFFECTIONS OF THE EYE.

Read before the Section on Ophthalmology, at the Forty-fourth Annual Meeting of the American Medical Association.

BY FLAVEL B. TEEFANY.

KANSAS CITY, MO.

Since the day I first read and translated Prof. J. Stilling's articles on the subject of methyl-violet as they appeared in the *Revue Générale d'Ophthalmologie* in the year 1890, I have almost daily resorted to the drug as one of the remedies in the treatment of the various affections of the eye. For perhaps a year or more from the time this drug, as a therapeutical agent, was introduced by Prof. Stilling (as is the case with most other new remedies indorsed by authority), it was extensively discussed in all medical literature throughout the land. Many if not all ophthalmologists tried it in one form or another in one disease or another, and some were pleased with it while others were disappointed. Some were satisfied of positive results and added it to their list as a good and reliable remedy. Others were disappointed, getting as they believed no good effect so discarded, denouncing it as without merit.

When my attention was first called to the therapeutic properties of this agent, it happened that I had several patients on hand suffering from serious diseases of the eye; such as suppurative inflammation of the uveal tract, which had resisted all known treatment ordinarily used, and were marching on to the destruction of the eye. In these cases the methyl-violet certainly checked the disease and in some of the cases I believe it saved the eyes. In my enthusiasm and from Stilling's glowing account of its positive antiseptic qualities as an indemnity against all pyogenic influences, taking but the slightest attenuation to prevent all decomposition and putrefaction in any and all conditions, I employed it in nearly every affected eye that came to my public clinic as well as that of my private practice.

I tried it in all forms of conjunctivitis, in simple catarrhal ophthalmia, phlyctenular, granular and purulent ophthalmia; and in the different forms of iritis, dacryocystitis, hyalitis; disease of the cornea as the different forms of keratitis, ulceration of the cornea; in diseases of the choroid; in fact, there is scarcely a disease or affection of the eye in which I did not use methyl-violet. Not, perhaps, from my credulity or great faith in its panacea properties; and yet if it was the non-irritant and searching antiseptic that was claimed for it, taking for its predilection the germ of all activity, paralyzing and destroying all pyogenic bacteria and believing as we do that the etiology of disease is of some form of microbe, it would not be wondered at that in my eagerness I should give it a thorough trial which I did. In many diseases I have found it most efficient, while in others non-efficient, being as it were perfectly nil. In some I have found it positively harmful, acting as a decided irritant. In some cases where it has been long continued I found that it produced pain and soreness of the globe and in some instances I believe atrophy has followed in consequence of its continued use.

In most forms of conjunctivitis it is non-reliable. In purulent ophthalmia, as of the newborn or gonorrheal, its action is so uncertain as to make it unreliable; in some instances it has worked like a charm, acting as an antiseptic and dispelling purulency like

magic; in others it seems to have no effect, or if any that of an irritant. In one case of ophthalmia neonatorum where the baby's eyes were doing fairly well, but not being quite satisfied I resorted to the use of methyl-violet, suddenly the eyes grew worse and they went from bad to worse and in spite of all I could do the cornea sloughed and both eyes were lost.

I have been disappointed in its efficacy in trachoma. In this disease it is entirely nil, or has been in my hands, with very few exceptions. I recall, however, one or two cases where in trachoma with blennorrhoea of a chronic persistency, resisting all ordinary treatment, as of the trachoma forceps, brushed with the toothbrush, etc., by the use of methyl-violet a speedy cure was brought about.

There is one form of conjunctivitis and that one too that is most obstinate, frequently resisting for many months all treatment, where the methyl-violet has in my hands and with the proper systemic treatment worked speedy cures. This is phlyctenular conjunctivitis. In nearly all forms of keratitis that frequently extend over a period of ten to eighteen months before a cure can be brought about, and then at the best, concity of the cornea with myopia, I have with methyl-violet cut short the disease where the cornea was so densely opaque as not to admit of any perception of the iris or pupil. In absolute blindness due to dense opacities of the cornea, I have succeeded in clearing the cornea in as many days as ordinarily requires months with the old treatment.

In ulceration of the cornea it is a most valuable remedy, next in efficacy to the thermocautery. In suppurative iritis from its penetrability, non-irritant and antiseptic properties, as well as of a mydriatic it is of great value. In hypopyon it acts like a charm cutting short the suppuration. Soon after it is dropped upon the cornea you will see the pus in the anterior chamber taking on the violet stain, and in a few hours the pus begins to diminish in quantity and frequently have I cleared the chamber of quantities of pus in a few days, where panophthalmitis was imminent. In hyalitis and all affections of the uveal tract it is efficient, and in one case that I had diagnosed as melano-sarcoma of the choroid, the tumor by the use of methyl-violet was held in abeyance; and in one case of glioma of the retina the methyl-violet arrested the growth and as long as the child was under observation, (for several months), the tumor gradually diminished.

To sum up, the affections of the eye in which methyl-violet seems most efficient and reliable are the following: phlyctenular conjunctivitis, phlyctenular keratitis, interstitial keratitis, ulceration of the cornea, abscess of the cornea, hypopyon, all forms of iritis (especially if combined with atropia) in diseases of the choroid, as choroiditis and hyalitis, tumors of the choroid and tumors of the retina and in chronic leucoma.

Among those affections in which it seems to be non-reliable or contra indicated, are most forms of conjunctivitis, trachoma, marginal blepharitis, purulent ophthalmia and pannus.

The form of the drug that I employ is the solution 1-2000 to 1-1000 in strength; occasionally I have employed as strong a solution as 1-500. The pomade has not been at all satisfactory in my practice.

Dr. J. H. Thompson—Individually I have not used the methyl-violet, but I have seen it used in several cases, and I have never seen it used but that most valuable time was

lost. I have seen it used in eyes and they would be destroyed, not from the methyl-violet but because a disease was thus allowed to run too long for any after treatment to be effective. In general surgery as well as in ophthalmic practice such has been my observation, so I have come to the conclusion that the drug is useless.

Dr. HOTZ—Observations of this kind are absolutely worthless. To use a drug indiscriminately for almost every disease the eye may be afflicted with is not a scientific experiment but empiricism. Methyl-violet was introduced by Prof. Stilling under the name of "pyoktanin," i. e., pus killer, to emphasize its most prominent quality. Now if we wish to find out for ourselves whether this remedy possesses this pus-destroying power in so eminent a degree we must test its power in such suppurative affections which we know usually run a very destructive course. Serpiginous ulcers of the cornea, hypopyon keratitis, gonorrhoeic conjunctivitis, these are conditions where pyoktanin can show its virtues if it has any. My tests had the following results: in suppurations of the cornea it seemed to arrest the formation of pus cells; for the hypopyon and the yellow infiltrated border line of the ulcers disappeared; but in most cases the disintegration of tissue went right on leading to extensive softening, and eventually to perforation of the cornea. In one case of incipient gonorrhea of the conjunctiva pyoktanin seemed to cut short the attack; only a mild form of simple conjunctivitis followed its use. But in other cases of gonorrhoeic ophthalmia, in all cases of blennorrhoea of the membrane its applications were utterly ineffective. I have come to the conclusion that pyoktanin is a useless remedy. But when we are told it had cured a glioma of the retina, I believe the only rational explanation we can offer is that there was a mistake in the diagnosis.

Dr. TREFANY—Dr. Hotz in his remarks depreciates the efficiency of methyl-violet in neoplasms and all forms of tumors. He says that all that is claimed for it is its value as an antiseptic. We all know that this drug in our histological preparations is one of the best stains that we have, taking for its predilection the nucleus of the cell. If we concede that the drug is an antiseptic, a destroyer of microbes, I see no reason why it may not in a similar way control cell proliferation of tumors and neoplasms; at any rate, we all know that it has been extensively used not only here in America, but in Europe, and by good authority who claimed for it the power of checking if not dissipating entirely these growths. I am sure my experience will bear me out in all I have said in my paper. Very recently, within the last few days, I had a case of hypopyon where the anterior chamber was filled with pus in which I used methyl-violet with excellent results, clearing the chamber in a few days. In phlyctenular keratitis I have repeatedly used it with most satisfactory results. I have been disappointed in its use where it was most recommended by Prof. Stilling, viz.: in most affections of the conjunctiva. I have found it most useful in the affections of the uveal tract and of different intra-ocular affections.

QUIESCENT FOREIGN BODIES WITHIN THE EYEBALL WITH A REPORT OF CASES.

Read before the Section on Ophthalmology, at the Forty-fourth Annual Meeting of the American Medical Association at Milwaukee.

BY WALTER B. JOHNSON, M.D.

PATERSON, N. J.

SURGEON TO THE PATERSON EYE AND EAR INFIRMARY.

When the eyeball has been penetrated by any extraneous material the resulting injury and probable subsequent irritation and inflammation is always

regarded with the utmost concern by the surgeon in attendance. Even if the particle comprising the foreign body is very minute, if the impact has been sufficient to cause it to penetrate the walls of the eyeball and it has passed within the globe, it is a grave and serious condition. The prognosis is nearly always unfavorable, as it may immediately become a source of severe suppurative inflammation resulting in destruction of the eye, necessitating its enucleation, or if allowed to remain may eventually result in disease of the injured eye, or possible sympathetic irritation and inflammation of the fellow eye. Should a foreign body have entered the globe and only a moderate inflammation result, the question of its possibly becoming encysted and remaining quiescent, presents itself for consideration, and unless the location of the injury and the position of the foreign body should preclude the possibility of strenuous efforts resulting in a successful termination, or delay should endanger the fellow eye, all eyes should be given an opportunity to become quiet.

The eye should be treated in all cases of foreign body with antiphlogistic medicines and applications, and general medications should be administered, when indicated; the object to be attained being the preservation of the eyeball even though it is almost certain that the eye will be sightless. Should the possibility exist of sufficient sight being retained to render the eye of any service to the patient, the efforts to quiet it should be continued as long as there is any probability of the inflammation subsiding; for, a natural eyeball, if not unsightly or a constant menace to the fellow eye is infinitely preferable to an artificial eye which is always a source of discomfort, and even if most carefully matched and constructed, somewhat unsightly, in addition to being a constant expense to the wearer.

The question of the possible after effects of a present foreign body is of importance and the many cases reported in which even very small particles of steel have, after years of quiescence, become a source of such severe irritation that the fellow eye has become diseased, or an enucleation of the eye rendered necessary, have had a tendency towards preventing protracted efforts to save eyes which seem to be too severely injured to undergo a satisfactory reparative process. If a patient carrying an encysted foreign body can not at any future time be easily reached, or may pass entirely from proper observation in case of subsequent irritation, as, under such circumstances there is a decided objection to the continued presence of a foreign body in the eyeball, the desirability of efforts at its removal by operation or even, if necessary, the enucleation of the eyeball itself should be carefully considered. The operation for removal of foreign bodies by the magnet has been performed in a large number of cases; it is, however, only moderately successful. It is an extremely dangerous operation and so serious a procedure that it frequently induces severe suppurative inflammation and subsequent loss of an eyeball which might under more conservative treatment have been saved.

The time required for an inflammation resulting from the presence of a foreign body in the eye to subside is frequently a matter of great importance, especially to a patient who has himself and others dependent upon his daily labor for their support.

In such a case where the time would be too long, extending over a period of weeks and perhaps months before the eyeball would quiet, and if the eye were so severely injured that it would be sightless and there were some danger to the fellow eye, immediate enucleation would be a perfectly justifiable procedure. The cases reported are presented for the purpose of illustrating the manner in which foreign bodies may enter the eyeball and become encysted in different localities, remaining perfectly quiescent and apparently no menace to the integrity of the globe, the sight of the fellow eye, and even in some cases the sight of the injured eye itself:

Case 1.—D. F., age 30; Irish, machinist; July 12, while working at his trade was struck in the right eye by a piece of flying steel. When first examined he had a severe iritis inflammation and a scar on the cornea, temporal side, near the limbus. The iritis responded readily to treatment by atropin and a leech. The eye quieted and was perfectly comfortable. There was no idea of a present foreign body and the patient was confident that there was nothing in the eye. He had no discomfort; his vision was normal.

September 1.—Again applies for treatment stating that one week ago his right eye became red and painful and had a feeling of scratching as if something was in it, with blurring of the sight and severe headaches. These symptoms had gradually increased until present time. On examination severe inflammation with sub-conjunctival infection, and a small black speck on the globe in the temporal region were observed; the foreign body, a small piece of steel, presenting near the limbus cornea in the supra-temporal quadrant was removed with some difficulty as it seemed to be tightly imbedded in the ocular tissues. It was one-eighth of an inch in length and very thin and sharp pointed. The irritation readily subsided under cold bathing and atropin, the eye became perfectly normal and the vision equally as good as that of the other eye.

Case 2.—J. R., 44; foreign body encysted in iris May 5, 1893; while working at his trade, machinist, a small piece of steel flew from the hammer and entered eyeball lodging in iris. First saw patient Tuesday, May 9. At that time the eye was congested and there was a small white fleck on the iris below. Had some pain; he could see well; ordered atropin; the pupil responded readily and the iritis gradually disappeared. May 15. Has no pain and very little redness; his eye feels well; ordered him to remove bandage and wear shade glasses. Atropin was discontinued and on May 22 there is no redness. The pupil is coming down and the foreign body is evidently encysted being covered with a white exudate. There is a very slight indentation on the edge of the pupil above the body; the vision is normal.

Case 3.—P. W.; steel in eyeball; one week before he applied for treatment while working at his trade, a machinist, a piece of steel flew and entered the right eyeball passing through the cornea and iris just below the pupillary margin and through or into the lens. The steel can not be seen either by direct illumination or with the ophthalmoscope. The lens is somewhat opaque and presents a glistening reflex. The pupil is slightly dilated, the tension of the eyeball very slightly increased, has had slight pain, but there is no discomfort at present and no inflammatory symptoms. The vision was 1-10 three weeks after the injury and on last advice had remained practically the same since time of injury until his death three months ago, never having caused him any discomfort, either in the injured or the fellow eye.

Case 4.—F. G., applied for treatment of an iritis, which he stated he thought might be the result of a foreign body which entered the eyeball twenty years before this time; he complained that he had on several occasions had attacks similar to the present inflammation; the pupil dilated considerably under atropin but was irregular. On the temporal side there was an iridodialysis which could be readily illuminated, and directly behind the opening there was upon the fundus a large, white plaque about the size of a pea. The vision in the eye was impaired being about 1-20. The iritis responded to treatment and the patient passed from observation still carrying the foreign body.

Case 5.—J. F., age 47. Seventeen years ago received an injury from flying steel in the right eye; the steel passed into the globe in the ciliary region on the temporal side of the eye. The sight was immediately lost and never returned.

There was no opacity of the lens and no spot or plaque could be seen on the fundus to indicate situation of the foreign body. He has had occasional attacks of neuralgia in the right eye but never any inflammation. He was myopic before the injury, but to the sight of the left eye, as never been affected as a result of the injury. On Thursday ten days ago he had a severe attack of neuralgia in the left eye which was the first he ever had in that eye. On examination there was no apparent disease of that eye. R. V. O. L. V. = 20/100 with — 1-15 = 20/20.

Case 6.—W. P., age 30, machinist. One month before presenting himself for treatment and while engaged in turning on a power lathe, a splinter of steel flew from the tool striking him in the right eye, and as he thought falling to the floor. He had no pain, redness or swelling and did not notice any feeling of discomfort at any time until the third day after the injury, when he thought that his sight in the right eye was diminishing slightly; from that time until date of first visit one month after the injury there has been absolutely no symptoms present, except a continued falling off of the vision in the injured eye. R. V. = 2-7. No improvement with glasses. L. V. = 20/20. By ophthalmoscopic examination and direct illumination a small piece of steel about the size of a pin head is observed situated in the lens above and towards its supra-temporal border, directly in front and somewhat below this point a corneal scar indicates its point of entrance; the loss of vision is due to opacities of the lens. September 15, 1884. The eye has given him no discomfort but the vision has steadily diminished until present visit when he only had perception of light. The lens is entirely cataractous and milkwhite in color. June, 1893, on examination; R. V. = 20/15 with — 1-3 1-2. The lens is entirely absorbed; the fundus on ophthalmoscopic examination is seen with perfectness with — 1-4. The foreign body can not be discovered it probably having sunken down close behind the iris. He never has had any discomfort of any kind and reports the eyesight in his injured eye of great service in discerning objects appearing on that side.

Case 7.—C. A., age 44. While hunting on Oct. 29, 1882, and one hour before presenting himself for treatment he received a wound in the right eye, scattering shot from the gun of a companion having struck him. The shot used was bird shot No. 6. It grazed the upper lid and entered the eyeball just at the limbus of the cornea leaving a small crescent shaped cut upon the globe. There was a considerable hemorrhage into the anterior chamber. There is but little swelling or irritation. Ordered atropin and cold water bathing. R. V. = perception of light. October 30 on the day following the injury. R. V. = ability to count fingers at 6 degrees. A new sub-conjunctival hemorrhage has occurred near the wound. The hemorrhage in the anterior chamber and also the sub-conjunctival hemorrhage were gradually absorbed; the slight inflammation subsided and the vision improved, the patient remaining under treatment for two weeks. When an ophthalmoscopic examination could be made no foreign body was located; there was a small plaque on the fundus in a direct line with the wound in the globe anterior and the possibility of the shot having passed entirely through the eye presented itself for consideration. The vision was still impaired when the patient ceased his visits.

July 24, 1891. Eleven years after the injury the patient was sent for and examined with the following result: he was unable to say which eye was injured and stated that he could see as well with one eye as the other. R. V. = 20/30; 1-36 = 20/20. L. V. = 20/40 = 1-36 = 20/20. He has never had any discomfort since the original inflammation subsided. The vision in the injured eye is better than the other eye when not using glasses. The location of the foreign body is questionable, it probably having passed through the globe into the orbit behind the eyeball.

Case 8.—E. G., July 10, 1886, while celebrating the Fourth of July, was struck in the right eye with some powder grains, a cannon, having prematurely exploded. The grains of powder passed through the cornea and iris and into the lens causing a traumatic cataract. The eye was still inflamed on July 19 when first seen; it quieted nicely under treatment and by August 2 was perfectly comfortable, although the corneal wound was still open at times and there was an occasional escape of aqueous. The lens remained cataractous, the wound of cornea closed and the vision was only perception of light. There has been no subsequent discomfort. May, 1892, when last seen the eye remains sightless.

Case 9.—J. McD., Oct. 24, 1887, was struck while working

as a laborer in blasting rock, by a piece of steel from a drill; the steel passed through the cornea and sclerotic at the limbus; a well marked inflammation developed with suppurative choroiditis. Enucleation was advised, but the patient declined to have the eye removed; after remaining in the hospital five weeks the pain and inflammation had entirely disappeared. There was tension of the eyeball and apparently an oncoming phthisis bulbi; there was only perception of light. On ophthalmoscopic examination the field presented a semi-organized exudate filling nearly the entire half of the vitreous, evidently the seat of the foreign body; the exudate on last examination still had a reddish tinge resulting from the blood coloring matter not yet absorbed; the eyeball is quiet and comfortable and there is no irritability of the fellow eye. The steel can not be seen, being probably concealed in the exudate mentioned above.

Case 10.—July, 1888, W. M., was engaged in firing a cannon on the Fourth of July; the concussion of the ramrod exploded the charge of powder prematurely; he was standing in front of the cannon and the charge shot into his face, filling both eyes with powder and pieces of grass and weeds which he was using as wadding; both eyes were injured and there were dozens of particles of powder and stubs of grass and weeds removed from them. The orbital cavity was literally full of such particles, which were lodged in the conjunctiva. His left eyeball was severely lacerated, and the right cornea had perforating wounds through which cannon powder had passed. The resulting inflammation was so severe that the enucleation of the right ball seemed absolutely necessary; the possibility of saving the left eyeball seemed very slight. Under active antiphlogistic treatment the inflammation gradually subsided; there was no light in either eye at first, but ten days after the injury he was able to count fingers with the left eye. No sight in right eye which was diminished in tension. Present condition, June 1, 1893, phthisis bulbi of the right eye which is considerably sunken and has cicatricial contractions. He never had any pain since the original inflammation subsided. The left eye has a large symblepharon on the temporal side and is discolored by powder stains; the cornea is clear showing two scars where grains of powder, which are lodged in the iris entered; the pupil is mobile; there are some opacities on the anterior capsule of the lens. There is a long narrow choroidal plaque extending from the temporal side of the optic nerve to the extreme limit of the field, undoubtedly due to rupture of the choroid from the force of the blow. R. V. O. L. V. 20-200; no improvement with glasses. He has a sensation of light in the left eye which constantly flutters before the eye either night or day, seen even when the eyes are closed. He describes the light as a black center surrounded by moving light, no doubt due to the blind spot in the field of vision caused by the plaque at the seat of the choroidal rupture. He was at first troubled with rainbow light flashes, which would circle around and then burst, but as time passed he sees less of these; he thinks his eye is stronger than it was. He has no dizziness such as he constantly had for two years after the injury. No intolerance of light except in the early morning after working all night; he is employed as a night watchman and has been since the time of the injury.

Case 11.—July, 1889, W. S., while celebrating the Fourth of July was shot in the eye, the powder passing into the eyeball, penetrating the lens, and causing a traumatic cataract; he had a severe iritic inflammation which finally subsided and the eye became comfortable but remained sightless for six weeks after the operation, when he ceased his visits. He never, as requested, came back for future examination.

Case 12.—July, 1892, P. H., while celebrating the Fourth of July was shot in the face, a small cannon loaded with blasting powder having prematurely discharged; two grains entered the eyeball and lodged in the lens passing through the cornea and iris. The eyeball was excessively inflamed and the pupil contracted, the lens cataractous and a considerable deposit of plastic material in the field of the pupil. The inflammation subsided after six weeks of treatment and he was discharged with a fairly comfortable eye; his vision was only perception of light. He passed from under observation never returning for examination.

Case 13.—W. C., while celebrating the Fourth of July a cannon loaded with blasting powder was discharged by a companion, and the powder entered the left side of face and eyeball, passing into the chamber of the vitreous. At first there was but slight irritation and the vision was 2-5; the grains of powder which could be seen on ophthalmos-

copic examination gradually assumed a yellowish cast and increased in size until as large as a mustard seed; they presented a peculiar fuzzy appearance on either direct or oblique illumination. The vision was reduced to fingers at eight feet, the inflammation finally subsided, and one month after the injury the vision was 1-2. There was no further pain or irritation.

Case 14.—I. E., while at work in shop was struck in the eye with a flying piece of steel which entered the eyeball and lodged in the fundus causing a number of hemorrhages, forming a large stellate hemorrhagic spot on the retina. He could see one week after the operation to count fingers at twenty feet. He was under observation for three weeks; his eye having quieted, he was discharged. His vision was 1-4. He never returned to report the subsequent condition of the eyeball.

Case 15.—C. B., a machinist; while striking a chisel a piece of steel flew from the head of his hammer and penetrated the eyeball, passing through the cornea, iris and lens, and lodging in the fundus at a point directly opposite its point of entrance. There was considerable resulting hemorrhage into the vitreous and some hemorrhagic spots on the choroid to indicate the point of impact of the foreign body, which could not be positively demonstrated by ophthalmoscopic examination. There were no opacities of the lens, although the foreign body had passed directly through it. On examination on the day of the injury there was considerable loss of vision; the point of entrance and the course of the body could be demonstrated; the eye pained but little, was slightly red and the pupil did not respond readily to light; the blood in the vitreous somewhat obscured the point of lodgment in the fundus. The pupil dilated readily; the inflammation quieted and there was very little discomfort during the two weeks which he remained in the hospital. June 2, 1893. Has recently had some neuralgic pain in the injured eye, which has gradually grown blind and he can not on this date see anything but shadows. The ophthalmoscopic examination shows the pupil slightly dilated and regular. An extensive retinal detachment around the point where the foreign body had lodged; a line of opacity through lens indicating the course of the foreign body. The pain in the eye and the complete loss of vision has occurred during the last three weeks, the eye having been comfortable previous to this date. Enucleation was advised. The vision in the left eye is 20-15, but he states that he has difficulty in locating objects and thinks he can not see as well as he could with the left eye before three weeks ago when the pain and loss of vision occurred in the injured eye.

THE RESULTS OF THE USE OF THE ELECTRO-MAGNET FOR THE EXTRACTION OF FOREIGN BODIES FROM THE EYE.

WITH A REPORT OF TEN CASES.

Read in the Section on Ophthalmology, at the Forty-fourth Annual Meeting of the American Medical Association.

BY C. BARCK, M.D.

ST. LOUIS.

In the history of the use of the magnet on the eye we can distinguish two phases: 1, the use of the common magnet; 2, of the electro-magnet. The first one dates back as far as two hundred and fifty years ago, when Dr. Fabry of Cologne, used a magnet to remove a piece of iron from the superficial layers of the cornea. In 1842 Dr. Meyer from Minden (Germany), used a magnet, carrying thirty-two pounds, to remove a piece of steel out of the interior through the scleral wound. The first one who made a section through the sclera in order to remove a piece of steel with a magnet from the vitreous was Dr. McKeown of Belfast in 1874. In 1875 Hirschberg of Berlin, made a similar trial without result. These are the instances of the use of the common magnet we find in literature.

The second phase begins with the construction and introduction of the electro-magnet by Hirschberg in 1879. Since this time its use has become universal and the literature on the subject quite extensive. In

the instrument made by McIntosh, although more neat than the ones I have seen abroad, I found it necessary to have the points made somewhat longer. The battery must be powerful enough to enable the magnet to carry at least half a pound, and lately even a much stronger current has been recommended.

The cases in which the use of the electro-magnet is indicated, can be divided in two categories according to the location of the foreign body in front or behind the posterior lens-capsule. Those of the first, comprising the minority of the cases, are and have been within our reach by the ordinary methods; removal with forceps or other instruments, iridectomy, extraction of the traumatic cataract enclosing the body. But the extraction with the electro-magnet is easier, more rapid and we can for instance remove foreign bodies situated upon or in the iris without mutilating this organ.

All the cases where the foreign body penetrated beyond the posterior lens-capsule, were formerly considered beyond the scope of conservative treatment. This is the special sphere of the electro-magnet. For the scleral incision I used at first Graef's knife but prefer now a Beer's knife, which makes at once a section of the proper length. I thrust it directly through conjunctiva and sclera in the direction of the supposed location of the foreign body, making a kind of pathway in the vitreous too. The selection of the point of incision depends entirely on the calculated seat, on the determination of which I shall dwell later. The external muscles must of course be avoided. The loss of vitreous is exceedingly small, if there is no improper manipulation; frequently none at all. Hirschberg recommends chloroform-narcosis. I have operated in a number of instances under cocaine and find it just as expedient as for cataract extraction, children excepted.

The results are divided by Hirschberg into:

- 1, Good results, with maintenance of good vision;
- 2, moderate results, some vision being saved;
- 3, preservation of the eyeball;
- 4, failures.

The result depends upon:

- 1, The size and weight of the foreign body;
- 2, its septic or aseptic condition;
- 3, the correct diagnosis as to the location.

Ad. 1.—The foreign body can be called small when its weight is below 30 mgrs. Here the removal even quite a time after the injury might be crowned with a good result. If of medium size, weighing between 30 and 150 mgrs., then a primary operation only, within the first twenty-four hours will be successful. If the weight of the entering body exceeds 150 mgrs., the damage done to the structures of the eye will be too extensive to save some vision; sometimes even the preservation of the eyeball is impossible.

Ad. 2.—If the foreign body has been septic, suppuration of the vitreous sets in within twenty-four to seventy-two hours after the injury and the operation can then of course not prevent the loss of the eye. The possibility of such a condition is an indication to operate as early as possible.

Ad. 3.—The diagnosis must ascertain the presence of a metallic body in the vitreous and furthermore if possible its location. This depends mainly on the transparency of the media, especially of the lens and this again on the time which has elapsed since the injury. In the rarer instances where the foreign body enters through the sclera so far equatorial as not to injure the lens, it is of course less important. As

long as the media are clear, we can diagnose after dilatation of the pupil, the foreign body and its seat with the ophthalmoscope.

A precise idea of the situation is most important. The advice to operate under guidance of the ophthalmoscope is correct theoretically but deficient practically. I had a small mirror made to fit into the head band for the otoscopic reflector but abandoned its use. In the calculation of the seat first the meridian is determined. Then the distance from the corneal margin is measured upon the basis: first, that the most extreme point of the fundus we can see, is about 8 mm. distant from it; second, that every optic disc diameter corresponds to 12 mm. Furthermore an examination with the perimeter serves to control the calculation. The scotoma, caused by the presence of the foreign body, is transferred to the retina according to the measurements laid down by Donders in Graef's Archives (Vol. xxiii, 2, pp. 255).

It is different, if we see the cases for the first time some days after the injury when the lens has become more or less opaque. In moderate degrees we might still discern the deeper seated opacity, extravasation of blood or metallic reflex. After the lens has become totally cataractous this is impossible and our judgment of the probable seat rests then upon the anamnesis and especially the direction of the successive wounds in the cornea, iris, anterior and posterior lens capsule. The best results are obtained in cases which are operated upon within the first twenty-four hours. Moderate results are due partly to the injury done to the retina and choroid, especially where the foreign body happened to strike the region of the macula lutea, partly to opacities of the vitreous. Too much fishing in the vitreous with the magnet is always detrimental to the sight, causing shrinking of the vitreous and detachment of the retina. They are the cases of the third class, where the eyeball only is preserved. But even this result is a gain as many people regard the loss of an eyeball as a serious mutilation.

The failures are due to:

- 1, Too large a size of the entering body;
- 2, a septic condition of it;
- 3, the impossibility to remove the foreign body because the magnet did not find it or because it was too firmly imbedded in the walls of the fundus.

Eyes where operations in the vitreous have been performed should be kept under a close and long observation. Hirschberg rightly insists that no statement as to the final result ought to be accepted until at least one year after the operation has elapsed. I, therefore, report only my first ten cases, omitting three occurring during the last year. In two the foreign body was located in the anterior half of the eyeball.

Case 1.—M. B., 22 years old. Injured two days previously. In the left eye a fine scar in the cornea below and somewhat in the pupillary area. In the outer inferior quadrant of the iris, near to the pupillary margin, a small metallic body could be clearly recognized by focal illumination. It was imbedded in the tissue, a small portion of it projecting. Pupil irregularly contracted. Under cocaine, corneal section downward and outward. The introduced magnet attracts the piece at once and brings it forth. After atropization, the anterior lens capsule was found intact. Normal healing with a round movable pupil. Vision 20/30, owing to the ciliary involving the pupil. Without the magnet this case would most probably have required an iridectomy.

Case 2.—L. O., 11 years old. Injury same morning. Right eye. Corneal ciliary two lines long outward. Corresponding perforation visible in the iris. One-third of anterior

chamber filled with blood. After repeated use of atropin during two hours, pupil sufficiently dilated. A black dimly reflecting foreign body could be diagnosed in the outer half of the crystalline lens. Expectative treatment during three weeks, after which time the lens was sufficiently opaque. Iridectomy upward and outward. The piece of steel follows easily the introduced magnet. Removal of the cataract as usual. Normal healing. Secondary cataract operation later. Final result, vision 20/70 with +11.0D. In this case, the same result could have been attained by the ordinary method. The use of the magnet seemed to me of advantage.

In the other cases the foreign body entered the vitreous chamber. I shall give them in chronological order:

Case 3.—L. M., 30 years old. While striking the back of a hatchet with a hammer, the day before, a piece struck his right eye. Pain in the night. Eye moderately injected. In the upper outer quadrant of the cornea a linear ciliary one-half line long. After atropinization, a corresponding wound in anterior lens capsule near the equator was seen. The ophthalmoscope reveals, if the patient looks down, a roundish opacity in the vitreous with a metallic reflex from its center, apparently not far behind the posterior lens capsule. Fundus otherwise clear. Operation same day under cocaine. Scleral section between superior and external rectus. On the third introduction of the magnet it brought forth a minute piece of iron. No loss of vitreous. Conjunctival suture. Healing process normal without pain and very little irritation. Vitreous at first cloudy, then clearing up. Traumatic cataract did not follow. Dismissed the 15th of December. No injection of eyeball. Vision 20/40. On the place of the foreign body an irregular opacity of vitreous with corresponding narrowing of the visual field. Status the same two years later.

Case 4.—Young man from the country, seen in consultation with Dr. Williams of St. Louis. Chip of iron had entered the eye two weeks previously. Traumatic cataract. Fundus not visible. Scleral section between inferior and external rectus. The foreign body could not be found with the magnet. The eye was afterwards enucleated by Dr. Hotz of Chicago.

Case 5.—L. S., 27 years. Injury three hours previously while working on the rim of a barrel. Right eye. In the inner lower quadrant of the cornea a closed wound one line long. In the same direction in the iris an oblong perforation reaching close to the pupillary margin. Pupil dilated after one and a half hours. Wound in anterior as well as in posterior capsule and the way of the foreign body through the lens in form of an opaque streak clearly visible. In the vitreous near to the retina a gray-yellowish, sharp circumscribed opacity, the size of the optic disc. From the center, a metallic reflex. Operation same morning in narcosis. Incision with a Graefe's knife in inner lower quadrant 3mm. long. On the second introduction of the magnet the metallic body springs to it with a loud click and is easily extracted. Weight, 15 mgrs. Healing of the wound regular. The development of the traumatic cataract caused for a time glaucomatous symptoms. After its resorption the eye was found blind in consequence of detachment of the retina.

Case 6.—Young man, seen November, 1889. Injury three days previously. Corneal wound. Lens nearly totally opaque so that nothing of the fundus could be seen. In the grayish lens substance there is a sharply circumscribed black spot which looks like a foreign body. On the ground of the possibility of this location the section was made in the cornea. The introduced magnet proved the fallacy of this supposition and it was then introduced deeper through the lens into the vitreous. The foreign body could not be found. The patient did not return, and I do not know what became of him. The eye must of course be counted as lost.

I would like to mention here that a small oblong transparent portion in an otherwise opaque lens looks just like a foreign body, and is highly deceiving. The only difference is the presence or want of a metallic reflex. If this is wanting the location of the foreign body should always be supposed to be in the vitreous chamber and the scleral section ought to be made.

Case 7.—O. R., 10 years old. Right eye received injury seven days ago. Horizontal scar in upper inner quadrant of the cornea one and a half line long. Behind it, perfora-

tion of the iris. Lens nearly completely opaque, but the wound canal from anterior to posterior lens capsule and in a downward direction plainly visible. Farther back in the vitreous there is a dark spot with slightly metallic reflex just perceptible. Location of it impossible. Operation the next day under cocaine. Owing to external circumstances I decided to remove in the same operation the cataract and entered therefore with the magnet, after a corneal section downward and extraction of the cataract through the pupil. I proceeded the same way in Case 9. But although the result in this case was favorable I can not recommend the procedure. It is much more difficult to manipulate with the magnet from a corneal than from a scleral incision, and the extraction of the cataract ought to be left to a subsequent operation. The foreign body was found after some searching on the bottom of the vitreous and removed. Weight, 10 mgrs. The healing process was a regular one with very slight symptoms of irritation. A dissection of the capsular cataract on March 1, 1891, produced a round pupil in the center. Fundus clear; only fine opacities in vitreous. Vision—20/40 with +12.0D. Reads Snellen III with +15.0. This status has been the same up to date. As the other eye of the patient had been considerably injured by a previous accident (vision only 20/200), this one enabled him since to do his work and earn his living.

Case 8.—R. L., aged 28. Injury received six weeks previously in the country. A large piece of iron from a chisel had entered the eye. Large ciliary arc at cornea-scleral margin. Traumatic cataract. Iris dull and discolored. Chemosis. Swelling of the upper lid. The other eye injected; pronounced photophobia. As the patient was very anxious to have his eye saved, a last resort was made in spite of the symptoms of commencing sympathetic affection of the other eye. Scleral section. From the vitreous there was attracted at once a large piece of iron, necessitating enlargement of the wound in order to remove it. Weight 630 mgrs. There was some pus on its surface. On that account, and as the sympathetic symptoms rather increased, the shrunken eye was removed two days later. Under appropriate treatment the other eye recovered fully.

Case 9.—J. P., 52 years old. Piece of steel from a chisel entered the eye five days previously. Large irregular horizontal ciliary arc in cornea not fully closed as yet. Anterior chamber shallow. Pupil dilates only partially from atropin. Lens opaque. Place on laceration in anterior and posterior capsule recognizable; no reflex from fundus. The foreign body had most probably caused a considerable hemorrhage. I deemed it best in this case to proceed as in Case 7, especially as the corneal wound had not united fully. I, therefore, reopened and enlarged it, removed the opaque lens masses, and entered with the magnet through the pupil. In spite of long searching the foreign body could not be found. The patient disappeared a few days afterwards.

Case 10.—J. D., 14 years old. A piece of steel from a plate, crushed by a large hammer, struck the right eye. Seen immediately after the injury. Corneal ciliary arc in outer lower quadrant. Triangular wound in iris, which is slightly adherent to the ciliary. After atropinization, wound in anterior and posterior lens capsule visible. Ophthalmoscope reveals at the bottom of the vitreous an opacity with metallic reflex. Fundus otherwise clear. Operation three hours after injury in narcosis. Scleral section between inferior and external rectus. The click on touching the foreign body was heard twice, but it followed the third introduction only, having probably been firmly sticking in the sclera with its very sharp end. Weight 10 mgrs. Loss of one drop of vitreous. Conjunctival suture. Healing process normal. Traumatic cataract left to absorption. Dissection August, 1892. Vitreous considerably cloudy, especially in lower portion, and most probably retinal and choroidal atrophy. Counts fingers at 1½ meter distance. Status about the same now. It is doubtful if this moderate amount of vision will not become lost in the future.

The eight cases of extraction from the vitreous give the following results:

Two, good ones; 1, moderate one; 1, preservation of the eyeball; 4, failures.

The most extensive experience on this subject is possessed by Hirschberg, who reported (Graefes Archives, 1890) a series of 100 consecutive cases from 1879-90. Among them in forty-one, the foreign body was situated in the vitreous chamber and his results were:

Four, good ones; 3, moderate ones; 6, preservations of the eyeball; 28, failures.

His failures were in a large percentage of the cases due to septic infection already existing at the time of the operation.

Another large collection of cases has been reported by Mayweg (Archives of Ophthal., xxiii, p. 278). In fifty out of sixty-six the seat was in the vitreous chamber. His results were:

Nine, good ones; 7, moderate ones; 6, preservations of the eyeball; 22, failures.

In six the final result unknown. From the literature at my command, I could collect up to 1892 258 cases, including the above-mentioned series. The results of these were:

Fifty-eight, good ones; 40, moderate ones; 37, preservations of the eyeball; 123, failures.

The pronounced difference between these statistical results and those of Hirschberg is striking, but easily to be accounted for. These cases have been reported by numerous different authors, one or a few at the time and many of them beyond doubt too early. Furthermore, good results are published, as in surgery generally, failures passed over in silence. Therefore but little value can be attached to such collected statistics, and in my opinion only a larger number by one operator, or series of such, can form the proper basis to guide us. If the results so far have not been brilliant they have nevertheless been encouraging and they will undoubtedly become better with our increased experience.

Dr. J. L. THOMPSON—The first paper was a very valuable one on the use of the electro-magnet for the purpose of extracting foreign bodies from the vitreous. As to the second one, concerning quiescent bodies, we should like to have heard the last of that paper; without that we can say very little about it. Patients should be repeatedly warned by their physicians as to the danger of these foreign bodies. Tell them of the danger of the foreign body setting up inflammation many years afterwards. In such cases I have always given Solon's advice to Crotus: "Count no man happy until he is dead." There are some physicians who let the poor creatures go on with the injuries telling them: "Well, there is not much danger," until the patient goes on and loses the other eye. If the doctor had told him of the danger he would have been more practical and saved his eye.

Dr. BAKER—I had the pleasure in 1882 of spending some months with Prof. Hirschberg in Berlin and seeing him make several attempts at extraction of foreign bodies from the eyeball with an electro-magnet. On my return home in 1883 I had a magnet made, an improvement on his, in that it would lift five or six pounds while his would lift only ten or fifteen ounces. We have in Cleveland, as in all manufacturing centers, a number of penetrating wounds of the eyeball. It is always a difficult problem to know how to treat these cases, and the electro-magnet has been of much value to me in making a diagnosis. In a few cases it has proved of great service in the removal of fragments of iron or steel from the interior of the eyeball.

I recall one case referred to me by the late Dr. Weed in which he supposed the injury was only conjunctival and put a stitch in it; there was hemorrhage in the anterior chamber which obstructed the view with the ophthalmoscope. As soon as I brought the electro-magnet near the eyeball I knew there was a foreign body in it by the way in which the ball followed the magnet, and the pain complained of by the patient. I opened the wound and by the aid of the magnet soon found and removed the piece of steel, which was about

the size of my little finger nail. But it is still carrying the eye without any vision, but it looks as well as before. In another case I could see a piece of something that was larger than a pin head, very distinctly in the center of the vitreous. I made an opening in the chamber opposite and inserted my magnet repeatedly. I could hear the crack of the instrument against the foreign body but it would not come out. I kept this up for a long time but could not get it. After consulting with the patient we decided the eye must come out. I enucleated the eye and upon opening it took the magnet and passed it in contact with the foreign body but could not extricate it. I could lift the entire eyeball with this piece of steel adhering to the magnet, and yet it would not separate from the vitreous. The inflammatory capsule held this piece of steel there. I could have permitted that foreign body to remain without harm. I had another case not very long ago who had a piece of steel in his eye eight years; after that long time of quiescence it set up sympathetic inflammation and caused the loss of the fellow eye. I do not like the term, "quiescent foreign bodies in the eye." I do not think it best to convey the idea to the mind of the general practitioner that he can safely leave these foreign bodies in the eye. It might do if we could have them under our own control, but it is not well for us to let patients go from under our care with these foreign bodies in their eyes.

Dr. MUNN—I had occasion to present a paper last year on the subject of sympathetic troubles and how to deal with them. In reference to the first paper I will say that my experience with the electro-magnet has not been satisfactory. I have tried it in a few instances and have always failed to save the eye. The foreign body is usually tangled up in the fibers of the vitreous. I have had two or three typical cases and in each have failed and had to remove the eye afterwards. In reference to quiescent bodies in the eye, I think it is a very dangerous thing to leave them in position. Of course, we know that injuries in uveal tract are most liable to give rise to sympathetic trouble, but even in the vitreous humor there is danger of sympathetic trouble following if the foreign body can not be removed from the eye. I have seen a number of cases where foreign bodies have been carried a number of years and then have sympathetic inflammation set up in the other eye. I treated an eye with a piece of glass in it that had been carried for ten years. The piece of glass measured more than half an inch and had very sharp edges; sharp enough to cut. It had cut transversely through the cornea into the sclera about four millimeters on either side. It was evidently in the ciliary body, yet it was carried ten years without the slightest trouble. However, I advised the removal of the eye because the patient was blind and as a safeguard. On opening the eye I found the piece of glass. As Dr. Thompson has said, the patient was better without the eye, in his judgment, than to run the risk of carrying it.

Dr. JACKSON—The case reported by Dr. Baker in this discussion brings out a feature I do not remember to have seen mentioned, as to the use of the magnet in extracting foreign bodies from the vitreous. A foreign body can be dragged through the vitreous with very great difficulty or not at all by the magnet, unless you drag it through the wound of entrance. In one case I saw the patient thirty-six hours after the foreign body quite a small particle of steel entered the eye. The wound of entrance being small and the foreign body lodged on the other side of the eye a wound was made at the outer side of the vitreous chamber. Inserting the magnet, which was working well, it was tried repeatedly to drag the body out. The instrument would come in contact with the foreign body but it was impossible to dislodge it. So in Dr. Baker's case he tells me he had

made a new wound of entrance through which he introduced the magnet, and not through the wound made by the foreign body. This perhaps has been more frequently the cause of failure than has been noted. I think it much safer to have the foreign body out of the eye, if possible, but the large majority of these cases that do well after the magnet extraction are probably cases which might have done well had the foreign body remained in the eye.

DR. ALLPORT.—In regard to the use of the electro-magnet my experience has been rather unfortunate. I have upon several occasions extracted foreign bodies from the interior of the globe by the use of the magnet, but have subsequently lost the eye. The intra-ocular manipulation of the instrument has seemed to be more than the eye could endure. I would not, however, condemn the use of the magnet. Good results are reported and I may have been unskillful in the operation. It should certainly be used in superficial lodgment of foreign bodies that are beyond reach by other methods. But I should have to be absolutely *sure* of the presence of a foreign body inside the eye-ball to make any more experimental intra-ocular searchings with an electro-magnet.

In regard to quiescent foreign bodies in the eye I feel convinced that there is no safety while a foreign body is in the eye, and that if its extraction is impossible the eye should be removed. There are eyes that carry foreign bodies for years and thus produce a loss of both eyes. It is not conservative practice to allow patients to take such chances. These patients are usually laboring people of a low order of intelligence, and are apt to wander from one part of the country to the other. A sympathetic inflammation is liable to occur at any time under the most adverse circumstances as to skilled surgical attendance, etc. The loss of one or both eyes will be the probable result. We should do our duty and advise the enucleation of an eye, when we are sure of the presence of a foreign body before the patient passes from under our observation. In this connection let me advise some concerted action with regard to enforcing legislation calculated to prohibit the manufacture and sale of toy guns and pistols. In the month of June I was compelled to remove no less than three eyes from children who had been playing with these mischievous playthings. During the same month a medical friend of mine in Winona, Minn., was forced to mourn the loss of a young son, killed while playing with one of these dangerous instruments. If our wise legislators could drop for a time the discussion of such burning subjects as the smoking of cigarettes, the draping of nude statues, the covering of similar pictures, and the wearing of hoopskirts, and direct their attention to the advisability of permitting the manufacture and sale of toy guns and pistols, they would fill a longfelt want.

DR. FROTHINGHAM—I wish to discuss briefly two points that have been presented. The first is a statement that has been made by a previous speaker, that if a foreign body has entered the eye and we can not remove it we should enucleate the eye at once without regard to other conditions. I do not think experience warrants so "hard and fast" a rule as that. While in the great majority of cases enucleation will be necessary sooner or later, we should not decide the question of enucleation alone upon the fact that a foreign body is lodged within the eye, but upon the amount of injury and the reaction that follows; that is, upon the symptoms of an inflammatory nature in the injured eye that indicate danger to the other eye through sympathy. We all know that foreign bodies may remain in the eye for years without causing any feeling of discomfort or endangering the other eye. I once had a patient, an aged gentleman, who suffered from senile cataract. Many years before, while he

was a young man, he had a piece of steel enter the eye and lodge in the upper portion of the iris, where it had become encysted, and after a brief period of irritation had never troubled him in the least, and the vision had remained perfect until the senile cataract commenced to form. As the cataract was mature in this eye I operated, and in removing the usual section of the iris I removed the foreign body also. There are many instances where foreign bodies have remained in the deeper structures for many years without producing any symptoms that indicate enucleation of the injured eye. I had a patient a young man, suffering with pain in a blind eye, and sympathetic irritation of the other. The painful eye had been blind from childhood, but until a short time before consulting me it had caused him no discomfort. There was an injury of the iris, an absence of the lens, and a small scar of the cornea which indicated that a foreign body had penetrated the eye long before. He was then twenty-six years of age and said he had never received any injury of the kind. The eye was enucleated and a small piece of steel was found lodged upon the inner surface of the sclerotic. The patient afterwards recalled the fact that when a small boy, about six years of age, he was watching some men while they were drilling a stone, and that something struck him in the eye causing pain. This was a case where a foreign body had penetrated the eye, and yet, not until about twenty years afterward did it give rise to symptoms that called for its enucleation. This patient made a perfect recovery. Now there are a sufficient number of similar cases on record to forbid our acceptance of a rule that we should enucleate an eye at once if a foreign body has entered it, and we can not remove that body. If all symptoms of irritation speedily subside and there is no recurrence of pain or feeling of discomfort in the injured eye and the other is unaffected in any way we are justified in waiting, and under certain circumstances should wait until symptoms of pain and irritation recur in the injured eye and indicate danger to the other through sympathy. We should never allow a patient to go without warning, and should fully impress him with the danger of delay after symptoms of irritation recur in the injured eye, and in all cases where the recovery from the effect of the injury is not steady, and of short duration, we should enucleate.

I remember a case something like this one reported by Dr. Baker; the patient, a man of intelligence, had a small bit of steel penetrate his eye a few months before I saw him. The vision of the eye was not greatly impaired and there was on first examination but little indication of irritation or danger to the other eye, and I thought the patient was perhaps unduly alarmed; I hesitated to sacrifice an eye that possessed so good vision until thoroughly satisfied that it was necessary. Upon ophthalmoscopic examination the position of the foreign body could be plainly made out in the posterior portion of the vitreous humor, where it seemed suspended and surrounded by a thin film of semi-transparent tissue. I kept the patient under observation in the hospital, and finding that there were well marked symptoms of irritation at times which prevented his use of the other eye I decided to make an attempt to remove the foreign body, and failing in this to enucleate the eye. Having the patient's consent, I had him put under the influence of an anesthetic, and making the usual incision tried with a powerful magnet to extract the foreign body but without success. I then enucleated the eye which I opened; with the foreign body plainly in view and the magnet brought as close as could be I was unable to move it, although there seemed but a slight change in the vitreous surrounding the metal.

DR. LEVISON—I do not think there is anything more in

keeping with conservative ophthalmology than to enucleate the eyeball if any sympathetic irritation is present. A few days ago at my home in Denver on the day I was preparing to start for Milwaukee, a gentleman came to my office who had an injured eye. The ocular injection was very great and inflammatory action had gone to a considerable extent. The well eye I noticed, on examination, was wanting quite a little in power to accommodate. He said to me: "I came to get some medicine for my eye." I examined it carefully and found that it had been caused by the introduction of a foreign body. I told him he was running a considerable risk in allowing the affected eye to remain in its orbit and assured him that he had a sympathetic irritation in the well eye, which was likely to produce total blindness unless attended to at once. The affected eye looked phthisical, was minus tension and the vision was entirely gone. I said: "I will enucleate the eye for you, if you want it done, otherwise I will do nothing." He went away but soon returned and informed me that he would take my advice and have the operation performed. On opening it I found the remains of a foreign body.

About three years ago lady came to my office and said: "Doctor, I have come to get something to allay this inflammation in my eye." It had never given her such trouble before. It was brought about by the introduction of a small piece of thorn having pierced the ciliary body. I told her I would enucleate the eye by all means, as she was beginning also to have sympathetic trouble in the well eye, and that I could not be honest in advising her to try to hold on to the injured eye longer, as it would be running a risk that I would not carry for a thousand dollars a day. She refused to abide by my advice and went away and the sequelae will tell the result; in three months she returned, and I found that the injured eye had recovered, to a great extent, from the introduction of the foreign body, but on examining the other eye, alas! I found it too was in total darkness. Had I advised this woman at her first visit to me to have pursued the course she did, my conscience would haunt me to this very hour for not doing my duty. I do not say to do a wholesale enucleation for every foreign body—far from this; if sympathetic inflammation has manifested its presence I never fail to advise enucleation, and I have got the first case to regret for having taken such a course. I do not think we act wisely by attempting to carry these risks. This case is only one of a dozen or more that has come under my own observation with like results.

Dr. Horz—called attention to the fact that prognostically it made a vast difference whether the foreign body in the eyeball was lodged in the vitreous, or in the lens, or in the iris. General statements therefore on foreign bodies in the eye without mentioning the location must be misleading; for instance, when a gentleman said it was his rule to take any eye out in which he found a foreign body, he certainly did not wish us to believe he would enucleate eyes having a foreign body in the iris or lens; for these foreign bodies may be either left in situ or can successfully be removed and the eyeball saved. But conservative treatment can not be recommended for foreign bodies in the vitreous. The experience of all oculists, at all times, has been that foreign bodies in the vitreous are a prolific source of sympathetic inflammation. Such eyes are a constant menace to their fellows and should be removed; for we have no right to jeopardize the sight of thousands of eyes by a conservative treatment, because in some rare exceptions it has proved satisfactory. We must not be guided in our actions by what our experience of every day shows to be the usual course with such patients.

Prof. Zehendor (by invitation of the chairman) called attention to the experiments of Kries and Haab with electro-magnets of unequal strength for the extraction of iron

and steel from the eye without entering the eyeball, but by magnetic traction through the tunics. He has observed two cases operated on in this manner by Dr. Schlessner of Munich. In both cases the extraction of the iron piece succeeded very well and quite easily, but in one of these cases the piece was so big, that in spite of the extraction the eye was destroyed. He also related an instance in his experience in which he observed at the time the entrance of a foreign body into the interior of the eye in a boy, which was followed by retinal detachment and atrophy of that eyeball, but had not caused any sympathetic trouble in the fellow eye up to the time of his death sixteen years later.

THE ACTION AND SAFETY OF CHLOROFORM.

Being an abstract of a report to Surgeon Lieut.-Col. Edward Lawrie and the Government of His Highness, the Nizam of Hyderabad, India.

By H. A. HARE, M.D.

PROFESSOR OF THE PRACTICE AND MATERIA MEDICA, PETERSON MEDICAL COLLEGE, PHILADELPHIA.

AND E. Q. THORNTON, M.D.

DEMONSTRATOR OF THE CLINICAL.

To any one who endeavors to view the subject of chloroform anesthesia in an entirely impartial light, two objects raise themselves so high above all others that they form the peaks about which the smaller questions must cluster. The first object on which the judicial eye rests is the firm belief of many clinicians that chloroform may cause sudden cardiac death; the second object to be seen is the statement of the Hyderabad Chloroform Commissions that death from chloroform is never due to cardiac failure. In the support of the first belief we have not only wide clinical observation but also the experimental evidences of a number of investigations. In support of the second statement we have an array of experimental study, not equaled by any other research extant, associated with an enormous number of negative observations on man. Negative observations, because Lawrie alone in 25,000 cases has never had a death.

The controversy concerning the action of chloroform upon the animal organism has been waged so incessantly for many years, and has led to such extraordinary efforts for its elucidation and final decision that any one who attempts to take part finds himself swamped by the number of statements and opinions which he is forced to regard. We have, therefore, approached this research feeling it was no ordinary task, and that a path already so well traveled must be gone over with the utmost care if anything new or of value was to be discovered.

In March, 1892, Surgeon Lieut.-Col. Lawrie, whose interest in this subject is recognized by the medical profession the world over, wrote to one of us (Hare) asking that another chloroform research be instituted for which the Government of His Highness the Nizam of Hyderabad would pay. The express object of the research was the reconciliation of at least some of the contradictory conclusions reached by various experimenters during the past few years.

From the immense number of observations in regard to the action of chloroform in the laboratory and in the operating room it is evident that sufficient data are at hand to give us material to reach positive conclusions, and that the contradictory results hitherto obtained must have been reached by misinterpretation and error in experimental method, tintured perhaps by opinions formed previous to

the completion of a line of study. There are certain facts in regard to chloroform which few will deny, the chief of which are that it has the advantage of rapid action without disagreeable preliminary or subsequent symptoms, its bulk is small and its odor agreeable but, more important than all, it is much more dangerous than ether.

Though the Hyderabad Commission in their preliminary conclusions (page 30, paragraph 43) assert that ether is as dangerous as chloroform if given sufficiently to produce true anesthesia, we believe that the safety of ether is so universally recognized that this conclusion of the Commission can only be excused by the remembrance that ether has probably been used as little by those who wrote this paragraph as chloroform is used in many parts of America. This possibility is made a probability when we read that "if surgeons choose to be content with a condition of semi-anesthesia, it can no doubt be produced with perfect safety, though with discomfort to the patient, by ether held rather closely over the mouth. Such a condition of imperfect anesthesia would never be accepted by any surgeon accustomed to operated under chloroform." That this statement shows, to put it mildly, that the writer knows not whereof he speaks is proved by the universal employment of ether by hundreds of the best surgeons the world over in preference to chloroform. Further than this, medical literature contains so many statistical papers showing the small percentage of deaths from ether, compared to chloroform, that this point need not be discussed.

There are certain other points in regard to the action of chloroform which may be put aside as settled and therefore not needing further study, being generally received as beyond criticism, and we have made no experiments looking to their reproduction but have devoted our efforts solely to the question over which discussion still proceeds. Thus, all investigators concur in the statement that chloroform even in ordinary therapeutic quantity, acts as a powerful and constant depressant to arterial pressure. This conclusion has been reached by Bowditch, Minot and Coats, H. C. Wood and H. A. Hare, Gaskell and Shore, the Hyderabad Commission Nos. 1 and 2 and by every experiment in the research now carried out which forms this report. There is no evidence to the contrary and practically it has never been denied. Gaskell and Shore state, however, that chloroform may cause anesthesia without lowering blood pressure and that chloroform causes primarily a rise of pressure. They also believe that the chief cause in the fall of arterial pressure is cardiac and not vasomotor depression. The rise we have never seen except from struggles, and we have never been able to produce anesthesia without lowering the blood pressure, even when the drug was used in the smallest quantity capable of causing anesthesia and given as slowly as possible. We agree with the statement of the Hyderabad Commission that a fall of blood pressure always occurs when chloroform anesthesia is produced.

We are also forced, as the result of our studies, to differ entirely with Gaskell and Shore in their statement that the fall of arterial pressure is due primarily to a weakening of the heart's action and not to paralysis (depression?) of the vasomotor nerves. We believe that both factors cause the fall, but that the dominant factor is vasomotor depression because

as will be seen in several of our tracings the pulse waves were quite strong though the blood pressure, through vasomotor relaxation, was absolutely to the abscissa line and we agree with Lawrie that no conclusions as to the action of chloroform when inhaled can be drawn from the injection experiments of Gaskell and Shore into the arteries. One of our reasons for this belief is the entire difference in result. Another reason is that any powerful drug injected into the brain will cause a rise of blood pressure. Even nitrite of amyl, the prince of vasomotor paralyzants, will do this. (See Gaskell and Shore 17, paragraph 68). We also believe that results obtained by such interesting methods of experimentation as those employed by Gaskell and Shore are not capable of giving positively reliable information, as the conditions are so utterly at variance with those in which chloroform is given to man and, further than this, their methods are such as to give room for fallacious results which can not be excluded by the greatest caution on the part of experimenters experienced as they are.

Secondly, it is not denied by any one, that we know of, that chloroform exerts a powerful, depressant, paralyzant action on the respiratory center. This is agreed to by clinicians and by every one who has experimentally studied the action of the drug on the lower animals.

Thirdly, it is universally conceded that chloroform is a lethal agent of great power when brought in direct contact with highly vitalized tissues.

Aside from these facts there are a number of others in which we find ourselves strictly in accord with the conclusions of the first and second Hyderabad Commissions.

We find when the drug is pushed that insensibility comes first, then respiratory failure and finally cardiac arrest in every case in the lower animals. In other words, that cardiac arrest never ensues primarily from inhalation of chloroform.¹

SUMMARY.

From a careful study of the experiments so far reported, from studies made by one of us two years ago with H. C. Wood, and finally from this careful series of experiments we believe that the subject can be settled by the acceptance of both views in a modified form, or in other words that there is no real antagonism in the beliefs that chloroform kills by depression of the respiration or paralysis of the heart. We very positively assert that chloroform practically always kills by failure of respiration when administered by inhalation, provided, and this provision is most important, that the heart of the anesthetized is healthy and has not been rendered functionally incompetent by fright or violent struggles or, again, by marked asphyxia. By a healthy heart we mean one which has not undergone true fatty degeneration or has not so severe a valvular lesion as to make the slightest variation in the even tenor of the circulation fatal.

As positively as we assert that chloroform kills primarily by respiratory failure, so do we also assert that in excessive dose by inhalation it has a depressant effect on the circulation which is chiefly due to centric vasomotor depression with final depression

¹ Lack of space prevents the inclusion of three experimental records. They can be found in the issue of the Therapeutic Gazette for Oct. 15, 1902.

of the cardiac muscle itself. Depression of the cardiac muscle alone is never great enough to cause death when the chloroform is given by inhalation, but we believe that gradual asphyxia with the direct depression of the circulation may do much towards producing a fatal result, for vasomotor integrity is almost as necessary to life as an intact cardiac mechanism. This circulatory depression has been considered a safeguard because it was supposed to prevent chloroform going to the vital centers, but in reality it is no safeguard because profound circulatory depression is as great an evil as respiratory narcosis. That the circulatory depression may be dangerous is not only evident, but it is stated to be so by the Hyderabad Commission itself at the end of paragraph No. 8. This circulatory depression may be so profound that recovery is impossible, even with the most thorough artificial respiration, a fact stated by the second Hyderabad Commission in paragraph 25, which we quote in this paper. This emphasizes the fact that we can not afford to totally ignore the effect of chloroform on the circulation and we can not consider the patient in danger of circulatory failure *only* when the respiration ceases, but *as soon as it becomes abnormal*. On the other hand, we should remember that even if chloroform has been given properly, the arterial pressure may be so low as to give no pulse in the radial artery and yet the circulatory system be ready to respond at once when the drug is removed. If, therefore, the chloroform is properly administered is there danger of its circulatory effect in man? We think that it is just at this point that our research and every other research on animals fails and necessarily fails, to produce a positive reply. The variation in the action of a drug on a diseased individual from its effect on the normal one is notorious, and we have no right to dogmatically assert that there is absolutely no danger of a circulatory depression in man, even if we found no evidence of failure in dogs, because there may be many idiosyncrasies or variations through disease in the human being which may completely reverse the results of experiments on healthy animals.

In other words, supposing that the amount of depression from very full doses of chloroform equals 25 units this amounts to little in the normal heart, but if the heart be depressed 25 additional units by disease the depression of 50 units may be fatal, particularly if to this 50 is added 25 units more of depression through fright and cardiac engorgement through disordered respiration or struggling. That true depression of the heart muscle may take place under chloroform seems to us most undoubted and we think that the tracings in every research that we have seen support this view. There is always a decrease in cardiac power manifested by the decrease in the force of the individual pulse beat and this passes away only if chloroform is removed early enough. We also agree with McWilliams that from the very first inhalation of chloroform there is a constant tendency to cardiac dilatation.

We come finally to the all important questions:

1.—Is chloroform a safe anesthetic?

2.—Are we to watch the pulse or respiration during the use of the drug, and what are the signs in the respiratory function indicative of danger to the patient?

3.—What is the true cause of death from chloroform?

4.—Is death from chloroform possible if it is properly administered?

5.—Under what circumstances is the surgeon to use chloroform in preference to the less dangerous anesthetic, ether?

6.—What is the best way of administering chloroform?

To the first question the answer is yes, for the majority of cases, provided it is given by one who is skilled in its use and not only knows how to give it but to detect signs of danger. It is not as safe as ether at any time, other things being equal, and never safe in the hands of a tyro.

To the second question the answer is, watch the respiration, *because as soon as enough chloroform is used to unduly depress the respiration, the explanation will show some signs of abnormality, either in depth, shallowness or irregularity*. In other words, the very effect of the drug may be to cause such deep and rapid respirations that an excessive quantity of the drug is taken into the lungs and continues to be absorbed even after the inhaler is withdrawn.

As there is always a fall in pressure under chloroform it is difficult to feel the radial or temporal pulse and the respiratory center recognizes the degree of arterial depression, which its sister vasomotor center has permitted by finding that its blood supply is insufficient. As respiration fails first it should be watched first. Finally, it is only by watching the respiration that we can tell how much chloroform the patient is getting. We do not watch this function for danger alone but to tell us of the dose.

The answer to question three is that death is always due in healthy animals to respiratory failure accompanied by circulatory depression, which later may be severe enough to cause death even if artificial respiration is used skillfully. Death only occurs in the healthy animal when chloroform is given in excessive quantities.

Question four is impossible to answer for man from the basis of experimentation, as we can not produce identical diseased states in animals with those developed under various conditions in man. The physician having a case of heart disease should always advise the patient of the danger of any anesthetic and he should remember, whether it is wise to tell the patient or not, that anesthesia always means a step toward death even in the healthiest of men. In the event of a death under chloroform the physician is not to blame if he has taken proper preliminary precautions and given the chloroform properly.

Every one is agreed that the patient taking chloroform should have plenty of fresh air and in India we understand that to all intents and purposes patients are operated on in the open air, at least as compared to the closed rooms necessary in America and Europe. This free supply of air is important, whether we believe death to be imminent from cardiac or respiratory failure, but this supply of air matters little to the patient if he does not breathe freely nor does the dose of chloroform amount to aught if it is not drawn into the chest. The dose of chloroform is not the amount in the inhaler but the amount taken into the chest and finally the amount absorbed by the blood vessels. The rapidity and depth of respiratory movements is therefore, as Lawrie asserts, the entire key to the situation. We watch a windmill over a well to see if it is pumping into a reservoir a given quantity of water. If the

windmill works irregularly so that we know its pumping action is deranged we separate it from the pump until the wind blows steadily, in order that it may pump regularly. Similarly we withdraw chloroform, as Lawrie says, whenever respiration becomes disturbed in rhythm or when struggling disturbs it, because it is the first indication that the drug's action is uncertain and because there is no telling the dose which is absorbed. While watching the respiration will not warn us of a sudden cardiac arrest in fatty heart plus chloroform depression, neither will the pulse give us such warning and we are confident that the statement of the Hyderabad Commission that the *respiration should be watched is correct*, for we believe from a long series of observations that gradual cardiac failure never occurs without producing respiratory changes from the very first. In other words, we do not believe that in a healthy heart chloroform can cause serious disorder without as a result of beginning disorder disturbing respiration and, second, that in a healthy heart a quantity of chloroform sufficient to disorder it will by its direct action disorder the respiration. If, as an extra precaution, one assistant watches the pulse while the other watches the respiration, very well; for though the respiration is the more important function the man watching the pulse might discover an irregularity which the anesthetizer may not see reproduced in the respiratory action, but as divided attention generally means a slighting of both objects in view Lawrie is right in insisting on the pulse being let alone.

In answer to question five we have several points to offer: 1. Hot climates where ether is inapplicable and where a free circulation of air increases the safety of the patient; 2. Chloroform may be used whenever a large number of persons are to be rapidly anesthetized so that the surgeon may pass on to others and save a majority of lives, even if the drug endangers a few, as on the battlefield where only a small bulk of anesthetics can be carried; 3. Its employment is indicated in cases of Bright's disease requiring the surgeon's attention, owing to the fact that anesthesia may be obtained with so little chloroform that the kidneys are not irritated, whereas, ether, because of the large quantity necessarily used, would irritate these organs. Quantity for quantity, ether is, of course, the less irritating of the two; 4. In cases of aneurism, or great atheroma of the blood vessels, where the shock of an operation without anesthesia would be a greater danger than the use of the anesthetic, chloroform is to be employed, since the greater struggles caused by ether and the stimulating effect which it has on the circulation and blood pressure might cause vascular rupture; 5. In children or adults who already have bronchitis, or who are known to bear ether badly or, in other words, have an idiosyncrasy to that drug, chloroform may be employed; 6. Persons who struggle violently and who are robust and strong are in greater danger from the use of chloroform than the sickly and weak, probably because the struggles strain the heart and tend to dilate its walls.

The latest method of administration is by Lawrie's or Renarch's inhaler because these provide free circulation of air and do not distract the attention of the anesthetizer from the respiratory movement by complicated apparatus. Apparatus much like these, allowing a free amount of air, are the Hyderabad chloroform inhaler, or open-ended cone with

Krohne and Seseman's respiration indicator attachment. The Junker inhaler, even with its modifications, is too complicated and cumbersome and while less chloroform is wasted in administering the drug it must all be thrown out of the bottle afterwards. If used at all it should be used with the increased air supply and respiration indicator of Krohne and Seseman.

We agree so heartily with Lawrie's conclusions that we print them below:

1.—The chloroform should be given on absorbent cotton stitched in an open cone or cap. (A depression made through the opening in the inside flannel bag will answer as well.)

2.—To insure regular breathing, the patient lying down with everything loose about the neck, heart and abdomen, should be made to blow into the cone, held at a little distance from the face. The right distance throughout the inhalation is the nearest which does not cause struggling or choking or holding of the breath. Provided no choking or holding of the breath occurs, the cap should gradually be brought nearer to, and eventually may be held close over, the mouth and nose as insensibility deepens.

3.—The administrator's sole object while producing anesthesia is to keep the breathing regular. As long as the breathing is regular and the patient is not compelled to gasp in chloroform at an abnormal rate there is absolutely no danger whatever in pushing the anesthetic till full anesthesia is produced.

4.—Irregularity of the breathing is generally caused by insufficient air, which makes the patient struggle or choke or hold his breath. There is little or no tendency to either of those untoward events if sufficient air is given with the chloroform. If they do occur the cap must be removed, and the patient must be allowed to take a breath of fresh air before the administration is proceeded with.

5.—Full anesthesia is estimated by insensitiveness of the cornea. It is also indicated by stertorous breathing, or by complete relaxation of the muscles. Directly the cornea becomes insensitive, or the breathing becomes stertorous, the inhalation should be stopped. The breathing may become stertorous, while the cornea is still insensitive. The rule to stop the inhalation should, notwithstanding, be rigidly enforced and it will be found that the cornea always becomes insensitive within a few seconds afterwards. It is only necessary to add that the patient should be so dressed for an operation that his respiratory movements can be easily seen by the chloroformist. In the climate of India this is not difficult to manage, but it is rather more so in the climate of Europe; so that in this respect, and in this respect alone, the chloroformist in England and America is placed at a distinct disadvantage compared with the chloroformist in India.

NOTE.—Since writing this report two important papers upon this subject have appeared in the London *Lancet*. The one by Gaskell and Shore, in which they carried out a line of ingenious cross-circulation experiments, and from which they conclude that the fall in blood pressure seen under chloroform is due to cardiac rather than vasomotor depression; and another paper published by Lawrie, in the London *Lancet* for Feb. 11, 1893, in which he refutes the statements made by Gaskell and Shore, and details experiments which he believes combat those of the two investigators just named.

The concluding paragraph of Lawrie's latest contribution to the subject states the facts so clearly and is so in accord with what we have tried to set forth in our own report that we can not do better than quote the paragraph:

"The Hyderabad Commission's work proves that, while Syme's principles are right, there is no such thing as a safe method of chloroform administration. It is no longer a question of the superiority of the London method or of the Edinburgh method; absolute safety can be attained neither by watching the respiration nor the pulse for signs of danger—which are in either case proof of improper administration or of overdosing. Moreover, overdosing may take place whether the anæsthetic is given on lint or on a towel, or on a cap such as we use, or with Junker's or Skinner's or any other form of apparatus. The all-important point is that the breathing shall never be interfered with in any way. Safety under chloroform can unquestionably be insured, but it can only be so by attending to regular natural breathing; and, whatever method is employed, no one can deny that it is the bounden duty of the chloroformist to maintain natural breathing throughout the whole period of administration. To maintain natural breathing requires careful training and considerable experience, but if those conditions be fulfilled it is impossible to produce anything with chloroform but anæsthesia; and the Hyderabad Commission has shown that anæsthesia alone is entirely free from risk," provided the drug is not pushed too far and that the patient is in ordinary health. We would prefer to make the last sentence read: "Anæsthesia can be safely produced by chloroform."

SELECTIONS.

Summary of the Surgery of the Tendons.¹—WITH SIX ILLUSTRATIONS FROM LEVARS.—By JOHN B. HAMILTON, M.D., LL.D., Chicago.

The Surgery of the Tendons is the somewhat ambitious title laid down on the program as the title of my paper, but as time has not permitted me to review the whole subject in extenso, I will ask you to excuse my shortcomings, while I give you a condensed statement that will probably need no further condensation at the hands of your secretary. After all, I think most of the ideas that are new, or even presented in new form, can be stated in very few words.

I will pass over lightly the literature of the tendons, although that is very extensive, not only in medical literature, but in general literature. From the time Achilles' mother, Thetis, dipped him in the Styx, to make him immortal, by grasping tightly the tendons that have since borne his name, down to the middle ages when ham-stringing an enemy was a pleasant pastime of the bold Barons, the tendons have had considerable prominence.

In the surgery of modern war, where the wounds are made by bullets and rarely by bayonet or saber, the tendons are rarely wounded. For the very obvious reason that bullet wounds in battle are received on the body in exact proportion to the exposed area.

In civil life, the tendons are subject to dislocations more frequently than to wounds.

These accidents, though attended by few pronounced symptoms, need careful attention.

Contusions and punctured wounds need but scanty refer-

ence; owing to the lack of vascularity, contusion of a tendon is difficult to produce. Punctured wounds, when produced by any instrument causing laceration of the tendon fibers, are usually accompanied by retraction of the cut fibers and local necrosis of the connective tissue filaments, when made by a cutting instrument held parallel with the fibers, the wound closes with great rapidity, first by swelling of adjacent fibers from limited congestion; and second, by direct adhesion. The tendon sheath, however, made up as it is of loosely united connective tissue, is exceedingly liable to infection, and tenonitis, so called, almost invariably runs its course in the tendon sheath. Notwithstanding the fact that longitudinal wounds or separations of the tendons heal with rapidity, yet the resulting cicatrix impairs the efficiency of the tendon for a longer or shorter period, according to the area involved. Sometimes this impairment amounts to total suspension of the functions of the members; and the practical deduction from this lesson is, that in opening abscesses lying underneath a tendon, the incision should invariably be made at the side of the tendon, not through it. This practical advice, I believe, is not generally adhered to in the cases of finger abscess, but it should be. In abscesses of the fingers the original point of infection is usually the periosteum; the pus seeking exit in the line of least resistance usually projects from under the tendon on either side, and if the tension be not relieved at this time the adjacent bone participates in the inflammation, and it too becomes necrosed.

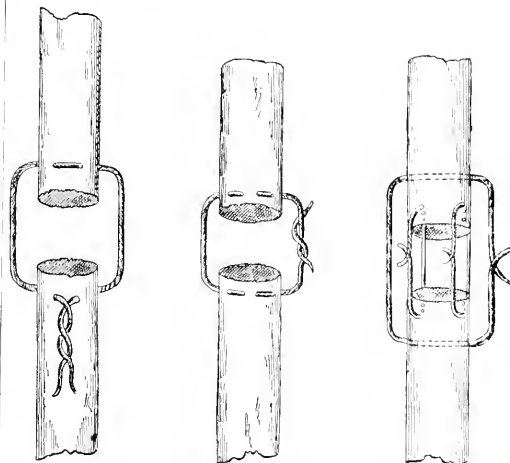


Fig. 1. Tendon Suture of LeFort.

Fig. 2. Tendon Suture of Wollast. After Levars.

Fig. 3. Tendon Suture of Levars.

It has been mentioned that the cicatrix impaired the functions of the tendon. Not only does this impairment occur but, owing to the feeble circulation of the tendon, the absorption of the redundant cicatricial tissue is slow, and sometimes the impairment is permanent. The sheath and the adjacent connective tissue being richer in blood vessels, not only accomplish repair sooner, but they more speedily remove the cicatrix.

Theories of repair of tendons after injuries have undergone the same successive changes as that of repair of wounds elsewhere. The theory of Hunter, that the elements of the blood were alone concerned in the repair of tendons, held sway until Bouvier in 1857 asserted that the tendon sheath by proliferation filled up the interspace between the ruptured ends. Denle, Robin, Adams, Paget, Brodhurst, adhered to the theory of repair by exudation and direct union of the

¹ Read at the Mitchell District Medical Society.

ruptured ends. Türeker, Donders, Virchow, Remak, Kölliker, Cornil and Ranvier have confirmed in the main the cellular theory of Bonvier by examination of cicatrices of tendons in man and animals and experimental tenotomies.

According to Krauss, who wrote a memoir on this subject in 1888, "the first alteration in the tendinous ends is like a degeneration; a shriveling at the center and a granular appearance of their protoplasm. But the principal modifications consist in a proliferation of the tendon cells, in which there is often observed the karyokinetic figures, and a corresponding enlargement of the fibrillar tissue. Afterwards the cells become round or angular and are prolonged from the fibrils, and the prolongations are found in the peri- or intra-muscular fascia."

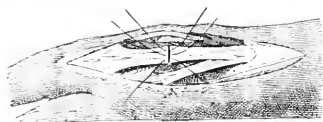


Fig. 3. Suture by Anastomosis (Method of Schwartz). After Lejars.

We may conclude that repair is complete when the functions of the muscle are restored; but as the restoration of the tendon necessarily depends upon the length of the separation space, we must interfere if we desire to secure early union.

The question of suture of tendons is the one that most concerns the practitioner. Shall the ruptured tendon be sutured or left to nature?



Fig. 4. Method of Czerny. After Lejars.

Galen opposed the suturing of tendons, and so long as his authority remained undisputed, the interdiction prevented it. The credit of the change is given to Avicenna, and since his day surgeons have vied with each other in producing new forms of sutures, both in material and manner of application. My distinguished colleague, Professor Nicholas Senn, has been engaged for some time past in an exhaustive research of the medical literature of intestinal sutures, and the fruits of that research will soon appear in the *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*. From that learned and instructive paper it will appear that it is almost impossible at this day to devise a new form of suture. This, however, only further corroborates the keen suggestion of Aristotle, "that probably all art and all wisdom had once been fully explored and again forgotten."

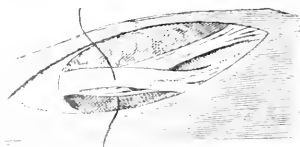


Fig. 5. Suture by anastomosis (Method of Tillaux and Duplay). After Lejars.

Not to take up your time with further historical allusions, I will only mention the sutures of LeFort, Wölfler, Lebentur, Tillaux, Duplay, Schwartz and Czerny.

The material most in favor at present is horse-hair, and chromized catgut. Subcutaneous wounds of the tendons do not require suture unless the distance between the ends

be very great, but all open wounds severing tendons require that the tendon be sutured. The difficulty which has led to so many forms of suture is the separation of the fibers by reason of their retraction; a complete ligature of the tendon could only result in strangulation necrosis of the ends. The drawings herewith from Lejars give you a fair idea of the different methods. Of these, perhaps the most ingenious is that of Tillaux and Duplay, which consists in suture of the peripheral end of a cut tendon in a slot cut in an adjacent tendon. Finally, we have the proceeding of Czerny, by which a splicing is effected by transplantation. Transplantation of tendon sections has been made by Glück, Georges Assaki and Fargin. Chassaignac as long ago as 1853 had united a tendon to the skin, in a case of section of the flexors of the thumb and index finger, and by the tension on the cutaneous cicatrix to which the tendon was united had good motion of the thumb and finger.

Where the separation is of long duration, both proximal and distal ends must be freshened.

LUXATIONS.—Dislocations of the tendons are quite common, the most common being the dislocation of the long head of the biceps, from the bicipital groove of the humerus. This accident is so thoroughly described in most works on dislocations, I will not dwell upon it here. The dislocation of the peroneal tendons from their groove at the external malleolus has escaped very much notice in the systematic works on surgery. I have seen two examples of this dislocation within the past year. Both were employees of the C., B. & Q. R. R., and both were switchmen. The accident may be recognized by pain, inability to turn the foot outwardly without pain, and the tendon may be seen and felt resting on the external surface of the malleolus. One of my patients acquired the habit of throwing the tendon out of its groove at will, the operation itself being painless. The attempt to walk while the tendon was in this abnormal position was very painful. He could reduce the dislocation easily by manipulation. The action seems to be produced while the weight of the body is thrown on the ball of the foot, the foot being extended and slightly rolled toward the inner border. Once produced its recurrence is common. The accident is also alleged to have occurred to horseback riders.

The reduction of dislocation of the peroneal tendon is easily effected, but the difficulty is to retain it in position. Fixation by the Martin's bandage, incision and suture have each their advocates, and Madyl of Vienna deepened the malleolar groove with a chisel; in my own cases, the men being on the hospital list of the railroad company, declined to submit to an operation. There is a strong probability that suturing the peroneal tendon to that of the flexor longus pollicis, which is adjacent, might prevent its return, but the operation of Prof. Albert seems to fully meet the indications.—*St. Louis Medical Mirror*, Sept., 1893.

Trional.—Koppers (*Lahen. Klin. Rund.*, 29, 30, 1893), observed the action of trional in twelve patients and arrived at the following conclusions: In most cases of simple insomnia, 15 grains sufficed to induce sleep within half an hour; 20 or 30 grains may be given if necessary, but with still larger doses the effect does not seem to increase proportionately. Where pain is present some, though not much, sleep results. Owing to the rapidity of its action trional is best taken at bedtime in some warm vehicle, such as milk or tea. The after-effects consisted only in slight heaviness in the morning, owing, apparently, to the direct action of the drug upon the cortex of the brain, and some slowing of the heart's action. If necessary, it also can be administered per rectum, the action thereby not being lessened.—*British Medical Journal*, Sept. 9, 1893.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE
PER ANNUM, IN ADVANCE \$7.00
SINGLE COPIES 10 CENTS

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 68 WABASH AVE., CHICAGO, ILLINOIS.

All members of the Association should send their Annual Dues to the
Treasurer, RICHARD J. DUNGLISON, M.D., Lock Box 1274, Philadelphia, Pa.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION

This is obtainable, at any time, by a member of any state or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Dunglison, Lock Box 1274, Philadelphia, Pa., sending him a certificate of statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues and subscription for THE JOURNAL. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

SATURDAY, OCTOBER 14, 1893.

EXTRA-UTERINE PREGNANCY.

Nothing in surgery is more typical of the advances which modern science has made than is the treatment of extra-uterine pregnancy. Although the axiom that death was due to hemorrhage and that the bleeding vessel must be secured was laid down over a century ago, it was a half century before the precept became practice and not until the present time, following the teaching of Mr. TAIT, has the practice received the sanction of the operators of the world. If there was nothing else of which he might be proud, the abdominal surgeon might well point to the life saving record in ectopic gestation.

Although the modern literature of the subject has assumed enormous proportions, beginning with the classical work of Dr. PARRY in 1876, there are still many points on which there is by no means a consensus of opinion in the profession. In the first place, there is a division as to the possibility of an absolute diagnosis previous to rupture. The disease is simulated by so many conditions, that it is unwise to lay down a train of symptoms which shall be taken as convincing evidence of the existence of an ectopic pregnancy. So closely does miliary disease of the ovary simulate ectopic pregnancy that skilled observers, men of wide experience, have been misled. The so-called "classical symptoms" of extra-uterine pregnancy are all here—the absence of one or more monthly periods, followed by a hemorrhage from the uterus, the morning sickness, the boggy tumor in the ovarian region—all may be present in tuberculosis of the ovary and may easily deceive the physician into thinking the case one of misplaced pregnancy. Again, the seeming extra-uterine pregnancy proves at the operating table to be a Fallopian tube filled with pus and causing the pain and hemorrhage that have given rise to the mistaken diagnosis. A pedunculated fibroma lying to one side of the uterus may present close resemblance to the graver trouble,

or a normal pregnancy in a thin-walled uterus may produce such symptoms as to render a positive diagnosis between the two conditions possible only after weeks of anxious waiting.

Men of the rare opportunities of study and the large experience of Mr. TAIT and Dr. JOSEPH PRICE confess that they have been misled repeatedly and are almost willing to say that a diagnosis prior to rupture is impossible.

Mr. TAIT, in his monograph on ectopic pregnancy and pelvic hematocoele, says:

"I have never but once been called upon to make an examination until the rupture had occurred, and in that case there was neither history or symptoms which enabled us to do more than determine that there was tubal occlusion, not, indeed until the rupture occurred and the abdomen was opened was a diagnosis possible. Under these circumstances I think I may be excused for maintaining a somewhat skeptical attitude concerning the correctness of the diagnoses of those gentlemen who speak so confidently of making certain diagnoses in cases of tubal pregnancy before the period of rupture, and who speak with equal confidence of curing the cases by a puncture, either simple, medicated or electrolytic."

Dr. PRICE is even more positive in his opinion as to the difficulty, if not impossibility, of diagnosis previous to rupture. In a recent paper he says:

"*Exceptionally, if ever, is the trouble recognized before rupture. The few cases recorded have all been by men with one experience, with very little knowledge of the murderous troubles found in the pelvis. A few surgeons, with an experience of nearly one hundred sections for ruptured tubal pregnancy, have never found one unruptured.*"

In the face of all the evidence on the subject it would seem that the diagnosis that is reported as made before rupture, is rather the result of a happy chance than the outcome of knowledge and weighing of symptoms on the part of the attendant.

After rupture the diagnosis becomes easy, though rupture has many times been mistaken for an abortion by the attendant physician. The sudden collapse with all the signs present of internal hemorrhage and the agonizing pelvic pain present a picture to the mind so vivid as to make mistake impossible. A pelvic examination and the finding there of a boggy mass to one side of the uterus would settle the case beyond a doubt and one feels inclined to ask if, in those cases that have been mistaken for abortion, a sufficiently thorough examination had been made or if the doctor merely took the woman's statement that she was aborting.

Rupture takes place either into the peritoneal cavity or between the folds of the broad ligament. If into the peritoneal cavity the wretched mother rapidly succumbs to the loss of blood and the peculiar and excessive shock that follows the accident. Rarely, it happens that the rupture takes place into the broad ligament and the fetus, developing in its new position, goes on to term and dies, condemning its

bearer to invalidism and all the horrors of abscesses breaking into bowel or bladder and discharging the bones of her unfortunate offspring.

It would seem as if common sense would point out the treatment. In any such hemorrhage from another part of the body, the physician would scarcely do his duty did he not seek out the bleeding vessel and secure it; yet we find men advocating anything rather than the surgical treatment. Puncture of the sac, injections into it of lethal substances, and electricity have all had their supporters. These agents find their use only previous to rupture and the uncertainty of diagnosis, and the fact that even in the hands of experts they have failed to save the patient from an operation are a sufficient answer to their claims.

That cases have recovered without operation is no reason that the surgeon should shirk his duty. The moment rupture occurs, the abdomen should be opened and the hemorrhage stopped by the removal of its cause. In no event should the case be allowed to go on in the hope that the patient, by some providential agency, may survive. The dangers of the hemorrhage, with the peritonitis and septicemia that follow the accident are too great to be set aside.

An important point in the surgical treatment is whether, in a ruptured tubal pregnancy of one side, the other side should also be removed to prevent the recurrence of the accident. In a paper on "Repeated Extra-uterine Pregnancy," published in the *JOURNAL* for Sept. 16, 1893, Dr. McKELWAY reports a case where the patient, after providentially escaping an untreated tubal pregnancy of one side was seized nine months later by a similar accident on the remaining side, from which she escaped only after a prompt operation and heroic measures. In discussing the case the author says: "My study of this and other cases leads me to the conclusion that both tubes and ovaries should be invariably removed in every case of ectopic gestation." In view of the fact that the causes of a pregnancy in one tube may be present in the other, is it right that the woman should be exposed to the chances of a repetition of the accident. The question is one of great importance. It is possible that the accident may never recur and there are many instances where the patient has subsequently had normal pregnancies and remained healthy. To offset this are the cases where the second ectopic pregnancy has followed a normal pregnancy. In the discussion which followed the paper, the conservative ground was taken that the other side should not be removed unless there was evidence of existing disease. Removal of the sound side adds slightly to the risks of the operation by increasing the shock and prolonging the operation; but, in a patient already at death's door and where safety depends on a short, dextrous operation, these considerations

weigh heavily. The question is one to which our operators with large experience should turn their attention, and it is for them to decide whether the chances of a presumably healthy tube being the site of a subsequent pregnancy are sufficiently great to call for the more severe procedure.

Another point is raised as to the treatment of the placenta in case the pregnancy is so far advanced as to render the removal of the entire sac impracticable or dangerous. Various plans of procedure have been devised. The sac has been stitched to the abdominal wound and drained; it has been sealed and left in situ to be absorbed—all with more or less good results. Sound surgical sense would teach that the safety of the patient lies in the complete removal of the sac wherever possible, and, with the agents at our command, heat and gauze packing, the hemorrhage can be controlled and the placenta removed in almost every instance with a prospect of safe recovery for the patient. Where it has grown so intimately to surrounding structures—often intestines and important viscera—it should be thoroughly cleansed by repeated washings with boiled pure water and hermetically sealed, in order that it may be digested and gradually absorbed with the least possible chance of septic decomposition.

A third question is whether, in case the patient survive a primary rupture the case shall be allowed to go on to viability of the child in order to save the life of the child. It is an obstetric maxim about which there is not the slightest cavil, that the mother's life is to be respected more than the child's, and it would seem that the added risk to the mother should weigh against the child's life and therefore the misplaced product of conception should be removed as early as it is discovered. Delays in this as in other matters are full of danger.

From the beginning to the end, extra-uterine pregnancy is full of danger. The sudden urgency of the accident, coming as it does without warning, makes it a matter of the greatest concern to the specialist and the general practitioner alike. In the majority of instances, the diagnosis must be made by the family physician, and the specialist comes in only to confirm the general practitioner's opinion and to perform the life saving operation.

"Tubal pregnancy is a grave, perilous trouble from the very instant of its inception, and from the instant of its first recognition there should be no suspension of the vigil over it. There is but one safe choice, and that is prompt removal when the accident is first recognized." Such are the words of a successful operator and they contain a truth that it were well to understand, and knowing to heed.

Blank applications for membership in the Association, at the *JOURNAL* office.

THE INTERNATIONAL PUBLIC HEALTH CONGRESS.

The meeting of the Public Health Congress this week constitutes one of the most interesting of the series of World's Fair International Medical Congresses. Interesting alike to the physician and the laity, the proceedings of the Health Congress are of value to all mankind. The cure of disease largely concerns the readers of the JOURNAL, but the prevention of disease appeals alike to all.

We are sure, therefore, that the address of PRESIDENT DUGIN which is printed exclusively in the JOURNAL, will be widely appreciated, not only on account of its intrinsic interest, but because the author as Chairman of the Board of Health of the city of Boston, for the past twenty years, has had exceptional advantages for the study and solution of most of the complicated questions of municipal sanitation, that are likely to interest health officers throughout the world.

The merging of the American Public Health Association with the International Congress of Public Health proved a wise measure, as the considerable number of papers on the program by foreign authors added much to the interest and success of the meeting.

That veteran of sanitary science, DR. JOHN H. RAUCH, was Chairman of the Committee of Arrangements, and he was ably seconded by DR. M. R. BREWER, the Secretary of the Committee.

THE AMERICAN PUBLIC HEALTH ASSOCIATION.

This organization has been in session during the past week in connection with the International Sanitary Congress, as will be seen elsewhere in the columns of the JOURNAL. It has arrived at its majority. This is its twenty-first annual meeting. The necessity for such an Association was felt immediately after the war by those who had been trained in the military service and had subsequently been called to act as health officials in a civil capacity. The war demonstrated the importance of preventive medicine. A fighting force has to be kept in fighting condition.

Textbooks on sanitary science were few, and the best of them were not adapted to the civic health officer. Each such health officer practically was acting independently. The necessity for bringing together, in one body, those interested in sanitary matters, for the purpose of inaugurating measures for the restriction and prevention of contagious diseases and for the diffusion of sanitary knowledge among the people, was so apparent that after several years of conference and correspondence the Association was formed in the fall of 1872.

The only attempt at organization prior to this was the quarantine convention, composed of representatives from the cities of Baltimore, Philadelphia, New York and Boston. DR. WILSON H. JEWELL of Phila-

delphia, was the leading spirit in this movement. This was at the time when quarantine was the only preventive measure used to combat foreign pestilence. This convention, after an existence of four or five years, had been extinct some time before the creation of the American Public Health Association. For several years the new Association required a great deal of labor and self sacrifice on the part of those who had inaugurated it to keep it in existence. The growth of the Association and the work it has accomplished prove the correctness of the views of its founders. Its membership has been augmented from year to year, until it now constitutes the largest and strongest sanitary body in the world, and embraces in territorial extent the United States, the Dominion of Canada and the republic of Mexico. Under the impetus given by its work, State and local boards of health and sanitary associations have been organized, sanitary publications increased, and hygienic knowledge widely diffused.

The terms of its membership are sufficiently broad to include all who are interested in public health questions. Its transactions not only contain reports of patient laboratory investigation, but the practical conclusions of those actively engaged in sanitary work.

Preventive medicine is necessarily and entirely disinterested and of the highest type of benevolence; and the American Public Health Association should have the cordial support of all who are interested in the well being of humanity.

THE INSPECTION OF MERCHANTABLE WATERS.

The vast number of places in our country where mineral and table waters are sold has made it a matter of solicitude whether or not they are what their label represents. It is not only distressing to be doubtful about the quality of the bottled waters, but it amounts almost to panic when we reflect that what purports to be Brother HART'S AROLLINARI may be a vile mixture, filtered from the Chicago River, or pumped from the nearest hydrant; and that even Wisconsin, Wauke-sa or Chippewa Spring water, to say nothing of the unnamed thousands, may also be either extremely stale, or altogether fraudulent in any market.

There is no question but advances in civilization will ultimately require protection of the people against fraud, but as yet we know of no municipal ordinance which requires the inspection of bottled waters. Not only is it an act of fraud to sell waters under a false label, but it is in effect criminal, when persons imagine they are receiving medicinal waters as prescribed by their physician.

There is a certain water in West Virginia of great value in gastritis. Now if any physician in any city knowing its virtues, should prescribe it, and the

patient obtain the product of the hydrant instead; no words could sufficiently characterize the fraud; and yet we are credibly informed that there exists in the city of Chicago, a factory where not only the labels, but the corks and bottles, may be procured in exact imitation of any known water. We doubt extremely whether Chicago is alone in this iniquity, and it is more than probable that a large percentage of the water sold in bottles is fraudulent.

The mere suspicion of fraud in the sale of these waters, is enough to cause many to turn to other beverages.

"If she be not fair to me,
What care I how fair she be."

If this be true of the bottled waters, what can we say of the waters delivered to customers by incorporated companies in bulk? The water *may* be good, but nobody can say so except the vendors themselves, for there is no qualified inspector.

The need for water inspection is therefore one of urgency, and we shall be pleased to record the date of passage of the first municipal ordinance for the prevention of fraud in the sale of potable and mineral waters.

THE MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

The annual meeting of the Mississippi Valley Medical Association was held at Indianapolis on October 4, 5 and 6, under the presidency of Dr. R. S. Sutton of Pittsburgh.

The attendance was less than at some meetings previously held, but it is easily accounted for by the recent financial stringency and the Pan-American Medical Congress. The proximity of the World's Fair at Chicago, and to a less extent the St. Louis Exposition served to attract members in those directions.

As usual, the American Medical Association members constituted about four-fifths of those attending, and their share in the scientific work was proportionate.

The papers were excellent, and we print in other pages an abstract of them.

The discussions were well sustained, animated and interesting. They would have been more voluminous but for lack of time;—the great number on the program allowed but limited time for discussion.

The high standard of the papers read at this meeting is a source of gratification to the well wishers of the Association.

A MEDICAL EDITOR'S RESIGNATION.

Dr. Cyrus Edson has resigned from the editor's chair of the *Doctor of Hygiene*, of New York. At least he is reported as saying that his name will not appear again as responsible for its management. The journal was formerly known as the *Doctor*, but soon after its change of name and the entry of Dr. Edson,

then the Sanitary Superintendent and later a Commissioner of the Health Department, the make-up of the paper became such as to attract attention. The names and portraits of the president and officers were published on the front cover, as if it were an official organ of the Board, and it purported to be "in the interests of American boards of health." Various schemes of a sanitary nature sought the columns of that paper, with the intention apparently of taking shelter under the roof of this bright project. A water-filter company at the head of which Dr. Edson's name figured, was among these. The imputation, however, that the position of the latter as a health official was liable to misuse for private gain, led him to withdraw from the company. There have been a great many resignations of late years in relation to the New York Board, but very little repose. The politicians have their grip on it, and use it to the utmost of their power.

ORGANIZATION A PROFESSIONAL NECESSITY.

The *Medical News* of Philadelphia, which has been making many pointed appeals for a greater and stronger union, in a recent and able editorial on the attitude of the lay press to the medical profession says:

"A Philadelphia newspaper lately made itself the agent of some patent medicine cure-all, and distributed thousands of bottles over its counter.

"There remains, of course, the humiliating confession that the existence of the newspaper doctor and of the newspaper debauch in quackery is indirectly and in large part the fault of the profession itself, dependent upon the fact that we are a non-organized profession, and that what organization we have is not used in the practical righting of medical abuses. Thus, again and perpetually, recurs the truth that every medical scandal and every aspect of our powerlessness resolves itself into our sins of disorganization, and of non-interest in practical matters and in preventive medicine. Out of a hundred thousand physicians in America hardly a hundredth part are active members of the American Medical Association, and the section meetings of "congresses" of physicians could almost always be held in an ordinary private sitting-room of a workman's cottage—so slim is the attendance. And when we do meet we discuss the symptoms and treatment of individual cases of illness, leaving out of consideration the production of disease, the prevention of it, and the domination of legislation, the newspapers, and the lay-world by the quack and the pill-vendor.

"How can we bring any influence to bear upon the newspapers if we present the spectacle of a disunited and factional lot of scoundrels and indifferentists? There are many of these newspapers who are simply ignorant and thoughtless as regards the disgrace of their advertising columns, and who could easily be shamed out of it if we were but united among ourselves, and would use our united strength for matters of practical reforms of medical abuse and preventive medicine. Organize, and use organization for the world's sake! is the command of professional honor and of benevolence."

HONORS TO PROF. POZZI.—The Chicago Gynecological Society, of which Dr. E. J. DOERING is President, gave a dinner to Prof. S. Pozzi, Professeur Aggrégé to the Faculty of Medicine and Surgeon to the Lourcine-Pascal Hospital of Paris, on Friday, October 6.

SOCIETY NEWS.

Mississippi Valley Medical Association.

Abstract of the Proceedings of the Nineteenth Annual Meeting held at Indianapolis, Ind., Oct. 7, 8 and 9, 1893.

FIRST DAY—GENERAL SESSION.

The Association met in Plymouth Church, and was called to order by the Chairman of the Committee of Arrangements, Dr. GEORGE J. COOK of Indianapolis.

Divine blessing was invoked by the Rev. Frederick E. Dewhurst.

Governor MATTHEWS was introduced and delivered an ADDRESS OF WELCOME.

The President, Dr. R. STANSBURY SUTTON of Pittsburg, was introduced and delivered the President's Address. He selected for his subject,

FIBROID TUMORS OF THE UTERUS.

After giving a definition of these tumors the author dwelt upon the etiology, which he said is still a mystery. They are more frequent in the black than in the white race. In both races they are more frequent in the body than in the neck of the uterus, and more frequently situated in the posterior than in the anterior wall. After the menopause is established these tumors generally disappear, unless they have undergone cystic degeneration. Bearing on this point Dr. Sutton reported an anomalous case. The patient was 43 years of age, she had never menstruated in her life, had never shown any physiological evidence of ovulation, had been twice married, was then a widow and childless. She had for ten years a large fibro-myoma of the uterus, which thus far gave no evidence of atrophy.

With regard to the pathology, the tumor always has its origin in the substance of the uterine wall or sub-peritoneal connective tissue.

The symptoms attending the presence of these tumors in various localities and stages of growth are widely different. However, the class of indications are patent as found in the vast majority of cases, and may be tabulated as follows: 1, vague pain in the pelvic region; 2, pain referred to the front or back of the leg; 3, irritability of the bladder or rectum; 4, uterine tenesmus; 5, menorrhagia or metrorrhagia; 6, dysmenorrhea; 7, profuse leucorrhoea; 8, serous discharge from the uterus.

The diagnosis of very small fibro-myomata, when many of the leading symptoms are absent, is considered extremely difficult. As far as the medical treatment is concerned, but little can be done for the relief of patients suffering from fibro-myomata, and nothing for those suffering from those tumors which have undergone cystic degeneration. Surgically, there are but two routes by which solid, uterine tumors can be removed, either through the vagina or by abdominal section. With the exception of small tumors with a well-defined pedicle, all sub-peritoneal fibro-myomata are reached only by section of the abdominal wall. Dr. Sutton in one case divided the posterior wall of the vagina and through this opening delivered the tumor.

SECTION ON GENERAL MEDICINE.

Dr. O. EVERTS of College Hill, Ohio, Chairman.

FORENSIC MEDICINE.

This paper was read by Dr. C. G. COMEYNS of Cincinnati. The author had come to the conclusion, from his experience, that there are but few lawyers sufficiently informed in medical science to conduct a case in the interests of truth and justice, especially the most important cases in medical jurisprudence. Every physician, as an expert witness, must have observed the embarrassment of lawyers in trying medical cases. They ask questions enough, but from their lack of medical experience they are incapable of thoroughly understanding the answers of a witness, so that the proper interpretation of them, bearing upon the history of a case at the bar, may be reached, and when endeavoring to give the court and jury clear views of the subject by additional questions, they often confuse the whole investigation. This disagreeable state of affairs is usually brought about by certain lawyers who have armed themselves by a superficial study of medical works for the occasion. Dr. COMEYNS believes that the high order of legal men will welcome well-trained men in medicine as coadjutors in the lofty work of establishing justice.

PROBLEMS OF PUBLIC INTEREST CONCERNING THE INSANE.

by Dr. ORPHEUS EVERTS of College Hill, Ohio. The author

said there are several problems of public interest involved in the present relations of society to the insane. Among the more important of these are questions of dependency and curability of the insane and the preventability of insanity. The author summarized his conclusions as follows:

1.—Intelligent provision for the insane implies provision for various classes, according to the capabilities of enjoyment and the exercise of variously impaired faculties.

2.—Public provision for whatever class of insane persons implies housing, clothing, food, sanitary and moral discipline, amusement and employment for such as are capable of being amused and employed, and medical treatment for the sick. The essential features of such provision are adaptability to the needs of each distinctive class.

3.—Great, expensive, architecturally imposing palaces, providing alike for all classes, however serviceable they may have been, ethetically considered, in times past, as they unquestionably were, are no longer necessary nor appropriate to the needs indicated. So long as the insane are comfortably housed, each class according to its condition, it is comparatively unimportant whether it be in large or small houses, cottages or palaces, connected or detached, in high or low buildings.

4.—It is important that the insane of all classes be well fed under careful supervision; but whether in small or large dining rooms, by groups or congregations, is of little consequence; that it should be a matter of convenience rather than of number.

5.—It is important that public institutions for the insane be well organized and administered.

6.—It is wise to retain in office capable men who have demonstrated their fitness by successful management of affairs, so long as their capabilities continue to be elastic.

CHOREA IN ITS RELATION TO RHEUMATISM.

This paper was contributed by Dr. L. N. LOVE of St. Louis. The author said that recently the pathology of this disease has been cleared up to a very considerable degree, so that now it is a definite affection and one especially incident to childhood. Dr. LOVE reported a case of chorea occurring in his practice with a marked history of rheumatism, it being one of ten cases observed and illustrative of this class. The cases did not occur successively. Between them other cases presented themselves *anecdotally* the rheumatic history, but four of the number occurred in rapid succession with as pronounced rheumatic history. Of the entire ten, seven were girls. Among the exciting causes of the disease are irritation in the nostrils and adenoid growths in the vault of the pharynx. Inasmuch as Kirkes, Tuckwell, Hughlings Jackson and Bastian support the embolic theory of the disease, and in consideration of the fact that chorea is so frequently associated with endocarditis, we should be on the alert to interrogate the heart when called to a case of chorea. As matters now stand, we have numerous exciting causes resulting in chorea.

CHOREA: ITS PATHOLOGY AND TREATMENT.

This paper was contributed by Dr. H. M. LASH of Indianapolis. So much uncertainty has existed regarding the pathology of chorea, that its treatment has been varied and widely different in its character and aim, amounting even to empiricism. Under all forms recovery has been recorded; but it is certainly interesting to note the variety of views which have been from time to time, and which are still held, in regard to this most peculiar disease. The author then gave the causes of chorea as laid down in the recent work on nervous diseases by Dr. Landon Carter Gray. He referred to the repeated experiments of Dr. H. C. Wood, who announced his conviction that the choreic movements had their origin in the spinal cord and were directly due to paralysis or depression of the inhibitory function of the cells of the spinal cord. Acting on the strength of this conviction, Dr. Wood sought for a remedy that would strengthen the proper function of these cells, and he found it in quinin.

Dr. Lash then reported a case of acute chorea in a boy 13 years of age. The choreic movements were constant, general and pronounced. It was agreed to try Dr. Wood's suggestion, and so the patient was put on full doses of quinin. Twenty grains a day, in four doses, were given him for three days, when he showed considerable improvement. The quinin was increased to 25 grains a day and given in that amount for three days more, when the patient again reported. There were no remaining symptoms of the chorea, and the quinin was gradually withdrawn. The patient has remained entirely free from the trouble ever since, and

without any future treatment of any kind. Another similar case was reported with a successful result.

DIPHTHERIA: ITS SPECIFIC DIAGNOSIS.

This was the title of a paper read by Dr. J. C. Culbertson of Cincinnati. The author said that this disease is of peculiar interest because of its singularity in being more treacherous and insidious in its manifestations than any other affection that is met with by the practitioner of medicine. The uncertainty of diagnosis had caused some excellent practitioners to adopt the pernicious habit of diagnosing and treating all cases of sore throat, whether simple or malignant, as if they were true diphtheria. True, the treatment designed for diphtheria may cure a tonsillitis, but inestimable harm may have been done in causing an unnecessary alarm on the part of the patient's family, and the disagreeable inconvenience that accompanies isolation of the patient and quarantining of the family, to be followed by the mockery of disinfection of non-infected apartments and perhaps destruction of clothing and furniture. On the other hand, a case of diphtheria, diagnosed as a simple tonsillitis, may be the cause of breaking up a school or producing an epidemic, with an indefinite amount of sickness and many deaths. A case was cited in point.

Dr. Culbertson then referred to the importance of utilizing the science of bacteriology and mentioned the plan adopted by the New York City Board of Health of having undertaken to provide laboratory facilities for all practitioners of medicine in that city free of charge.

A TREATMENT GIVING A LOW DEATH RATE IN CASES OF DIPHTHERIA IN HOSPITAL AND PRIVATE PRACTICE.

Dr. WILLIAM A. GALLOWAY of Xenia, Ohio, read this paper. The subject was treated from the standpoint of recent hospital practice, 234 cases with a death rate of 14 per cent, under favorable sanitary surroundings. The paper embraced reports from private practice of physicians who had given the treatment faithful trial during the past three years, who unhesitatingly commended its value and all were able to show a death rate below 10 per cent. The subject was divided into the *hygienic*, in which the most careful attention was paid to the isolation and surroundings of patients; the *constitutional* and *local topical* treatment, the latter being considered by the writer as secondary in importance. Under constitutional treatment, immediately the nature of the disease was suspected, the writer gave 1 grain of calomel for each year of the patient's age up to 18, repeating the dose in four to six hours, and met the action of the mercurial with copious hot water injections. This treatment was persisted in until the full action of the calomel on the liver and kidneys was obtained, relieving these two important excretory organs of the parietic condition caused by the absorption of the toxalbumin product of the Klebs-Loeffler bacillus. Improvement in the patient's appearance was immediate and the mercurials acted freely. The quantity of foul smelling grass-green dejecta resulting is astounding. There is no fear from salivation, as under the most heroic use of mercurials no symptom of salivation has been observed by the writer or his friends. Internally corrosive sublimate was given up to 1-80 of a grain, with full doses of tincture of chlorid of iron and alcohol hourly at night and during the day. Local topical treatment consisted of peroxid of hydrogen, one-quarter solution, for cleansing the throat, which was commended, while as an escharotic 12 grains of salicylic acid to 1 drachm of alcohol were used twice a day by the physician only. It proved of great value in the writer's hands. This escharotic is very powerful and should be used carefully if needed.

THE STUDY OF A FATAL CASE OF ESSENTIAL TACHYCARDIA.

This paper was contributed by Dr. JOHN C. SEXTON of Rushville, Indiana, in which he detailed the symptoms and clinical features of a case of essential tachycardia that died after thirty-five days illness. The attractive feature of the case was the response to manipulative efforts, electrical and other, by the Doctor, to produce stimulation of the pneumogastric nerve and thus to slow the heart. The paper then reviewed the ordinary symptoms of heart hurry as presented in the literature of the subject and some further remarks concerning the causation, symptomatology and treatment.

Papers were also read by Drs. R. E. Houghton of Midland, Texas; A. Ravogli of Cincinnati, and others.

The address on general medicine was delivered by Dr. JAMES I. HUBBARD of Richmond, Ind. His conclusions were:

1.—That there is a rapid progress being made in preventive medicine.

2.—That our present conception of the complicated organization of the human body is based on the theory that the Creator in the beginning endowed vitalized matter with a perpetual law of virtue of which man has been developed, step by step, from primitive protoplasm.

3.—That there is no longer dubiety in the proposition that the cell is the unit of vital activity, and that all living beings are a single cell or an organization of cells and cell products.

4.—That the influence of the mind on vital activities, normal and abnormal, is not recognized as it should be, and that there is a line of study that would, if properly pursued, dissolve the agnosticism that has in the past embarrassed a knowledge of the reciprocal relations of matter and mind.

SECTION ON OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY.

Dr. ARTHUR W. JOHNSTON of Cincinnati, Chairman.

The first paper in this section was read by Dr. REUBEN B. HALL of Cincinnati, entitled,

OVARIOTOMY IN THE AGED.

The author confined his remarks to patients who were 70 or more years of age. He said it was generally conceded as true that any operation upon the old did not promise as good results as the same operation would upon the young or patients in middle life. Especially was this true in reference to all abdominal operations necessitating a hard strain upon the system from shock, or from traumatism to vital organs during the operation, as we not infrequently have in the removal of large ovarian tumors. Dr. Hall maintains that the death rate is not greater than that which usually follows the same delayed class of operations on women between 40 and 50 years of age. He had had but three ovariectomies upon women above 70 years of age. In each of the first two cases the friends of the patients hesitated to have the operation made on account of the advanced age of the patients. In each of these the operation was deferred until the patient was in extremis.

Dr. Hall then detailed three interesting cases of ovariectomy performed on patients, aged respectively 70, 70 years and six months, and 72 years. Judging from the low mortality of the reported cases and from the work of the best known operators, the author is constrained to believe that ovariectomy in old women, if the kidneys are healthy, is as safe as in middle life.

THE VALUE OF A CLOSE OBSERVATION OF OTHER MEN'S WORK.

This paper was read by Dr. WILLIAM H. LINK of Petersburg, Ind. He said it is by the tireless energy of originality and the endless application of original methods to both the expected and the unexpected in surgery, that has thus far pushed our work and its underlying science toward perfection. By close and frequent observation, defects in technique and improper application of surgical measures may be noted and, having been recognized, may be avoided. There is no field in which object lesson teaching is so effective, so fruitful of valuable practical results as in gynecological surgery. The observer may not always know whether the operation he witnesses carries the patient on to recovery or the contrary; but, if a close observer, he is improving his own surgical judgment. He is studying, rejecting, or adopting methods and aphorisms as they impress his intelligence or his reason approves. By seeing work done under varying conditions and with different results we readily come to the conclusion that a private hospital is by no means necessary to successful work; that the pure air of a country or village home, or a clean room in a private residence in a city is as good a place for surgical work as the most painted and gilded hospital, and that no one need hesitate because his patient can not have the supposed advantages of some place specially set apart for the sick.

Dr. L. H. DENNING of Indianapolis, Ind., read a paper entitled

INTESTINAL OBSTRUCTION FOLLOWING ABDOMINAL SECTION.

Of the complications following abdominal section, few are more fatal than occlusion of the intestines. It may appear in a few hours after the section or not until several weeks have elapsed. In this paper the author dealt with only acute intestinal obstruction. The author is conscious of having met with but a single case in 130 abdominal sections, yet this case occurred two and a half weeks after what he had considered a very successful ovariectomy. The question of the administration of cathartics in cases of suspected or threatened occlusion of the intestines is one oftentimes most difficult to decide. Under such circumstances he is inclined to the belief that during the first week after sec-

tion cathartics are indicated, and he prefers to administer 1 grain doses of calomel every hour for a few times, then administer 2 drachm doses of epsom salts every two hours until an action is obtained, or it is demonstrated that a harmful effect is being produced. A distinct understanding of the pathological conditions possibly present must guide the operator in his search for the cause of the condition, and when found it should be dealt with in the shortest possible time consistent with the permanent cure of the patient.

THE PRESENT STATUS OF THE TREATMENT OF UTERINE FIBROIDS.

This paper was contributed by DR. NAXIER O. WELDER of Pittsburgh, and in the absence of the author, was read by DR. THOMAS E. EASTMAN of Indianapolis. For the sake of convenience the author divided the treatment into the symptomatic and the radical, and confined himself to those views which seem to be generally accepted by the leading and unbiased authorities of the present day. The principal symptoms produced by uterine fibroids requiring our attention are hemorrhage and pain. Hemorrhage is one of the most constant and dangerous complications, and is due to diseased and hypertrophied condition of the uterine mucosa and hyperplasia of its blood vessels (Wyder), or according to the later researches of Sembi, to a hypertrophy of the uterine muscles accompanying the growth of the myoma with a simultaneous hyperplasia of the blood vessels. The operations practiced for the radical cure of myomatous growths are vaginal enucleation, removal of the appendages, enucleation by laparotomy, and supra-pubic hysterectomy. The author then considered these operations at length.

THE ERECT POSTURE FOR GYNECOLOGICAL EXAMINATIONS.

This paper was contributed by DR. WILLIAM B. DEWEES of Salina, Kan., but was read by DR. JOHN C. SEXTON of Rushville, Ind.

Digital examination per vaginam with the patient in the erect posture affords one of the most positive means for diagnosis in gynecology. It is a well established fact that respiration, the various movements and attitudes of the body, as well as pathological conditions, change the conditions and environments of the viscera. Thus the importance of posturing the patient in making physical examinations in gynecic practice becomes evident, as most of the symptoms of diseases of the intra-pelvic organs are more marked and very many only manifested when the patient is standing; while certain conditions of descent, prolapse or displacement, may entirely disappear or change when the pressure or the superincumbent weight of the abdominal viscera is removed by the patient being placed in the dorsal, semiprone, genupectoral, or high pelvic positions, therefore the erect posture is of paramount importance as an aid in diagnosis in this field of labor. The author emphasized the advantage and necessity of digital examination in the erect posture, more particularly in examinations undertaken for a cure in women of 1, displacements of the uterus; 2, vesical and rectal disorders; 3, lack of perineal and vaginal support; 4, ovarian and tubal disorders; 5, abdominal and pelvic tumors; and 6, differentiation between abdominal tumors and pregnancy.

DR. H. O. PANTZER of Indianapolis, read a paper entitled,

TUBERCULOSIS OF THE PERITONEUM WITH REPORT OF CASES.

The author said that the prognosis and treatment of peritoneal tuberculosis have changed within the last decade. The accidental discovery of its curability by laparotomy has shifted its clinical relations. He then quoted the conclusions of Dr. J. Whitridge Williams, from the Johns Hopkins Hospital reports, 1892, on tuberculosis of the female generative organs. He reported a case of primary genital tuberculosis, giving rise to a tubercular peritonitis, and tubercular disease of the abdominal parietes. Case 2 was one of primary genital tuberculosis following childbed, sacculated ascites resembling an ovarian tumor. Laparotomy was performed and the patient recovered. Case 3 was one of genital tuberculosis complicated with a suppurative infection and pelvic peritonitis. Laparotomy was done, followed by recovery of the patient. This disease, from being regarded as a fatal and most intractable affection belonging to the domain of internal medicine, since its accession to the realm of surgery has come to be regarded as quite submissible. A mistaken diagnosis had repeatedly led to the opening of the abdominal cavity. Instead of an ovarian tumor, an enlarged gall bladder, a hydronephrosis, or some other legitimate object of surgical interest being found, tubercular disease of the peritoneum in some of its multiple forms presented itself. The abdomen was closed with-

out any attempt at treatment, or at least the pus fluid was evacuated. It was noted that these cases did better afterwards, and that some fully recovered. In 1884 King advocated laparotomy as a curative measure for peritoneal tuberculosis, and the operation has been done by other surgeons since.

TREATMENT OF DISEASES OF THE UTERINE APPENDAGES.

DR. WILLIAM H. HUMPHRIS of Cleveland, Ohio, read a paper on this subject, in which he said the frequency and importance of diseases of the appendages are recognized by all practitioners of medicine. The early recognition of the same is of unusual importance, as by instituting proper treatment at once we save a large percentage of them from a major operation and a prolonged convalescence. Simple inflammatory conditions of the tubes and ovaries, before extensive adhesions take place can be successfully treated by rest, boroglycerid, and iodine tampons, long continued hot water douches, thorough curettement of the uterus, followed by a course of galvanism. He had cured a few cases where the ovaries were prolapsed and somewhat adhered, by adding massage to the above treatment. But, as a rule, if the case has been neglected until pelvic peritonitis has occurred with its tendency to adhesions and recurrence, we will save many years of suffering, if not life itself, by advising removal of the appendages after a sufficient trial has been given to conservative treatment.

Frequently in the puerperal state we have a pelvic peritonitis arise without affecting the tubes, the inflammation spreading directly through the uterus; there is an exudate formed which rest and proper treatment will absorb and leave the appendages strong and healthy, so that later pregnancy takes place and the patient goes on to full term. In these cases, if suppurative occur, laparotomy should be advised. In tubercular salpingitis the question of removal will depend wholly upon the amount of general systemic infection. The author believes that nearly all suppurative diseases of the tubes and ovaries are due to gonorrhea, his experience leading to this belief. The doctor closed with a few words on the value of electricity in the treatment of inflammations of the uterus and appendages. He values this very highly, and in the catarrhal forms of endometritis in young girls and primiparae we can obtain a cure if sufficient time is given. He applies the positive pole intra-uterine, and the negative in the form of a broad electrode over the whole abdominal region, using a strength of from 20 to 50 milliamperes for five minutes every third day. It requires from fifteen to twenty applications to complete a cure.

XERODERMA PIGMENTOSUM.

DR. A. W. BRAYTON of Indianapolis, presented two cases of Kaposi's disease—xeroderma pigmentosum—occurring in the same family. The patients are girls, 2½ and 18 years old respectively. A brother died of the disease at 9 years of age. There are four brothers unaffected. All three were affected from the fifth month of infancy. Dr. Wm. S. Corlett of Cleveland, commented on the cases, of which but fifteen are known in the United States. The older girl is kept comfortable by scraping off the tumors upon the hands and face as they appear. A tumor the size of a hickory nut upon the eyelid Dr. Corlett advised to be removed by electrolysis. A lithograph and description of this case was published in the *Journal of Cutaneous and Venereal Diseases* for April, 1892. Dr. Brayton also presented a case of non-pigmented sarcoma of the face in a woman 28 years old. The lesions were on the right side of the face, and varied in size from one-eighth to an inch in diameter. The larger ones had been destroyed by electrolysis, but returned. The growths probably originated from an infantile nevus. The microscopic sections accompanying the case showed it to be small-celled sarcoma. The growths were painful, but not ulcerating, and there is so far no metastasis. Dr. A. Ravogli saw and commented upon this case.

Another case also examined by Dr. Wm. S. Corlett was of idiopathic pigmented sarcoma cutis of twenty-five years' standing in the person of a physician 75 years of age. The growth began below the external malleolus of the left foot. After ten years the whole left leg was involved, and five years later the right leg, the left arm and external margin of right ear. The tumors vary from the size of a wheat grain to that of a silver dollar and are little elevated above the skin. They undergo involution after four or five years, leaving well marked cicatrices. This case was also commented on by Dr. Corlett. It belongs to the extremely rare growth—multiple pigmented sarcoma cutis of Kaposi described by Dr. J. A. Fordyce in the *Journal of Cutaneous*

and *Fungal Diseases*, January, 1891. Dr. W. A. Hardaway reports a case which underwent complete involution after sixteen years, leaving merely an atrophic condition of the skin. In the present case the tumors, at first soft, become fibrous and disappear, leaving scars. Upon the legs nearly the entire area is involved. The health is good. The microscope confirms the diagnosis. Taylor reports a similar case of this rare affection.

A case of lupus mutilans (Hutchinson) in a colored girl 8 years old, existing from infancy, was also shown. The entire left arm was scarred by the disease; one finger was diseased to the bone; the thumb was stunted by the disease. Dr. Corlett remarked of this case that if he had seen it in Cuba he should have regarded it on first sight as a case of leprosy, so closely did the lesions simulate that disease.

SECTION ON GENERAL SURGERY.

Dr. W. N. WISHARD of Indianapolis, Chairman.

The first paper in this Section was read by Dr. H. W. LOEB of St. Louis, entitled,

SOME ILLUSTRATIVE CASES OF NASAL HEADACHE.

The author at the last meeting of the Missouri State Medical Association presented a paper upon nasal headaches in which the following list of such conditions was suggested as possessing an etiological significance in this regard: acute inflammations of the nasal mucous membrane, chronic rhinitis, rhinoliths and foreign bodies, septal deformities, deflections, spurs, ridges, diseases of the accessory sinuses, chronic atrophic rhinitis and anything which causes the middle turbinated tissues to press against the septum. In headaches of the following characters it was stated that a nasal origin might be expected: 1, frontal headaches; 2, hemicrania, starting about the orbit; 3, long continued headaches; 4, headaches of which successive attacks are identical or similar; 5, headaches increased or originated by acute rhinitis; 6, headaches associated with evident disease of the nose or accessory cavities. In the present paper the author presented cases which illustrated the characteristics, both symptomatic and causal, as stated in the before mentioned contribution.

Dr. M. MERRILL RICKETS of Cincinnati, reported several interesting surgical cases, and exhibited photographs of the same.

Dr. J. T. BERGHOFF of St. Joseph, Mo., read a paper entitled,

TREATMENT OF FRACTURES OF THE LEG.

In treating fractures of the leg, the author said the latter should never rest on the bedding but should be suspended. He cares not how well the surgeon may coaptate the broken bone and protect the same with bandages, or plaster-of-paris, if the limb rest on the bedding, by each movement of the body of the patient the fracture is bound to move. The process of repair is exactly the same in soft tissues and bones. Why do we have union by first intention? Because we coaptate the wounds exactly, and keep them so. The wound heals sometimes in three days, at the farthest a week. But to put the broken limb in an immovable condition and keep it so without great suffering to the patient can not be done under the old system. Dr. Berghoff then described an apparatus or splint, the outgrowth of patient study for twenty years, but more particularly the last ten years. The apparatus is also adapted for treating disease of the hip, knee and ankle joints, as the extension can be adjusted as the case requires, the joints being kept immobile.

INCURABILITY OF ADVANCED AND EXTREME CASES OF TALIPES EQUINUS VARUS BY THE MEANS AND METHODS IN VOGUE AT THE PRESENT TIME; SUGGESTION OF A WAY TO REMOVE THE DEFORMITY WITHOUT DISTURBING THE USEFULNESS OF THE EXTREMITY.

The author of this paper, Dr. LOUIS RAYER of St. Louis, presented a plaster cast of a talipes equino-varus in which the weight of the body rested upon the dislocated astragalus and calcaneum. He produced also the skeleton of a leg and foot of a person who died while in this condition. He showed that there was complete dislocation of the astragalus; that the knee joint surfaces had formed between that bone and the calcaneum, whereby the weight of the body rested entirely upon the end of the astragalus and calcaneum; that the scaphoid and other bones of the foot bore little if any part in sustaining the weight of the body. It was found impossible in extreme cases of talipes to rest the foot in its natural position by tenotomy or by

In one case, after six years' trial, the doctor had proposed an amputation similar to Chopart whereby all

bones anterior to the astragalus were removed. The operation would leave a linear scar anterior to the astragalus in its new position and would be out of the way, and in such direction the artificial foot could be easily adjusted. He had not had an opportunity of trying this method, but felt sure that this amputation was a proper method in those cases where, after long continued efforts, reduction could not be effected. He also reported a case where there was extreme lateral curvature of the spine from distortion of the pelvis in a young musician. He became satisfied that the deformity was due to the unnatural position, and therefore directed a long splint applied reaching from the axilla to the foot and the pelvis was gradually pressed toward the splint by an appropriate bandage. After a period of time, not stated by the speaker, the patient recovered.

In the discussion which followed, Dr. MARSEE of Indianapolis, took strong ground against tenotomy, tarsotomy, or amputation in these cases, holding the position that by *brisement* forced with a wrench or club-foot stretcher he could bring the most refractory case into normal position.

Dr. WM. E. WIRT of Cleveland, believes in resection of some of the bones after the method of Phelps in cases where tenotomy or linear osteotomy had proved unavailable.

Dr. JOHN B. HAMILTON of Chicago, agreed with Dr. Marsee in recommending the use of a club-foot stretcher or wrench. He would not hesitate to apply a force sufficient to comminute the dislocated astragalus if it were necessary to put the foot in position. He had seen no bad results following osteoclasis. The difference between osteoclasis, osteotomy or tarsotomy is precisely that between a simple and open fracture. In regard to abrasions of the skin, he had not met with any, and strongly preferred osteoclasis.

Dr. ALLAN DE VILLIERS of Toledo, Ohio, read a paper entitled,

NEW DEVICES FOR CUTTING BONE.

Dr. De Villiers exhibited a surgical motor with various forms of saws and drills, which he developed through a series of practical tests. He had used them first upon the dead, afterwards upon the living. These instruments were adapted for operation upon the skull, maxillary bone, ribs, nasal bones, etc.

Dr. WILLIAM E. WIRT of Cleveland, Ohio, read a paper on

THE TREATMENT OF OLD CASES OF HIP DISEASE.

He said there is no doubt that if convalescent cases of hip disease were carefully and persistently treated during a long period of complete recovery, whatever deformity had existed up to this time and that which accompanies this period, could be entirely overcome without operation. When shall a case of hip disease be considered to have progressed far enough to permit the removal of the extension splint and the substitution of a convalescent brace? The solution of this problem was a matter of judgment. It is better to allow the extension splint to be worn unnecessarily long than for the substitution to be made too soon.

The deformities requiring correction are flexion and adduction. Dr. Wirt had been surprised in several instances of old cases of hip disease with considerable deformity where, after the application of continuous extension in bed for a few weeks the deformity would be considerably reduced. After a trial of extension in bed with a failure to reduce deformity there remains as a means of correction: 1, brisement forced, with or without myotomy, tenotomy, fasciotomy, etc.; 2, osteoclasis; 3, osteotomy. These operations were then considered by the author under their respective heads. Osteoclasis and osteotomy are reserved for those cases in which there exists bony union or a fibrous ankylosis of a very firm character. The author reported sixteen cases following Grant's operation.

A CASE OF SENILE GANGRENE TREATED BY AMPUTATION.

This paper was contributed by Dr. G. W. H. KEMPER of Muncie, Ind. The patient was a farmer aged 73 years. After detailing the particulars of the case the author drew the following deductions:

1.—While the gangrene is confined to one or two toes, it is best to defer amputation. If the disease extends to the dorsum of the foot amputation is proper.

2.—Amputation below the knee is rarely successful, owing to lack of proper blood supply and tendency to recurrence of gangrene in the stump.

3.—Amputation through the thigh will save a large per cent. of the cases, and especially so when the subjects are free from a general disease. Mounssell-Moulin observes that usually the thigh is small and wasted in the lower

third; the artery is sound in Hunter's canal, the veins are well supplied with blood, and old people as a rule resent operation very slightly. Their tissues are not prone to inflammation.

4.—When amputation has been performed below the knee, and gangrene appears in the stump, unless the patient is exhausted, it will be proper to perform a secondary amputation above the knee.

Dr. J. N. QUIMBY of Jersey City, N. J., read a paper entitled,

A NEW METHOD OF OPERATING AT THE ANKLE JOINT FOR INJURIES OF THE FOOT.

The method consists of making a curvilinear incision across the dorsum of the foot, commencing anterior to and a little below the internal malleolus, and terminating at a corresponding point a little below the external malleolus, and then uniting the two extremities of the dorsal section by an incision across the sole of the foot, forming an anterior and posterior flap, similar to the operation performed by Progoroff of Russia. After forming a short anterior flap and turning it back, he then dissects out the astragalus from its attachments, being careful to keep close to the bone; then forming a linear posterior flap from the sole of the foot he makes a careful dissection, exposing the anterior half of the calcaneum. This being done, and the soft parts being well retracted by an assistant, the saw is applied so as to remove nearly the anterior half of the bone by an incision from above downward and from behind forward. The sharp edges of the remaining portion of the bone are then rounded off and the sawed surface is applied directly to the articular surface of the tibia between the malleoli, without removing any part of the cartilaginous surface. After stitching up the flap in the usual way a strap of adhesive plaster is applied three or four inches in width extending from the upper portion of the gastrocnemius muscle to a corresponding point on the anterior surface of the leg passing directly over the os calcis, so as to keep closely and firmly in apposition to the articular surface of the tibia, which is kept there until the union of bones has taken place.

THE BACTERIA OF THE SURFACE.

Dr. FRANK J. THORNBURY of Buffalo, read a paper under this title in which the latest researches were set forth, rational mechanical means of disinfection summarized, and the non-utility of antiseptics proclaimed. The varieties of organisms which the cutaneous and mucous surfaces present in great abundance comprise molds, yeast fungi, bacilli, cocci, color and odor-producing bacteria. The hairy regions, as the axillary space, and the interdigital folds are the places of predilection for the bacteria upon the cuticle. Myriads of microbes are present in the oral cavity, the intestinal tract, the genital tract of the female, the male urethra, and in the conjunctival secretion and crumen of the ear. Among the masses are germs which are pathogenic, as the *Fehleisen streptococcus* of erysipelas. The cleansing of the surface constitutes one of the most important duties of asepsis. This pertains especially to the physician's own hands. The disinfection can not be accomplished by the use of antiseptics, so-called, which do not even reach the bacteria imbedded in the substrata of fat and dirt. The disinfection must be mechanical, dislodging away the glandular secretions, dead epidermal cells, vegetable and albuminous substances. For the latter purpose soap, hot water and brush are used, aided by alcohol and ether, and rubbing with sterile towels. Baths are an important adjunct to asepsis, and one or a number should be administered previous to operation.

THE ETIOLOGY, DIAGNOSIS AND TREATMENT OF ULCERATION OF THE RECTUM.

This subject was dealt with in a general way by Dr. JOSEPH M. MATTHEWS of Louisville. As a matter of convenience he classified these ulcers under four heads: benign, malignant, tubercular and syphilitic. He said to this division there might be a valid objection based upon correct pathological grounds. For instance, in this classification he makes the term, malignant, synonymous with cancer, and yet the tubercular ulcer may in truth be malignant without assuming the characteristics of cancer. Again, some writers would have us believe that a tuberculous patient is closely akin at least to a syphilitic one or vice versa. Benign ulceration is not so frequently found in the rectum as is supposed. Whenever the author meets with a well-defined ulceration existing in the rectum, he immediately begins to suspect some special diathesis. It is only when the facility of defecation

is interfered with that any danger is to be feared. The common of this portion of the gut is not harmed by any ordinary causes. For these and other causes Dr. Matthews has long since been forced to believe that such ulcers are caused as pregnancy, dysentery, etc., were of great factors in producing ulceration of the rectum. The speaker then dwelt upon malignant ulceration of the rectum, saying that is a favorite seat for cancer. Many times the disease is overlooked entirely or diagnosed as some other affection. It has occurred to him, several times to have had patients referred to him for some trivial rectal trouble and found cancer instead. The more he practices the more he is convinced that syphilis is responsible for fully one-half of the cases of severe ulceration of the rectum. The treatment must in every individual case depend upon the known character of it. We can not treat a benign ulcer as we would a malignant one, nor a tubercular ulcer as a specific one, nor the last named as the first named. Benign growths of the rectum require local applications. Malignant, extirpation; tuberculous, the chetere, syphilitic, antisyphilitic and local medication, extirpation, colotomy.

INTERNAL COLOTOMY.

Dr. LEON STRAUSS of St. Louis, read a paper with this title in which he entered a plea for more frequent and earlier colotomy in painful malignant diseases of the rectum. Dr. Strauss stated his reasons for making colotomy as follows: 1. It is the greatest modern surgical relief means, inasmuch as it completely does away with the function of the rectum, thereby relieving the intense pain caused by defecation. Pain is an inevitable result in advanced malignant disease of the rectum. There are few exceptional cases which only prove the rule; 2. the lease of life is extended. There are many instances where it has been considerably extended. So great authorities as Cripps, Allingham, and Esselsberg claim to have extended the ease for weeks or months. Are not these most cogent reasons for making a colotomy? 3. the risk of the operation has been minimized. Allingham has made sixty-eight colotomies with only two deaths, and they were total obstruction cases. Cripps forty-eight with one death; this was a total obstruction case. Edwards has made sixteen, with one death. The patient was very septic at the time of operation. Reeves has made sixty-five operations without a death. Goodall has made twenty-two without a death. Statistics show a death rate of less than 2 per cent. By making early colotomy the author believes that the death rate might be reduced to less than 1 per cent.

Dr. WM. THOS. CORLETT of Cleveland, Ohio, read a paper on

THE CLINICAL VARIETIES AND TREATMENT OF PEMPHIGUS.

His paper was illustrated by the description of unusual cases. The writer divided pemphigus into two main varieties, *acute* and *chronic*, and *subacute*, under which all cases, although differing in certain features, may be grouped. Under acute pemphigus he gave the history of an epidemic of pemphigus in the newborn. The main features were that all the cases occurred in the tract of one midwife, the disease began at the end of the first week, as an erythema on the lower part of the face, or upper part of the chest. This was followed by the formation of blisters with flabby walls which soon ruptured leaving extensive raw surfaces. About three-fourths of the body was involved and terminated fatally about the tenth day. The writer regarded it as due to contagion.

Under chronic pemphigus, which is the most common form, Dr. Corlett drew attention to the frequency with which the mucous membranes were involved and cited a case in which the disease first appeared in the oropharyngeal tubes simulating capillary bronchitis. Later it appeared in the mouth and throat, which from its resemblance to diphtheria had been called pemphigus diphtheriticus. Finally the disease attacked the eyelids. On the skin it differed in no way from the usual form. The case ended in recovery, but with the complete loss of sight.

In the treatment, he thought arsenic had been overestimated. Iron, strychnin and arsenic benefited only as general tonics, while were especially indicated in this disease. Locally, the continuous tepid bath was recommended, but unfortunately it is often impracticable, when recourse must be had in simpler measures. As soothing applications, the glycerol of tartar, one part to three or four of distilled hamamelis, or water, or the glycerol of lead, one ounce to a pint of water, he thought the best at our command. The latter was preferred when but small areas were denuded of epidermis. When itching is present, a 3 per cent. solution

of resorcin was recommended. Finally when desquamation sets in, some emollient, such as the zinc ointment or carbolized vaselin will afford the best relief.

KRASKE'S OPERATION WITH REPORT OF CASES.

By DR. H. O. WALKER of Detroit, Mich. The author of this paper said that a man or woman who had cancer of the rectum was of few days, and the method of relief could be done in three ways—either by proctotomy and scooping away of the growth, by excision of the cancer, or by colotomy, all of which were temporary, as the author had never seen a case of true cancer that ever got well. When the malignant growth was high up, say two or three inches above the rectum, the best operation to make would be by Kraske's method; that is, by making an incision down through the second sacral vertebra to the anus to the left of the coccyx, and rapidly stripping off the muscular and ligamentous attachments to the coccyx and cutting them away with the bone forceps and as much of the sacrum as is necessary to expose the growth. Then we have a full view for enucleating the growth and excising it. It is well known that it is a difficult matter to approximate the ends by suture method, and an idea was forced upon Dr. Walker from his knowledge of the Murphy button that with a large button, say two inches in diameter, which he exhibited to the Association, he could approximate the cut ends of the rectum, and by this means prevent the infiltration of fecal matter to approximate the ends by suture method, and an idea was forced upon Dr. Walker from his knowledge of the Murphy button that with a large button, say two inches in diameter, which he exhibited to the Association, he could approximate the cut ends of the rectum, and by this means prevent the infiltration of fecal matter, which by the other method was an impossibility. In this connection, Dr. Walker said he had made the first end-to-end approximation by the Murphy button in a case of fecal fistula on the 8th of December, and the patient on whom he had operated made a good recovery and within two weeks was as well as ever, with no evidence of any contraction of the intestine.

SOME HERESIES REGARDING PROSTATIC PATHOLOGY.

This paper was contributed by DR. G. FRANK LYSTON of Chicago. The author said among the many ills which were marked *noli me tangere* until recent years, and which modern surgery has done much to relieve, prostatic hypertrophy occupies a very prominent position. The surgical resources at present at our command were then briefly stated. The author is becoming daily more and more firmly convinced that the ideal operation is a combined suprapubic and perineal section performed at an early period. He believes that in many cases this early operation will not only forestall circumscribed prostatic obstructions, median or lateral, but will prove directly curative by restoring the normal function of micturition. Supra-pubic cystotomy is undoubtedly the best method of draining the bladder, as far as a single operation is concerned, and in many instances it is all sufficient. When combined, however, with perineal section, prostatic dilatation and prolonged drainage by a large tube, we often do away with certain conditions which exist in the way of contracted lumen of the prostatic urethra and hyper-excitability of this portion of the urinary tract, which supra-pubic cystotomy alone might not accomplish.

Dr. Lyston believes that the main factors in the etiology of prostatic disease are laid down in many cases, if not the majority, before middle life.

The surgical address before the general session was given by DR. HENRY O. MARCY of Boston, the subject having been selected by a request, as that of

INGUINAL HERNIA, ITS ANATOMY AND BETTER METHODS FOR CURE.

Dr. Marcy illustrated his lecture by a series of slides reproducing the magnificent illustrated work of the old masters—Kamper, Cooper, Scarpi, Bougoyre, and others. By general consensus of opinion the profession is indebted to Dr. Marcy as an innovator in this field of labor. He had established the value of the buried animal suture and published his results quite five years before that of Weith of Germany, to whom in Europe the credit is generally attributed. The essential principles of his operation for hernia have become universally accepted. The result of the work of a large number of the modern operators give from 70 to 90 per cent of permanent cures. In resuming Dr. Marcy stressed the peritoneal sac as a rule should be resected and resting quite to its very base; that the deeper structures of the sac make up the posterior wall of the inguinal

canal should be reinforced and restored to their original normal condition; that the external wound should be closed without drainage and the skin wound sealed with iodoform collodion. In his large experience involving several hundred cases, he states that where the intestine has not been involved from strangulation or other cause, not one of his patients has appeared to approach the danger line, and that of the entire number which he has been able to trace, more than 90 per cent. have remained after one year permanently cured.

Papers were also read before this section by Drs. WILLIAM N. WISHARD of Indianapolis; J. McLEAN MOULDER of Kokomo, Ind.; WILLIAM T. BELFIELD of Chicago, and others.

Committee on Nominations organized by election of Dudley S. Reynolds of Louisville, chairman and I. N. Love, secretary.

The following officers were elected for the ensuing year: President—Dr. X. C. Scott of Cleveland, Ohio.

First Vice-President—Dr. Leon Straus of St. Louis.

Second Vice-President—Dr. G. Frank Lyston of Chicago.

Secretary—Dr. Frederick C. Woodburn of Indianapolis.

Treasurer—Dr. George J. Cook of Indianapolis.

Chairman, Com. of Arrangements—Dr. Thos. E. Holland of Hot Springs.

Hot Springs, Ark., was selected as the next place of meeting. Time of meeting, first Tuesday in November.

After drafting and adopting resolutions of thanks, the Association adjourned.

Tri-State Medical Association.—The Tri-State Medical Association of Arkansas, Tennessee and Mississippi will convene in annual session in Memphis, Tenn., on Nov. 22 and 23, 1893.

Members of the Association and all regular physicians in good standing are cordially invited to attend.

Those intending to contribute papers or report cases of importance occurring in their practice, should notify the Secretary at once, giving title of paper, in order that their names may appear on the program. A. L. ELKAN, M.D., Secretary, Memphis, Tenn.

West Tennessee Medical and Surgical Association will meet at Brownsville, Tenn., Thursday, October 26, at 2:30 p.m. A session will be held also at night and one on Friday morning, the 27th. This arrangement is made to save time, and to avoid night travel. Dr. I. A. McSwain is the Secretary.

Mississippi Valley Association Notes.—The *Indiana Medical Journal* will in its next issue print the proceedings in full. Among the medical editors present, we noticed Dr. R. E. Granger of the *New York Medical Journal*; Dr. Brayton of the *Indiana Medical Journal*; Dr. Culbertson of the *Lancet and Clinic*; Dr. I. N. Love of the *Medical Mirror* of St. Louis; Dr. G. F. Lyston of the *Western Medical Reporter* and Dr. John B. Hamilton of this *JOURNAL*. Dr. James F. Hibberd the President-elect of the American Medical Association gave the annual address in medicine. The reception was held at the Denison House, and Governor Matthews honored the occasion by his presence. The Chairman of the Committee of Arrangements, Dr. Cook, and the secretary of the Association, Dr. Woodburn, have reason to be gratified at the success of the meeting.

Tri-State Medical Association of Alabama, Georgia and Tennessee to be held at Chattanooga, Tenn., Oct. 17.

LIST OF PAPERS.

- "Membranous Croup with Report of Cases Treated with Tracheotomy." R. M. Harbin, Calhoun, Ga.
- "Treatment of Stone in the Biliary Duct." W. E. B. Davis, Birmingham, Ala.
- "Cholecystotomy." Paul F. Eve, Nashville, Tenn.
- "Symptoms and Pathology of Fractures about the Elbow." J. B. Murfree, Murfreesboro, Tenn.
- "Treatment and Prognosis of Fractures about the Elbow." Willis F. Westmoreland, Atlanta, Ga.
- "Action of the Galvanic Current on the Uterine Tissue." H. Berlin, Chattanooga, Tenn.
- "Pathology of the Sequelae of Purulent Inflammation of the Middle Ear." T. Hilliard Wood, Nashville, Tenn.

- "Treatment of the Sequelæ of Purulent Inflammation of the Middle Ear." G. C. Savage, Nashville, Tenn.
- "The Significance of Albumen in the Urine in Pregnancy." E. T. Camp, Gadsden, Ala.
- "Serous or Watery Discharges during Gestation, their Source and Significance." J. R. Rathmell, Chattanooga, Tenn.
- "Tuberculosis of the Cumberland Mountains." L. P. Barbour, Tracy City, Tenn.
- "Symptoms and Treatment of Gastritis." G. T. Prince, Whiteside, Tenn.
- "Treatment of Varicocele." J. W. Handly, Nashville, Tenn.
- "Treatment of Pyrexia." J. A. Witherspoon, Columbia, Tenn.
- "Recent Observations of Croupous Pneumonia with Special Reference to Prophylaxis and Treatment." R. M. Cunningham, Birmingham, Ala.
- "Naso-Pharyngeal Adenoids." E. L. Jones, Chattanooga, Tenn.
- "Etiology, Pathology and Prevention of Ophthalmia Neonatorum." L. B. Graddy, Nashville, Tenn.
- "Treatment of Ophthalmia Neonatorum." B. F. Travis, Chattanooga, Tenn.
- "Treatment of Puerperal Mastitis." J. W. Russey, Chattanooga, Tenn.
- "Disease of Female Bladder." J. C. LeGrand, Anniston, Ala.
- "Treatment of Psoriasis at Hot Springs, Ark., with Report of Cases." J. Cabell Minor, Hot Springs, Ark.
- "Treatment of the Omentum in Hernia Operations." G. A. Baxter, Chattanooga, Tenn.
- "Report of Psychical Science Congress, Chicago, August, 1893." John E. Purdon, Cullman, Ala.
- "The Elastic Dressing Applied to Incomplete Ankylosis of the Knee." C. W. Barrier, Columbus, Ga.
- "Medical Ethics." J. B. Cowan, Tullahoma, Tenn.
- "Tubercular Peritonitis." T. J. Crofford, Memphis, Tenn.
- "Movable Kidney." J. B. S. Holmes, Rome, Ga.
- "Pathology and Treatment of Gout." W. C. Townes, Chattanooga, Tenn.
- President's Address: "Responsibilities of the Abdominal Surgeon." Richard Douglas, Nashville, Tenn.

ASSOCIATION NEWS.

The Journal of the American Medical Association.—"Since the meeting of the Medical Association at Milwaukee, we have watched this journal with unusual interest, because its new editor was not only so well known to the profession at large, but also because he came from our own city; and, therefore, any success he might achieve would reflect so we argued, credit upon the city from which he came. That Dr. Hamilton has fulfilled the highest expectations of his friends goes without saying. The profession should take great pride in making this journal its representative both at home and abroad. We are equal in every way to our friends across the water, and there is no reason why, in the matter of a representative journal, we should not certainly equal, if not excel them. That the JOURNAL will do this under the editorial management of Dr. Hamilton we firmly believe. But he must be supported, of course, by the whole profession. This can not be done in any better way, than by sending the annual subscription of \$5.00 to the JOURNAL, at 68 Wabash Avenue, Chicago."—*E. J.*, October, 1893.

NECROLOGY.

Dr. Edward Warren-Bey, whose death has recently been announced, has for nearly twenty years been one of the leading physicians of Paris, and of worldwide reputation. He was born in Tyrrell County, North Carolina, Jan. 22, 1828. His parents were natives of Virginia. His father, Dr. Wm. C. Warren, was a man of intelligence and good professional attainments. When the subject of this sketch was but 4

years of age his father removed with his family to Edenton, N. C. When of a proper age the boy was sent to the Fairfax Institute, near Alexandria, where he remained for two years, and was then placed at the University of Virginia, where he won honors and received diplomas, and by selection, delivered the valedictory before the Jefferson Society. In 1851 he graduated from the Jefferson Medical College, Philadelphia.

It is stated by one of his biographers that while pursuing his studies in Philadelphia he conceived the idea of administering morphia under the skin for the relief of pain by puncture with Anel's syringe. He had written a thesis for graduation on this method of administering medicines, but mentioning it to one of the faculty, who looked upon it as chimerical and dangerous, he was dissuaded from presenting the paper and wrote one on another subject. He had, however, become so thoroughly convinced of the practicability of the method that he soon after put it to a practical test, and was some four years in advance of the public announcements of this very useful method of administering remedies.

To farther prosecute his medical studies he spent most of the years 1854 and 1855 in attending the hospitals and clinics of Paris, and during this time formed strong and lasting friendships with many of the leading medical men of France. He was a ready and a graceful writer, and contributed from the French capital a number of very acceptable articles to the *American Medical Science*, and to other American medical publications.

On returning to the United States he settled to practice in Edenton, N. C. He was thoroughly well equipped to practice medicine and speedily acquired a leading position among the medical men of the region. In 1856 he was selected to deliver the annual address before the State Medical Society, which was well received and brought him prominently before the active workers in the professional ranks. The same year he obtained the "Fish Fund Prize" for an essay on the "Effects of Pregnancy on the development of Tuberculosis." This paper has passed into the permanent literature of medicine. In 1857 he was elected editor of the *North Carolina Medical Journal*, at the time the official organ of the State Medical Society. The Gynecological Society of Boston the same year elected him a member. While in Paris he became a member of the "American Medical Society of Paris," and this organization sent him as their delegate to the American Medical Association, but he was unable to attend or register. But he was a delegate from the State Medical Society of North Carolina to the meeting of the American Medical Association, at Louisville, Ky., in 1856. He also attended meetings in Baltimore, Md., where he was then practicing in 1857, 1858, 1859, 1870, and 1871.

Dr. Warren was on Nov. 16, 1857, united in marriage to Miss Elizabeth Cotton Johnson of Edenton, a most estimable lady whose ancestors were extensively connected with many distinguished families in the old North State and in Virginia.

Dr. Warren's reputation for learning and scientific attainments had become so widely known in 1859 that he was elected professor of materia medica and therapeutics in the old and prosperous University of Maryland. This led to his removal to the city of Baltimore. The same year he was elected the first vice-president of the Association for the revision of the United States Pharmacopœia. In the University of Maryland he at once took high rank as an able teacher and an attractive lecturer.

On the breaking out of the war between the States he threw his fortunes with his native State and his friends in the South. He served in the field, in hospitals and on medical boards. He was chief surgeon in the North Carolina

Navy and medical director of the Cape Fear section. He was also for a time the chief medical inspector of the Department of Northern Virginia. He was twice promoted for his efficiency and courage on the field of battle. This trait of efficiency in the doctor was so notable as to attract attention, and the fact coming to the attention of the Assembly of North Carolina, an Act was passed by them raising his rank from that of colonel to that of brigadier-general for "efficient services rendered to sick and wounded."

Notwithstanding the engrossing official and professional duties of Dr. Warren during the war, he wrote a work to meet the needs of surgeons in the field, entitled, "Surgery for Field and Hospital." In this publication, which was well received and speedily passed through two editions, the doctor made some valuable original suggestions. In 1865, Dr. Warren resumed his residence in Baltimore, expecting at the same time to resume his professional duties in the University of Maryland. But the changed conditions of the country and the status of the Southern States, the policy of the general government and local interests combined to close the doors of that institution against him.

He was not only capable but ambitious and full of energy, and it was mainly at his suggestion and through his efforts that the old Washington University Medical School was revived and rapidly rose to have a commanding position and an able faculty and good patronage. In this faculty Dr. Warren filled most acceptably the chair of surgery.

When the Act of Assembly of Maryland passed requiring an examination and registration of the physicians of the State, Dr. Warren was appointed upon the board to carry the law into effect.

In 1868 he was elected one of the vice-presidents of the Medical and Chirurgical Faculty of Maryland, and the same year founded the *Medical Bulletin*, which under his management acquired a large circulation.

The celebrated Wharton trial, which took place in 1872, brought Dr. Warren to the forefront among specialists in criminal trials. He was confronted by able physiologists, general practitioners and chemists, and their theories and tests shown to be inconclusive. The case attracted wide attention not only in America but in Europe. Dr. Warren ably sustained himself before the court, and his testimony so completely broke down the chemical evidence relied upon by the prosecution as to compel the court to enter a *nolle prosequi* in the case. For some time after the doctor was made a target for critics, not only in the medical profession but by the bar and the public press. But it is simple justice to say that no review of his evidence and theory of the case was ever able to demonstrate that he was in error in his views.

At the meeting of the American Medical Association in 1872 he was chosen Chairman of the Section of Surgery for the following year. He did not, however, attend that meeting or send a report.

In 1873 Dr. Warren suffered a severe domestic affliction in the death of his devoted wife. His health suffered seriously and to change the scene he consented to accept a medical position in the Army of the Khedive of Egypt. His service although brief in that country was nevertheless sufficiently conspicuous to place him at the head of the surgical staff. It was his good fortune to relieve Kissim Pasha the Minister of War from a strangulated hernia.

This operation was undertaken when the war minister's life was despaired of by his own surgeons, and when it was almost impossible for Dr. Warren to get any of them to assist him in the operation from a religious dread of being blamed with causing his death. But the operation was a success and the result placed the courageous Dr. Warren in the front rank of surgeons in the Khedive's army.

His splendid success where death was imminent and expected, induced the Khedive to confer upon Dr. Warren the Decoration of the Medjidie and the title of Bey.

Dr. Warren unfortunately contracted a severe form of ophthalmia common in the East and it proving obstinate, he obtained a furlough for six months to visit Paris for treatment. Here he was promptly told that one eye was practically lost and that a longer residence in Egypt would result in the loss of the other.

He had no alternative but to resign, which he did. The Khedive was most kind, and in accepting his resignation spoke of his valuable services in the Egyptian army and wished him long years of usefulness.

It was then while still under treatment that he was advised to become a candidate for practice in Paris. After many conferences with friends and the earnest advice of Dr. Charcot, Bredd and other eminent practitioners, he concluded to take up his permanent residence in Paris.

Dr. Warren's success in the metropolis of France was exceptionally rapid and gratifying. Both practice and honors came flowing in upon him. From Spain he received the decoration of a "Knight of the order of Isabella the Catholic," for earnest services rendered to Spanish subjects, and from his old Maryland a degree of "Master of Surgery."

Dr. Warren both as a boy and through his life proved his indomitable energy and power of work. He secured a large share of confidence with his professional brethren. And yet like all men of force and original ideas, antagonisms were evolved by the friction. That he was a man of ability and culture his life and works attest. His house in Paris was frequented by Americans and travelers from other countries, and his attentions and hospitalities for years generously bestowed upon numerous friends visiting Paris.

J. M. T.

Dr. Thomas Lincoln Richards of the Vanderbilt Clinic of New York city, died Sunday, October 1, at the age of twenty-nine years. His malady, so seldom fatal among physicians, was smallpox, contracted while in the performance of his duty at the clinic. A patient was under treatment for varicella by one of the staff, who exhibited the case freely as a typical case of that disease. Two physicians were taken ill about the same date; one of them recovered and one, Dr. Richards, succumbed to what at first appeared to be a mild form of variculous disease. He was an alumnus of the College of Physicians and Surgeons, New York, and an ex-interne of the Bellevue Hospital, during 1892. His former home was at Fort Atkinson, Wis. It is an extremely infrequent event, so far as can be ascertained from the periodical literature of medicine, that a physician falls a victim to variola. In this case of Dr. Richards, the attack did not at first seem serious, neither did he seem to suffer in consequence of his removal from his home in the city to the Contagious Disease Hospital on North Brother Island, but he grew worse from day to day after his removal. Dr. Richards was unmarried.

Dr. T. J. Sprague of Joliet, Ill., lately appointed pension examiner, died October 3.

BOOK NOTICES.

System of Diseases of the Ear, Nose, and Throat. Edited by CHARLES H. BURNETT, A.M., M.D. Emeritus Professor of Otolaryngology in the Philadelphia Polyclinic, etc. Philadelphia, Pa. Vol. II. Illustrated. Philadelphia: J. B. Lippincott Company. 1893.

This is an important work of 858 pages, containing six papers on diseases of the nose, and seventeen on throat affections. Of the twenty-three writers New York is represented

by seven, Pennsylvania four, Michigan two, and several other States by one each. One foreign country, England, is also represented.

The book is well illustrated with many plates and figures. Some of these are exceptionally finely executed, the plates being introduced in separate sheets.

W. C. Jarvis has a 28-page article on surgical procedures in deformities and neoplastic growths in the nose. It is prepared with great care and thoroughness, and the fairness and generosity of the author are conspicuous on every page in the numerous references to other authors, and the credits duly accorded each for originality and priority in discoveries and methods.

J. A. White gives the most elaborate elucidation of the subject of neuroses of the nose we have ever seen. He devotes fifty-eight pages to this topic. His exposition of the nasal reflexes is clearly abreast of the times and is full of proof of extensive research. The importance of recognizing and properly treating nasal reflex cough is shown in the misery and expense endured by those sufferers who are annually dragged from their homes and family ties to spend their winters in the south or the mountains of the West, only to find at last that a little judicious treatment of a nasal affection banishes the specter of phthisis.

Dr. White has obtained the best results in treating paroxysms of asthma, by spraying the nose with a 4 per cent. solution of cocaine followed by a second spray of camphor-menthol, 6 per cent. Cerebral sedatives and vaso-tonics are added.

A. W. MacCoy has a beautifully illustrated paper of twenty pages on the anatomy and physiology of the pharynx and larynx.

Max Thorner has written twenty-four pages of great practical value on the various forms of acute pharyngitis. He opens with an interesting discussion of the mooted question of taking cold. He pays doubtful respects to the old theory, and discreetly steps out of the arena while he introduces the several disputants to fight it out among themselves. His remarks on treatment embrace the most valuable of the new remedies.

E. F. Ingals has twenty pages on chronic pharyngitis, in which no space is wasted in historic disquisition or references to other writers. He records merely the results of his own observations and rich experience, in smooth, flowing English.

W. C. Glasgow, in treating of croup, throws discredit on the time-honored remedy, calomel, for preventing the fibrinous exudate. Otherwise his treatment is orthodox. He indorses Dr. Wetmore's iron treatment.

J. L. Smith, in an exhaustive paper of forty-seven pages on diphtheria, maintains that it is primarily a local disease of microbic origin. His warnings against that undeservedly popular remedy, potassium chlorate, are telling and timely. He uses H_2O_2 in 10 per cent. solution for spraying the throat. A good dioxide of hydrogen is neither toxic or irritating, and gives the best results in full strength. No opinion is expressed in the efficacy of sulpho-calcin or methyl-violet. Corrosive sublimate is recommended internally and locally, but pilocarpin is condemned.

J. Solis Cohen brings the volume to a close with an admirable treatment of a most difficult subject—tuberculosis and syphilis of the larynx. In tuberculosis he places reliance on creosote internally, and lactic acid topically, and is opposed to the galvanocautery. Twenty per cent. solutions of menthol in olive oil are injected into the larynx.

A Treatise on Ophthalmology for the General Practitioner. Second edition, revised and enlarged, with 140 illustrations, by Adolph Alt, M.D. Svo. cl. pp. 330. St. Louis: J. H. Chambers & Co. 1893.

That the book was acceptable to those for whom it was intended is evident from the fact that it has now passed to its second edition. It is divided into twenty-eight chapters. The first gives the anatomy of the eye and its appendages; the second the method of examination. Chapter six being on "Minor Manipulations in the Treatment of Eye Diseases," is dislocated by being placed between chapter five on diseases of the orbit, and chapter seven on diseases of the orbit. The remarks on asepsis and antiseptics are excellent so far as care of the instruments are concerned, but a little more detailed direction of the precautions on the part of the practitioner, would have added to the value of the book. While there are operations illustrated and described that the general practitioner will rarely, if ever, perform, there is so much of value that we unhesitatingly commend the work to those for whose instruction it is intended.

State Medical Association of Texas.—Transactions for 1893. This volume includes the report of the transactions of the twenty-fifth annual meeting, which was held at Galveston in May, 1893. There are several notable papers in the transactions, and no pains have been spared apparently to render the book typographically the equal of other State transactions. A glance at the papers shows them to be complete, and at the same time not so "long drawn out" as to be tedious. The book has been carefully edited by the competent secretary, Dr. H. A. West of Galveston, Texas.

The American Association of Physicians and Surgeons.—Transactions for 1893. The ambitious title of this Association would lead us to expect that its transactions would show superior work, and a glance at the volume proves that the expectations are well founded. It includes papers by Drs. Beverly Robinson, Andrew H. Smith, Gilman Thompson, Tyson, Whittaker, Wood, Theobald Smith, Osler, Councilman, Allen Starr and others. The articles are illustrated by carefully drawn diagrams and well colored lithographs. As the papers have been generally printed elsewhere, either in abstract form or otherwise, special reference to them need not be made here.

Vermont State Medical Association.—Transactions for 1892. These transactions are included in a compact, neat volume of 175 pages, comprising the address of the president, the papers read at the meeting, and the minutes of the sessions. The book is well printed and shows care on part of the members of the publication committee. D. C. Hawley, M.D. of Burlington is secretary.

New Medical College.—The Wisconsin College of Physicians and Surgeons was opened in Milwaukee Sept. 26, with forty matriculants. The Presbyterian Hospital of Milwaukee adjoins the college buildings.

DOMESTIC CORRESPONDENCE.

The Name is Barker.

To the Editor:—In your editorial of October 7, entitled "The Place of Ergot in Obstetrics," you speak of a paper on this subject published in your issue of September 23 by Bous. I think there is a mistake on this point, and judge it is my paper you refer to—"The Routine Administration of Ergot after Labor." Please make correction and oblige.

Yours truly,

T. RIDGWAY BARKER.

427 So. 16th St., Philadelphia, Pa.

MISCELLANY.

Meeting of the State Board of Health of Michigan.—The following members were present at the meeting of the State Board of Health at the capital, Sept. 29-30, 1893: President Wells, Secretary Baker, Drs. Granger and Milner, and Prof. Fall. A very important resolution offered by Dr. Baker was unanimously adopted, placing consumption on the list

of "dangerous communicable diseases" required by law to be reported by physicians and householders. This means that henceforth this "great white plague" which causes far more deaths in Michigan than any other disease, is to be restricted in its ravages. This important move by the Board calls for the most earnest coöperation of health officers, physicians and the people generally. The resolution is as follows:

Resolved, That hereafter, consumption (and other diseases due to the *bacillus tuberculosis*) shall be included in the official list of "diseases dangerous to the public health" referred to in sections 1675 and 1676, Howell's Statutes, requiring notice by householders and physicians to the local health officer, as soon as such a disease is recognized.

The reporting of other dangerous diseases to the State Board has enabled it to place pamphlets of instructions just where they would do most good, and at the right time. Many years of experience show that restrictive measures recommended by the State Board of Health, relative to dangerous diseases, have been the direct means of great reductions in the death rates of dangerous diseases; in some instances the death rate is only about half what it was before the State Board of Health undertook restrictive measures. If consumption were reported, it could be dealt with in the same manner and restricted, and many cases of consumption avoided every year. It is a disease easily restricted, and the State Board of Health distributes a pamphlet telling just how to do it. If the physicians and citizens of Michigan will do with consumption as they have done in the past with other dangerous diseases, and coöperate with the health officers, much suffering and loss of life can be prevented.

In connection with the subject of reprinting the leaflet on the restriction of dangerous contagious diseases, in several different languages for distribution to neighbors of persons sick with a dangerous disease, Drs. Granger and Milner, the recently appointed members of the Board, had for years watched with interest the good work that these instructive pamphlets had been doing in the restriction and prevention of the several diseases. The Board directed the secretary to reprint this leaflet in several different languages. Dr. Granger said that many of our recently arrived foreigners did not believe that some of these diseases were dangerous, and that this leaflet was just what was wanted to educate this class of people, because diphtheria and other diseases were spread among them and by them to other classes of people.

The Board amended its rules for the inspection of immigrants at the Michigan border by adding to Rule 1, "and no immigrant shall come into this State or travel within the State, until inspected under these rules, and until authorized to do so by an inspector appointed or accredited by the Michigan State Board of Health."

Rule 5 was amended so as to hold immigrants until their baggage has been disinfected.

An additional rule was adopted as follows:

Rule 7.—Dangerous communicable diseases being now present in every country from which immigrants are coming into Michigan, no immigrant and no traveler or other person believed by the State Board of Health or by its authorized inspector to have been exposed to and liable to convey cholera, diphtheria or other dangerous communicable disease, shall pass through Michigan, or from one township, city or village to another within the State, without permission from the State Board of Health or its authorized inspector.

The following resolution, offered by Dr. Granger, was unanimously adopted:

Resolved, That it is the will of this Board that the President and Secretary continue to take such action as may be necessary to enforce the rules of this Board, and to enforce quarantine at the Michigan border and within the State, and to advise persons dangerous to the public health, and to compel any railroad company operating within the State to obey the State laws and the rules and regulations of the State Board of Health made under the law.

Gelsemium in Rheumatism and Neuralgia.—In an article with the above title by Dr. A. Atkinson (*Charlotte Medical Journal*, July, 1893) the author says: "Often the trouble in administering the stronger fluid extracts and tinctures lies in the fact that the alcohol will evaporate and the extractive material will gum up and fall to the bottom and the sides of the bottle, and though you may administer a properly assayed article, you will now and then get too much of the active principle and trouble will follow; then, too, people keep medicines too long and they become uncertain and irregular in their action. It is safe in administering strong drugs when we can readily procure the alkaloid safely and properly adjusted, to prescribe the article put up by some reliable manufacturer, seeing that it has not been kept too long, and such active drugs are accurately and beautifully put on the market in a soluble form, and even though we have a granule which presents all the appearance of freshness and complete solubility, a good plan is to put it in water a few minutes before administering it, or to stick a hole in it and let the patient swallow it in a half softened state. There is no question but that the gelsemium will afford relief in many cases of neuralgia, but it must be pushed far enough to secure its physiological effects, just short of injury, if we expect to obtain full relief. In facial neuralgia Massini has found that 20 minims every half hour, for three doses almost invariably cures. This we would call getting its full effects—1 dram of the tincture in one hour and a half."

Dr. Thomas Hoover of the Ohio State Board of Health, has proposed a "pure water" plan for the consideration of that body, which is just now giving considerable attention to the question of supplying Ohio cities with healthful water. He proposes to have the State take charge of the water supply and furnish all important cities and towns by a system of canals fed by Lake Erie.

He will not make diplomas for the next three months.—Dr. Walter May Rew, whose bogus medical college was exposed last July, was sentenced October 10 to three months imprisonment in the penitentiary.

He will be Missed.—Dr. A. K. Bond has resigned the editorial chair of the *Maryland Medical Journal*.

THE PUBLIC SERVICE.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from September 30, 1893, to October 6, 1893.

Capt. WILLIAM D. CROSBY, Asst. Surgeon, is granted leave of absence for three months. By direction of the Secretary of War.

Majors ALFRED A. WOODHULL and ALFRED C. GIRARD, Surgeons, are designated as delegates to represent the Medical Department of the Army at the annual meeting of the American Public Health Association, to be held in Chicago, Ill., from the 9th to the 14th of October, 1893.

LETTERS RECEIVED.

(A) Antikamnia Chemical Co., St. Louis, Mo.; Adams, A. S., Rochester, Minn.; Anderson, O. C., Andover, Ill.; Ayers, D., Syracuse, N. Y.; (B) Baur, C. C., Morristown, N. Y.; Battle & Co., St. Louis, Mo.; Berard, H. & Co., St. Louis, Mo.; Braxton, A. W., Indianapolis; Brown, M. R., Chicago, Ill.; (C) Cook, G. F., Oxford, Ohio; Cutter, E., New York City; (Chancellor, E. S., Lansing; Christian, E. T., Wyandotte, Mich.); (D) Dodd's Newspaper Advertising Agency, Boston, Mass.; Drevet Mfg. Co., New York City; DuBose, Rolt, M., Sewanee, Tenn.; Dudley, E. C., Chicago, Ill.; Duggleson, R. J., Philadelphia, Pa.; (F) Farnham, A. B., Milwaukee, Wis.; Fairchild Bros. & Foster, New York City; (G) Gibson, A. H., Washington, D. C.; Gibson, Marls, Wilkesbarre, Pa.; Griffiths, L. W., Bristol, England; (H) Horwitz, Orville, Philadelphia, Pa.; Hopkins, T. S., Thomasville, Ga.; Hamburg American Packet Co., New York City; Herriek, J. B., Chicago, Ill.; Hay, Thomas, Philadelphia, Pa.; Holmes, Bayard, Chicago; (K) Kramer, S. P., Cincinnati, Ohio; (L) La Sordie, L. A. F., St. Amandren, C. E., Jamestown, N. Y.; Lea Bros., Philadelphia, Pa.; Lehighwell, E. D., Watkins, N. Y.; Lydston, Jas. A., Chicago, Ill.; (M) Mercer, A. C., Syracuse, N. Y.; Martin, A. & Son, Brookline, Mass.; (N) Niles, S. R., Philadelphia, Pa.; (O) O'Brien, J. J., New York City; Mulford, H. K. Company, Philadelphia, Pa.; Marshall Printing Co., Marshalltown, Iowa; Moyer, H. N., Chicago, Ill.; (N) Niles, S. R., Newspaper Adv. Agency, Boston, Mass.; (P) Purvis, C. B., Washington, D. C.; Parker, Davis & Co., Detroit, Mich.; Park, Roswell, Buffalo, N. Y.; Powell, R. H., Benson, W. Va.; (R) Riley, S. D., Philadelphia, Pa.; Rowell, Geo. F. & Co., New York City; (S) Slocum, H. A., Philadelphia, Pa.; Summary, The Editor, Elmira, N. Y.; Stowell, C. A., New York City; Steffens, N. H. J., New York City; St. Louis, Fred & Co., Detroit, Mich.; Schaefer, E. M., Georgetown, D. C.; Sharp & Dolme, New York City; Stephenson & Foster Co., Pittsburg, Pa.; Slay Bros., New York City; Sumner, G. E., San Francisco, Cal.; Steiger, E. & Co., New York City; (T) The Tilden Co., New Lebanon, N. Y.; Tuley, H. E., Louisville, Ky.; (U) Upton, E. F., West Randolph, Vt.; (V) Volgend, N. N., Independence, Iowa; Vennum, R. T., Camden, Ind.; Vetter, J. C. & Co., New York City; (W) Withnors, R. A., New York City; Webb, J. A., Albany, Ind.; Welsh, M. S., "Harbors of Refuge," New York Press, Wilman, J. F., McGregor, Iowa; Wilkinson, A. P., Penion, Iowa.

Med
A

The Journal of the American Medical Association

532667

VOL. XXI.

CHICAGO, OCTOBER 21, 1893.

No. 17.

ADDRESS.

SANITARY ADMINISTRATION.

Read in the Section on State Medicine, at the Forty-fourth Annual Meeting of the American Medical Association.

BY C. A. LINDSEY, M.D.

CHAIRMAN OF SECTION ON STATE MEDICINE.

The value of health to the family, to the community and to the nation has come to be understood and appreciated as it never was before. During the last few decades public sanitation has made surprising progress. The positive discoveries relating to the protection and preservation of health have proved their verity by their practical application, and have strengthened the claim of public hygiene to be ranked among the applied sciences. In scarcely any department of human progress have the indications of successful accomplishment been more marked, more satisfactory, or of greater direct value to the welfare and happiness of mankind, than in the unfolding and development of the principles and natural laws upon which modern scientific public hygiene is based.

Let us take a retrospective glance at the beginning of a movement which is still progressing with an undiminished impetus. In the East End of London, known as Whitechapel, recently made notorious by several brutal murders, at a place situated on the borders of a large and stagnant pond there occurred in 1838 a severe outbreak of disease. The abruptness, the violence and the limits of the epidemic clearly indicated some local cause. The late Edwin Chadwick, who had already made an enviable reputation as an original thinker and as a man of rare judgment and great executive ability, was applied to by the parochial authorities for advice. He was at the time the Secretary of the Poor Law Board. He readily persuaded his Board to institute a medical commission, and himself selected its members. He directed the character and extent of the investigation. He did not limit it to the existing epidemic, but made it to include the sanitary condition of the whole city of London. The judgment and foresight of Edwin Chadwick were never more conspicuously exhibited than in all this proceeding. 1, in the selection of the commission, who were among the most competent of living men; 2, in seizing the occasion as an object lesson to impress the public mind with the importance of public hygiene.

The gravity of the outbreak justified the procedure, and the man and the opportunity came together. No commission of this character had ever before been formed. The exhaustive and instructive reports which were made, detailing with eloquent accuracy and fearless plainness of speech the shameless pollution of the water supply, and other dangerous influences to which the people in the chief

city of the world were exposed, greatly aroused public attention. "These reports," says B. W. Richardson, "became texts in sanitation, and were so much in demand that many thousands were distributed among the people." It was the beginning of public interest in sanitary reform. It made an impression that could not be readily effaced. It was not only instructive, but it was also very suggestive. And the suggestions presently became active realities. Thus, if diseases result from unwholesome surroundings, with what diseases are such conditions most associated?

The next step came naturally, but only as such great movements do, after much effort and by powerful influence, but it came, to-wit: the registration of the causes of death. This result, to-wit: the enactment of the registration law of the causes of death, can be directly traced to the influence of the reports on the outbreaks of the epidemic in the East End of London in 1838. It gave to the world its most splendid statistician, Dr. William Farr, who for more than forty years was the genius who directed and utilized the registration of the vital statistics of England.

In these two points we have the foundation of practical public hygiene, two cardinal principles, viz.: sanitary inspection and the registration of the causes of death. It is not necessary in this presence to trace the progress of public sanitation from that time to the present. We all know something of the rapid growth in practical methods, and of the marvelous results which they have accomplished.

The prominent idea which it is my aim to develop to-day is, that in this country, that is, in our own United States, the practice of public hygiene lags far behind the theory and the science of it. In the old and long established governments of Europe, the advantages derived from science take effect earlier than they do in this country. The people there are more accustomed to trust and obey the powers that be than they are here. Here, if the people have not the gratification of trying to turn out a bad incumbent of public offices every year they feel that they are not enjoying all the privileges of a free country. Then again, the doctrine of self-government among us is carried to an extreme degree in practice; so that the principle of the greatest good to the greatest number is often sacrificed to the claim that every community, however small, has the right to govern itself in all matters pertaining to local interests, and the health of a community is still too often regarded as preëminently a matter of only local interest.

Hence in some States, especially in my own, the sanitary administration is divided into just as many little sovereignties as there are local governments of any kind. Every town, every borough and every city in Connecticut has its own health authorities, each having jurisdiction over their own little terri-

tory, and each making sanitary regulations and exercising their powers entirely independently and without any reference to adjoining similar dynasties. They are under no common direction, and have no uniform system of practice. This might not be so unfortunate in its results if unsanitary influences and contagions were accustomed to show any respect for town authorities or city limitations. Now it is quite obvious, on a little reflection, that very serious consequences will naturally result from these queer conditions. One exceedingly unfavorable effect is this: it rarely happens that the limited jurisdiction of a health officer affords him occupation enough to give him a reasonable support. He, therefore, in the great majority of instances regards his official duties as secondary in importance and, consequently, they are usually performed only in a perfunctory manner, or not at all, and often these offices are only accepted by men of inferior ability.

Again, the uncertain tenure of office, from the frequent popular elections for the usual term of only one year, tends to prevent the incumbent from acquiring any enthusiasm or interest in his work. Still again, the public mind either assumes that no special skill or fitness for the office is necessary, or else that the possession of such skill and fitness is universal, and as the office is not usually remunerative, it is not apt to be accepted by competent citizens or else it is made an appendage, *ex-officio* to some other office, the functions of which may not have the most remote relationship to the proper qualifications and duties of the sanitary officer. This clearly indicates a want of proper appreciation on the part of the public of the true functions of such an officer and of their importance.

Sanitary administration, whether in a rural or an urban community, deals with the highest interests of man in the social state; it aims to provide a safeguard to every individual, and protect him from the perils inherent to life in communities; it is one of the chief factors in the promotion of public prosperity and general happiness. For there is nothing so disastrous to the public welfare, nothing so productive of personal misery and suffering, as disease and death. A nation physically feeble, and whose people are subject to frequent epidemics can not be prosperous; it can not be happy. When, therefore, we reflect upon these facts, the apathy and indifference of the public to this subject is cause for profound surprise. "For life is not to live, but to be well," said Martial, an epigrammatic poet of the first century.

The principles of self-government which these little towns feel that it is an injustice to be deprived of, are not rightly comprehended by the popular mind. If government is needed at all, it is highly desirable that those who are governed shall get all the advantages possible from the restrictions imposed upon them. Hence when different communities in neighboring towns and cities have a common interest in the results of government, it would seemingly go without saying, that there should be some common adjustment and unification of the code of laws in which they are all mutually concerned. It has long been recognized by wise legislators, "that every branch of administration needs a central direction, which holds in its hands all the threads of the different local portions." Isolated, separate, independent self-governments, by towns and municipalities, have

no cohesiveness or uniformity of methods. They lack the advantage of guidance by a central authority, which with a comprehensive acquaintance with their common, as well as their individual needs, can weld together and wisely direct and control their sanitary work.

The practical sanitation of to-day has outgrown the lethal methods which have been so long in vogue. The pressing needs of the times in regard to the conservation of public health, are that such radical changes shall be made, in old ways of sanitary administration, as will enable the most economical and efficient application of the laws of sanitary science. Sanitary administration is sometimes designated "State medicine," by which may be understood that function of the State, in the exercise of which it aims to put the people of the State in such relation with themselves and their environment, in all things affecting their health, that they will need to take the minimum amount of medicine. This implies a general and comprehensive system for the State, with a central authoritative supervision and control of subordinate officials. A central administration, in which the same thing will be always done in much the same way in any part of the State where it is needed to be done at all, would be a vastly different thing from the too prevalent practice in many places of what might be called "town medicine," in contrast with "State medicine." Town medicine, in which each town is an independent, isolated and disjointed government whose appreciation of the principles of public hygiene are as narrow as the limit of its own little territory, and whose policy is: "Not to act until obliged to do so, and then to do as little as possible."

The inefficiency, the waste of energy, the want of applied intelligence, or worse, energy misapplied through ignorance, all condemn town medicine as inadequate, expensive and largely barren of results. Public hygiene deals not alone with local conditions. It has to do with the welfare of populations settled over wide areas of territory, and under such varying conditions that the common good of the whole can not be attained without a comprehensive acquaintance of the mutual relations and interests which the separate towns or communities within those areas may bear each other. Town medicine as such is obsolete, belongs to a by-gone age and should no longer assume a responsibility for which in the nature of things it is incompetent.

The true function of town sanitary administration in the future is in the capacity of a component part of a general comprehensive system, guided and directed in its general work by a central authority, upon plans and methods devised with reference to the best good of all the communities interested. In this way, not only will the particular town be benefited, but it will derive a great reflex benefit from the better sanitary condition of all surrounding towns. Sanitary science is of recent growth, but its growth has been vigorous and healthy. Treatises on public hygiene have been written since the days of Hippocrates, but it is only within the last two decades that accumulating knowledge has crystallized in form and taken a scientific character. In the words of Dr. Guy: "It has to do with persons of every rank, of both sexes, of every age. It takes cognizance of the houses and places in which they live; of their occupations and modes of life; of the food they eat, the

water they drink, the air they breathe. It follows the child to school; the laborer and artisan into the field, the mine, the factory, the workshop; the sick man into the hospital; the pauper into the work-house; the lunatic to the asylum; the thief to the prison. It is with the sailor in his ship, the soldier in his barrack, and it accompanies the emigrant to his new home beyond the seas. To all these, it makes application of a knowledge remarkable for its amount, and the great variety of sources whence it is derived. To physiology and medicine it is indebted for what it knows of health and disease; it levies large contributions on chemistry, geology and meteorology; it cooperates with the architect and engineer; its work commends itself to the moralist and divine."

Sanitation has advanced beyond the mere suppression of those grosser nuisances which conspicuously offend the senses, and are so often the subjects of complaints between neighbors. The deadly maladies like typhoid fever, cholera, consumption, etc., do not announce their presence to their victim by appreciable signals, until they have passed the guards and have gained possession of the citadel. They do not herald their approach by any impression on the sense of sight or smell, of taste or touch, but they silently enter, intrude themselves in our vitals, and begin their fatal work before we are conscious of their presence. But modern sanitation has put detectives on their track who have traced them to their lurking places, have studied their career and written their biographies. We know now, somewhat, where to find these secret foes, through what avenues they make their attack, and can in corresponding measure defend ourselves. But the system of defense involves a wider field of operations than the limits of a town or city, and a higher standard of official ability and special training than can reasonably be expected to be possessed by the average town selectman or village justice.

The exponent of practical hygiene in the future must be not only a physician and microscopist, but also a chemist, bacteriologist and geologist. All these sciences come into active demand in the exercise of the functions of a sound and efficient sanitary administration. It is quite obvious, from the rarity and character of these requirements, that they can not be economically employed separately and independently by small communities, living within limited areas of territory. Such communities would not often possess the men competent for such service, and would be unable to afford the remuneration which so high a standard of qualifications could justly demand. Moreover the principles of modern sanitary administration are of universal application, and therefore every consideration of expediency, as well as of economy, would lead to the utilization of acquired knowledge and trained skill by as large a constituency as is practicable.

It rarely happens that the health and well being of a town or even a community are dependent upon conditions which are wholly self-contained. In the great majority of instances, the sanitary state of a town or city is very largely at the mercy of things beyond its own boundaries. Those two great factors in public health, the sources of water supply and the means of sewage disposal, are seldom found wholly within the limits of any town and one or both, nine times in ten, must be sought for on territory not its

own, but beyond the bounds of its jurisdiction. Nor only that, but the hygienic questions of most importance to the best success of these undertakings, require for their solution a larger experience and a wider range of knowledge than can ordinarily be found in a local health board. Besides these questions are to a considerable degree constantly recurring, not merely with reference to new enterprises, but in the care and proper maintenance of plants already established and in working order. Something above the average standard of attainments by local boards of health is requisite for the best management of most public undertakings of this kind, in which the general interests of all the towns and cities in a State are more or less concerned. When the general interest is so intimately connected, it follows without argument that whatever is best for the general welfare should so far as practicable be adopted. At least it is reasonable that any one locality or community should be restrained by some authority from doing that which, selfishly designed solely for its own benefit, may be very disastrous to the welfare of other communities, or on the other hand be required not to neglect doing something essential to the welfare of itself and of other communities. It is without question the true policy of a State to provide for the best good of all its citizens, and most of the States in the Union have recognized that policy as regards health, by establishing State Boards of Health.

These State Boards are, indeed, charged with the duties of investigating the causes of disease, and especially of epidemics, the various effects upon health of localities, occupations, etc. They are required to advise regarding water supplies, systems of sewerage, the means of arresting the spread of contagious diseases and kindred subjects. This is very wise and judicious, but in some of the States, more particularly in the East, the best results are wanting, from the fact that after the State has provided the means of knowing what is the best thing to do in any given case, it has not provided any way of preventing communities from doing the worst thing instead of the best if they choose to. While the State thus admits the necessity of supplying to its citizens a sound and scientific standard of public hygiene through its State Board, it omits to insure the advantages which should follow, by neglecting to confer upon said State Board any authority by which local health officers may be held responsible for their observance of such standard. It is quite parallel to conducting a campaign against an invading foe, by directing the commander in chief of the army to instruct the colonels and captains upon the best plan of defense, and when and how they should dispose their respective commands, and then leaving it to the individual option of those officers whether they will be guided or not by such instruction.

Another forcible illustration of the need of making local health boards responsible for their official work, may be found in the management of local epidemics of contagious diseases. It is well known that by isolation and disinfection contagious diseases can be restricted. But the unsystematic, haphazard, half way efforts to accomplish these objects by the average town board of health seldom do any good, and the contagion goes whither it will, until the susceptible material in the community is exhausted and then the epidemic ceases spontaneously. While these constant failures to restrict disease by the appointed

officials may bring isolation and disinfection into public contempt, still isolation and disinfection remain the best and most effective means we know. It is not the means which should be in contempt, but the incompetent officials who know not how to use them. Where, in your experience, is the practice of disinfection satisfactorily performed by town boards of health? The absurdity of telling the family of the sick persons to burn some sulphur in the house, after recovery or death, (a very common thing to do) is but a silly caricature of real disinfection.

Public establishments for disinfection should exist in every community, and should always be in the charge of competent and intelligent men. Yet I will boldly venture the assertion that Connecticut is not the only State in the Union which is wholly unprovided with this most necessary and essential means of public safety. The only reason why disinfection stations are not established is the cost, but they are not so costly as epidemics.

Now, in conclusion, let me briefly outline the principle of sanitary administration which I have attempted to defend; the limit of this address will not admit of detail. Public sanitation is no longer the simple matter of half a century ago. It has become an elaborate system, involving in its practice an acquaintance with many branches of science. It has outgrown the comprehension of the town supervisor, the town committee man or the town selectman. But the town by common consent is still the unit in sanitary administration, and the town health officer must still remain an essential factor in the system, only he must possess some qualifications for the office and can no longer be independent. The close relationship of towns, the intimate inter-course of their peoples by reason of modern facilities for rapid transit, produces in every town a direct interest in other towns, and other towns in like manner have an interest in it.

In a matter so important as the public health, this common interest demands that towns shall not continue to be irresponsible separate entities, doing or not doing at their option concerning affairs in which other towns are also deeply concerned. The town health officer shall have the necessary authority. It is not designed to abolish local self-government in sanitary matters, but to strengthen it and combine responsibility with it. Just as an individual may abate a nuisance on his own premises in his own way, but is liable for penalties if his way is not effectual, so local health officers should be responsible to a higher authority if they fail of their duty in the administration of sanitary laws in their own jurisdiction. I think the idea may be expressed in one sentence: in local matters concerning sanitation, let there be central supervision with authority; and local administration with responsibility.

GIFT TO THE CAMDEN MEDICAL SOCIETY.—At a meeting of the Camden City Medical Society, Colonel J. R. Johnson presented to the Society a large oil painting of the "First Dissection." Dr. J. M. Ridge made the presentation speech, and the painting was received on behalf of the Society by Dr. O. E. Gross. A rising vote of thanks was extended to the artist, after which a collation was served.—*Philadelphia Record*.

A CASE OF SYMPATHETIC NEURITIS AFTER EVISCERATION OF THE EYEBALL.

Read before the Section on Ophthalmology at the Forty-fourth Annual Meeting of the American Medical Association.

BY F. C. HOTZ, M.D.

PROFESSOR OF OPHTHALMOLOGY IN THE CHICAGO POLICLINIC.

Evisceration of the eyeball was introduced by Prof. Graefe in Germany and Dr. Mules in England ten years ago as a substitute for enucleation, for the reason that it was a less dangerous operation and furnished better conditions for the artificial eye. The first report¹ on a larger number of eviscerations performed by Graefe seemed to sustain the favorable opinion of the originators; for among 240 eviscerations there was neither a death nor an instance of sympathetic inflammation after the operation.

But soon matters began to take a different aspect. Prof. Schuelek of Budapest, for instance, lost two patients among thirty-six eviscerations in the first week after the operation;² and Dr. Cross reported two cases of sympathetic ophthalmitis occurring after evisceration.³ But as Dr. Cross had inserted a so-called artificial vitreous, it was maintained the sympathetic inflammation in these cases could not be charged to the operation, but was induced by the foreign bodies.

As no other instances seem to have been reported, I wish to present to the Section the following case in which the effects of the evisceration have not been modified or prejudiced by the introduction of an artificial vitreous, but in which two weeks after the operation an optic neuritis appeared in the other eye under circumstances which seem to warrant the opinion that we had to deal with a sympathetic affection:

Aug. 6, 1891. Frank S., 21 years old, bookkeeper, consulted me in regard to his eyes. When but two years old, he accidentally wounded his right eye with a pen-knife, the blade piercing the lower sclero-corneal border and passing through iris and ciliary ring into the vitreous. A very mild form of irido-cyclitis followed this injury; in two weeks the eye had apparently recovered and its external appearance was as perfect as that of its fellow; but the sight was gone. The boy grew up and went through the public school and the high school, and not for one single minute during his entire school life did this blind eye give him any trouble, though it had gradually become perceptibly smaller.

In the summer of 1888, it became troublesome for the first time, getting red and tender to the touch, and making the other eye rather sensitive to the light, so much so that on some days it was almost impossible for him to do his book-keeping although his sight always remained clear and strong. With the advent of cooler weather all these symptoms disappeared and during the next winter and spring he experienced no trouble, and could work over his books in daytime and read at night with perfect ease. But in the summer of 1889 the eye again became red and troublesome, and again the irritation subsided as soon as the weather grew cooler. The same thing happened in summer of 1890; and when the patient came to see me in August, 1891, the same trouble had been annoying him for two weeks past.

I found the right eye very small, red and quite sensitive to slight pressure; the left eye showed normal vision, refraction, and fundus; but it was a little sensitive to light and became quite red and watery after reading a few minutes. I told the patient in my opinion the proper thing to do in his case was to remove the offending atrophied eye. My advice was readily accepted; the patient went to the hospital where I eviscerated the eye August 10. Chloroform

¹ Dr. Hugo Leber: *Entfernung des Auges*, 1887.

² Otto Becker, *enucleation and exenteration*, 1888.

³ *British Medical Journal*, July, 1887.

It decided on evisceration for cosmetic reasons. This operation is said to yield a larger stump than enucleation; and inasmuch as the growth of the right orbit had been retarded and would allow the insertion of a small artificial eye only, I thought the larger stump might give the small eye a fuller appearance by preventing its sinking back into the orbit and thereby be of some real cosmetic value to my patient.

was administered; the face had been thoroughly scrubbed with soap and water; the eyelids, eyeball and conjunctiva were washed with sublimate solution 1 to 5000, all the instruments were first immersed in 95 per cent. carbolic acid, then treated with boiling water and kept in sterilized water till the end of the operation. The eyeball was opened by a circular incision just behind the sclero-corneal border; the retina was found completely detached and "choroidal," and the choroid was easily separated from the inner surface of the sclera by a flattened scoop. The posterior portion of the choroid was calcareous. When every trace of the contents was removed, the inner surface of the sclera was washed with carbolic acid and dusted over with iodoform; and the conjunctiva drawn over the scleral wound and brought together by a purse-string suture. The eye was once more washed out with the sublimate solution and dressed with borated cotton and sterilized bandage.

August 11.—Violent headache; great lid swelling and much chemosis of conjunctiva; bloody serum has been and still is oozing from the stump.

August 13.—Patient still in bed; the pain in the head is decreasing; no more oozing from stump since yesterday.

August 20.—No more headache since two days, only a dull pain over right eye; swelling of upper lid gone, but still considerable chemosis of conjunctiva; stump large and firm. Patient is allowed to go home but is advised to abstain yet from reading. The left eye has been free from the photophobia since the operation and appears well in every respect.

August 29.—Patient calls at the office; the dull pain over the right eye has continued all the time; the conjunctiva is still swollen and pressure on the stump causes deep-seated pain in the orbit. Since two days the patient has noticed the left eye was getting sensitive to light again, and on pressing on the eyeball he felt a dull pain back of the eye, and since this morning he observed a peculiar unsteadiness of vision; he sees everything very distinctly at first but only for a moment; for instance, when looking at the test types he can read No. xx, but the letters gradually seem to fade away and then come back. No redness; pupil active; vision clear; but papilla seems redder than at previous examinations.

September 1.—Unsteadiness of sight more annoying; V = 20-20; papilla decidedly hyperemic. Pain and tenderness of stump still present. Hot water compresses ordered on stump; and calomel internally, gr. $\frac{1}{4}$, three times daily.

September 4.—V. 20-30 only; papilla very red, and its nasal border veiled by a gray mist which extends a short distance over the adjacent retina.

September 9.—V. = 20-40; papilla still more indistinct. Pain and tenderness of the stump of right eye has been much less these two days.

From this day on the eye began to improve and by October 1, it had regained normal and steady vision (20-20); the papilla showed normal color and well defined border.

December 1.—Patient called to see about wearing an artificial eye; the stump of the right eye was so shrunken by that time that it showed no essential difference from the stump after enucleation. He had been at his work the past four weeks and experienced no trouble with his eye. And on inquiry I learned that during last summer and autumn he had no return of his eye trouble.

Remarks.—The history of this case, I think, leaves no room for doubting the sympathetic nature of the disturbance of the left eye; and I also think the clinical evidence is sufficiently clear to point out the important and significant difference in the character of the sympathetic disturbance before and after the evisceration. We have seen that for several years the left eye had been troubled by periodical attacks of photophobia, accommodative asthenopia and irritability unquestionably induced by the tender state of the atrophic right eye. But for all these several attacks and though the last attack immediately preceding the operation had lasted two whole weeks we have found the vision still unimpaired and the fundus in a normal condition, and therefore come to the conclusion that these attacks preceding the evisceration were due to *sympathetic irritation* which was promptly relieved by removing the exciting cause in the right eye (its degenerated contents).

The right eye remained perfectly quiet after the

evisceration for the next seventeen days when it again became sensitive to light and reading; but this time the vision soon became impaired and the ophthalmoscope disclosed the signs of a rapidly progressive optic neuritis. This neuritis had certainly no connection with the sympathetic irritation which preceded the evisceration; for we know sympathetic irritation never leads to sympathetic inflammation. But when we consider what occurred in and about the right eye during these seventeen days after the evisceration, I think we may find the cause of the neuritis of the left eye. The operation was followed by great swelling of the lids and conjunctiva and by severe pain extending from the right eye over the whole right side of the head; after ten days this violent headache subsided into a dull continuous pain over the right eye which with the chemosis of the conjunctiva lasted nearly two weeks longer.

In these symptoms we have the evidence of an acute inflammation which preceded from the eviscerated eye. This inflammation probably followed the tract of the optic nerve to the chiasma, then invaded the optic nerve of the left eye and following its tract down to the eyeball finally produced the ophthalmoscopic evidence of neuritis in the papilla of the left eye. In this way I think the optic neuritis in our case was developed and, therefore, may justly be looked upon as the after effect of the evisceration. This opinion is materially strengthened by the fact that the neuritis in the left eye did not begin to subside until all signs of inflammation in the right eye had disappeared. And when we consider the fact that a violent and prolonged irritation after evisceration such as we have observed in this case, is not an unusual occurrence; when we know it occurs after smooth and easy operations as well as when the evisceration has been difficult and tedious, it must be admitted that even the most carefully executed evisceration creates conditions which may possibly lead to sympathetic inflammation, and that in this respect evisceration appears a less safe operation than enucleation.

In the after effects evisceration compares very unfavorably with enucleation. After the latter operation the patient seldom suffers much, and may be discharged from the hospital in three to four days. After evisceration great pain is the rule, as we have seen, and the recovery is very slow; Dr. Bunge found in 240 cases nine days; Dr. Hecht in Schweigger's Klinik found in thirty-seven cases ten and two-fifth days the average time which the patient had to remain in the hospital.

It is claimed in favor of evisceration that it leaves a larger, more movable stump and thus furnishes better conditions for the movements of the artificial eye. This alleged cosmetic advantage seems to be generally conceded, and yet on closer examination it turns out to be all a myth. In order to obtain some accurate information in regard to the apparent movements of the artificial eye I measured its outward and inward rotations by the perimeter in the same way as we determine the degree of convergence or divergence in strabismus. I told the patient to look as far as he could to the right and found out at which angle of the perimeter the candle light was reflected in the center of the cornea of the glass eye; and then I made him turn his eyes as far

to the left as he could and again measured by the light reflex on its cornea the position of the glass eye. As the artificial eye follows as well as it can the rotations of the natural eye, I believe these measurements thus obtained represent the extreme limits of motion the artificial eye was capable of in every case. The results of my tests are given in the following instructive table:

PERIMETRIC MEASUREMENTS OF THE LATERAL MOVEMENTS OF ARTIFICIAL EYES.

PATIENT'S AGE.	STUMP.	WHEN OPERATION WAS PERFORMED.	DEGREES OF ROTATION.	
			INWARD.	OUTWARD.
L. S. 15	Enucleation . . .	10 years ago.	15	25
E. S. 21	Evisceration . . .	3 months ago.	20	20
A. C. 21	Enucleation . . .	1 year ago.	15	15
M. L. 22	Evisceration . . .	1 month ago.	15	25
Mrs. E. 50	Enucleation . . .	3 months ago.	20	25
G. L. 24	Enucleation . . .	1 month ago.	20	20
M. J. 42	Atrophic Eye . . .	20 years ago.	10	15
L. H. 22	Evisceration . . .	6 weeks ago.	15	20
Mrs. L. 20	Atrophic Eye . . .	10 years ago.	15	30

These measurements show there is absolutely no difference in the extent of the lateral movements of the glass eye, worn on an evisceration stump, and that worn on an enucleation stump; in either case the inward movements (adduction) varied between 15 and 20 degrees and the outward movements (abduction) between 15 and 25 degrees. These results were not surprising to me; for though I have heard so much about the larger, better stumps gained by evisceration I have found these stumps shrink away so much that three months after the operations there is no more of them left than what we find after a suppurative of the globe, and that it is difficult to tell by the stump whether enucleation or evisceration has been performed. This observation I have made not only in my own cases but also in eyes which had been eviscerated by other surgeons.

But even granting a larger permanent stump to the evisceration, I still maintain the artificial eye does not gain any material advantage by it. The largest and best movable stumps, superior to any furnished by evisceration, undoubtedly are those slightly atrophic eyeballs with well preserved vitreous, but complete loss of the cornea and iris (as the result of sloughing or surgical operation). Glass eyes can be worn over such atrophic globes, but they do not show any superior mobility. In my table there are two such cases; and we see that the one shows an unusually limited movement; and the other (the last in the list) shows no better adduction (15 degrees) than we get by enucleation or evisceration cases and exceeds their best abduction by 5 degrees only. These atrophic eyeballs had an excellent range of lateral rotation; and if the artificial eye could be cemented onto the atrophic globe it would, of course, follow the rotations of the latter, and the cosmetic effect would be perfect, because the artificial cornea would describe lateral rotations as perfectly as the natural cornea. But as the artificial eye is not fastened to the stump, the latter does not impart its motions to the super-imposed glass shell and the axis of rotation of the glass eye lies much in front of the stump. When, therefore, the glass eye seems to turn to the right or left, its cornea shows very little lateral movement, its principal motion being a rotation on its vertical axis so that its center faces to the right or left. On this account the movements of an artificial eye will always be confined to narrow limits, whether the glass shell be inserted after enucleation or evisceration.

If I sum up all the clinical facts, I should say evisceration has nothing to show in its favor, while it compares decidedly unfavorably with enucleation in the frequent violent reaction and slow recovery, and therefore does not deserve to take the place of enucleation.

PANOPHTHALMITIS—FATAL MENINGITIS FOLLOWING ENUCLEATION OF THE EYE.

Read in the Section on Ophthalmology at the Forty-fourth Annual Meeting of the American Medical Association.

BY S. D. RISLEY, M.D.

ATTENDING SURGEON AT THE WILLS EYE HOSPITAL; LECTURER ON OPHTHALMOLOGY IN THE UNIVERSITY OF PENNSYLVANIA; PROFESSOR OF OPHTHALMOLOGY IN THE PHILADELPHIA POLYTECHNIC AND COLLEGE FOR GRADUATES IN MEDICINE, PHILADELPHIA.

John M., age 47, but appearing at least 67, presented himself at the Wills Eye Hospital Dec. 12, 1892, bearing a letter from his physician, Dr. D. T. Linné of Media, Penn., under whose care he has been for a severe attack of iritis in the left eye. The disease proving rebellious, he was advised to seek hospital treatment. He was in feeble health, suffering from severe pain in the eyeball and with violent left hemi-crania; vision was reduced to quantitative perception of light. There was deep ciliary injection, small pupil, slight haze of the cornea and the remnant of a blood clot was still lying in the lower angle of the anterior chamber. There were numerous posterior synechia and dilated blood vessels could be seen coursing over the surface of the iris. Tension was normal but the anterior chamber shallow. He was placed in bed, blood extracted from the left temple and calomel and soda purge given, eserine being instilled locally. He experienced very prompt relief and one week later vision was somewhat improved, the blood clot absorbed, and the ciliary injection less marked but no view of the fundus could be obtained. There was simply a gray-red reflex from the pupil. When seen two days later, there was a fresh red blood clot lying in the pupil and on the upper and inner pupillary rim of the iris and a large blood vessel could be seen entering it from which the blood was apparently issuing. As yet there was no pain, but the hemorrhage was soon followed by decided increase of tension and the ball became tender to pressure and with it his headache returned. He lost appetite, became sleepless and the general health rapidly declined. Under a careful regimen, however, the health improved, the blood clot once more absorbed and the eye became quiet but showed a tendency to frequent recurrences of increased tension and ciliary redness. During one of the intervals of freedom from acute symptoms a broad iridectomy was made upward. The iris was found friable; the operation was smooth and successful, but bleeding was profuse and the eye was bandaged with the anterior chamber filled with blood. There was no undue reaction and the blood clot slowly absorbed, but the wound refused to heal. In ten days there was a pouting black mass lying in the wound, but slightly elevated above the corneal limbus, and occupying the entire line of incision. The operation was done under antiseptic precaution and the eye was subsequently kept bandaged, being thoroughly washed with bichlorid solution at each dressing and dusted with iodoform. There were no visible signs of suppuration but his health steadily failed, his hands were hot and there was a hectic flush on his cheeks, but only slight if any rise in his temperature. The eyeball was soft; there was no dread of light and no pain or headache. He was greatly depressed in spirits, felt that he was going to die and begged to be allowed to return to his home. The eye was then enucleated on Jan. 25, 1893, and found filled with pus. The nerve was severed well back, the orbit thoroughly drenched with bichlorid of mercury solution, well dusted with iodoform and bandaged for twelve hours. He made a rapid and favorable recovery without suppuration of the stump. The infiltration of the tissues of the orbit absorbed rather more slowly than usual but his health rapidly improved so that on the fourteenth day, February 7, he was discharged from the hospital apparently well, certainly with no symptoms to awaken apprehension regarding his future. One week later, February 15, twenty-one days after the excision of the eyeball, he sent for his physician, Dr. Linné, but in his absence

was seen by Dr. J. H. Fronfield, to whom I am indebted for the following history: "He complained only of weakness and disgust for food, the temperature was normal and throughout the subsequent history remained either normal or sub-normal; although taken twice daily at no time was there any rise. There was at this time some suppurative of the stump, he was anemic, the tongue pale, large, flabby and indented. He was not considered seriously ill. Calomel and soda were prescribed to move the bowels and he received an elixir of iron, quinin and strychnia as a tonic.

February 18, 10 a.m. Bowels have been freely moved but can not take the tonic. Urine free from albumen. 7 p.m. Decidedly weaker; very melancholy; is sure he will die. No pain in the eye; pupil reacts promptly.

February 19. In bed; very drowsy; is aroused with much difficulty; rapid pulse; reflexes are normal. The right eye shows no muscular deviation; there is no ptosis or dread of light. There is no increased suppurative of the stump and no swelling of the orbital tissues; respiration very irregular, at times normal and then extremely rapid, subsiding once more to normal. No tenderness of the spine; hearing good; no pain and no vomiting. Obstinate constipation.

February 20. Only partially aroused and that with great difficulty and lapses immediately into unconsciousness. The head is drawn backward. From this time he remained in a state of profound coma with irregular breathing and the backward traction of the head developed into marked tonic opisthotonos, the man resting upon his heels and head until the 26th when he died.

No autopsy could be secured. At my request Drs. G. C. Ellet and W. R. Parker, resident surgeons at the Wills Eye Hospital, made for me a careful examination of the excised ball, and I append their report: "In the region of the corneal wound the epithelium has proliferated considerably and the superficial layers of the cornea are thickly infiltrated with round cells. There is no union of the lips of the wound, the space between them being occupied by iris tissue covered with organizing inflammatory products. The iris is pushed forward, adherent to the cornea by heavy organizing bands in the neighborhood of the wound, the anterior chamber being reduced to a slit. The portion of the iris which is not prolapsed is covered with a layer of lymph and pus, and where the pupillary space is visible it is filled with a heavy membrane continuous with that in the iris. This is continued backward on the under surface of the iris, filling the posterior chamber, and passing with a mass of pus which fills the vitreous chamber. The ciliary body seems but little affected, but the retina and choroid are thickly infiltrated with pus as far anteriorly as they can be identified. The inner layers of the sclerotic are also attacked. Further back, the retina is lost from the specimen. Toward the posterior part of the eye the choroid is represented by a thick layer of pus thrown into folds, and stellate pigment cells scattered through it serving to identify it as choroid, none of the vascular structures being visible. The optic nerve is in a state of inflammation, the round-celled infiltration being pronounced as far back as the specimen shows. A few lymph corpuscles are present in the nerve. There are no changes in its vessels."

Dr. Fronfield's careful report leaves no room for question but that this man's fatal illness was due to cerebro-spinal meningitis. The consideration of great interest to the ophthalmic surgeon is its possible relation to his suppurative panophthalmitis and the enucleation of the eyeball. The exact character of the intracranial lesion must, in the absence of an autopsy, remain in doubt.

Two possible explanations are at hand: first, that the meningitis was a mere coincidence, having no relation to the ocular conditions; the other, that the

fatal meningitis was infectious and that it was set up by germs conveyed through the cut tissues and open vessels in the orbit to the membranes and venous sinuses of the brain. It would be a comforting view of the case could we feel assured that the first proposition was a correct solution of the unfortunate sequel.

The very close relation that exists between the eyeball and the intracranial mass would lead us to anticipate serious danger to life from its excision. Such expectation would moreover be greatly strengthened by the frequency with which we observe ocular disease as secondary to disease of the brain and its membranes. But however frequently we may witness ocular disturbances as secondary to intracranial inflammations, experience shows that the reverse is extremely rare, except in the case of malignant disease. Furthermore it has been shown by ample experience that excision of the eyeball is fraught with but little danger to the patient. That it is not entirely devoid of danger to life, however, is evidenced in the fact that there have been forty-six reported cases of meningitis, forty-two of which proved fatal. Four of these, all fatal, should possibly be excluded as having been subject to malignant disease.

These cases have been again and again tabulated and reviewed, so that it is not necessary for me to go over this well-known field again, except to add to the number already known. Individual cases were collected by Nettleship to the number of thirty-four in 1886, (*Transactions Ophthalmological Society United Kingdom 1886*) including a case occurring in his own hands at the Moorfields Hospital, and which he made the basis of an admirable review of the subject. In the discussion which followed, McHardy reported two cases of fatal meningitis following the removal of the eyeball, and a third where the meningitis and death followed suppurative panophthalmitis, the ball having been freely opened but not removed. Dr. Joseph A. Andrews, in the *New York Medical Journal*, Dec. 29, 1888, has again tabulated the cases, omitting the four non-fatal cases of Nettleship and adding others finding thirty-six fatal cases. My own case here reported, Mr. McHardy's two cases and three others occurring in the practice of my colleagues in Philadelphia but not heretofore reported make a total of forty-six cases of meningitis following enucleation.

H. D. Noyes, M. D., has again briefly reviewed the subject in the *Transactions American Ophthalmological Society for 1888-89*, with the intention of studying the dangers attending excision in suppurative panophthalmitis. He there collects 3,742 enucleations at the various clinics with but one death, and suggests that the deaths which have occurred are probably about one 4,000 enucleations. There have, however, been 1,131 enucleations at the Wills Hospital in Philadelphia in twenty years, eighty-five of which are recorded as for suppurative panophthalmitis, and one death here reported. Three of my colleagues report each one case of fatal meningitis as having occurred in their practice there during the years mentioned, but no details of them could be found on the hospital records by the House Surgeon, Dr. Parker who kindly went over the books for me. This would make a total of 4,873 enucleations and five deaths if these three cases and my own are included. On the other hand, there has been no case of meningitis at the large clinical service at the

University Hospital since it was established. In any case it is plain from these figures that the operation for excision of the eyeball is more free from danger than one would expect, having in view its critical anatomical relations.

The fear which is entertained regarding the danger from the excision of suppurating balls, moreover, does not seem to find support by reviewing the testimony furnished by the reported cases, since only half of the cases, where the point is mentioned were suppurating eyes. This statement, it is true, loses some of its force by the fact that the teaching of von Graefe as to the danger to be apprehended from excising suppurating eyes has doubtless had a restraining influence over the practice of surgeons in such cases. The fact that the excised eye had been opened, either by accident, operation or inflammation, as pointed out by Nettleship, seems to be of more significance than the presence of visible pus, for in a large majority of all the cases where the history is sufficiently complete to determine the point, the eyes had at some time been opened.

In the study of my own case here reported, in the light of the published experiences one finds much confusing testimony. In the first place the length of time which intervened between the excision and the onset of the meningitis favors the view which would regard the meningitis as a coincidence. The longest time heretofore reported is eight days while in mine it was twenty-one days. The rapid recovery, without orbital inflammation, together with his great improvement in general health immediately after the operation all seem to point strongly against any causal relationship between the enucleation and the meningitis.

A very important inquiry at this point is as to the possible secondary nature of the eye disease. In reviewing the man's history it now seems possible, if not probable, that his severe headache and impaired health may have been due to a low grade of meningitis, and that I was at fault in regarding the head symptoms as entirely due to his severe eye disease. Although I did not suspect any cerebral complication, nevertheless the treatment directed for his relief viz.:—local blood letting, the calomel and soda purge, potas. iod. et. bromid, and later mercurial inunctions were well devised to relieve a meningitis had they been directed with that purpose in view. Certainly they afforded him prompt relief from his very severe pain both in head and eye.

The absence of orbital symptoms at the onset of the meningitic symptoms affords but little comfort, since in only four of the cases as far as I can find was there any inflammation or irritation of the orbital tissues present, while in many more it is distinctly stated that no connection could be traced. The inflammation of the optic nerve and its sheaths is noted in four cases, three of which are the same as noted with orbital inflammation. The report of Drs. Elliot and Parker shows that in my case also the optic nerve was in a state of active inflammation as far back as the specimen extended. Whether this process had invaded the eye from within the cranium or had invaded the brain from the eye must forever remain in doubt. I am free to say that I incline to the first, for the reason besides those already stated that the symptoms which ushered in the fatal illness were the same as those I had observed in the hospital before the excision.

It must be remembered, however, on the other hand that all the conditions were here present which have in these cases seemed to favor the production of this disease. There was the inflamed and suppurating ball, and more than all a ball which had been recently opened, a condition, as has already been pointed out, which was present in nearly all of the reported cases where it was mentioned at all.

INTRA-OCULAR INJECTIONS OF SOLUTIONS OF VARIOUS ANTISEPTIC SUBSTANCES; AN EXPERIMENTAL INQUIRY.

Read before the Section on Ophthalmology, at the Forty-fourth Annual Meeting of the American Medical Association.

BY G. E. DE SCHWEINITZ, M.D.

CLINICAL PROFESSOR OF OPHTHALMOLOGY, JEFFERSON MEDICAL COLLEGE;
PROFESSOR OF OPHTHALMOLOGY, PHILADELPHIA POLYCLINIC;
OPHTHALMIC SURGEON, PHILADELPHIA AND CHILDREN'S HOSPITALS.

A number of researches have been published concerning the effect of the introduction of various substances, solid and liquid, into the vitreous chamber. These may be summarized as follows:

1. The introduction into the vitreous of foreign bodies (pieces of wire, lead, glass, etc.), or of irritating liquids (croton oil, tincture of iodine, etc.); 2, the injection of sterilized blood into the vitreous humor; 3, intra-ocular injections of various antiseptic liquids.¹

Researches belonging to the first class, from the time of the publication of Pagenstecher's essay on the pathology of the vitreous² to Leber's superb work,³ are chiefly concerned with the behavior of the vitreous towards these foreign substances, and with the complex problems which surround the pathology of inflammation. Researches of the second class, which date from the imperfect experiments of Legros,⁴ to the thorough investigation of the subject of blood injections into the vitreous by Pröbsting,⁵ have been undertaken to study the deportment of the retina under these circumstances, and to add to our knowledge of the mechanism of retinal detachment and the production of proliferating retinitis. Researches of the third class have been conducted chiefly to test the therapeutic value of the injection of antiseptic fluids directly into the vitreous of an inflamed eye; for example, one suffering from hyalitis, or from sympathetic ophthalmitis, or to try their efficacy in preventing an inflammation of this character after the eye has been exposed to the influences likely to produce it.

Abadie,⁶ in 1890, suggested the propriety of injecting 2 drops of a solution of sublimate, 1 to 1000, into a wounded eye which has caused sympathetic ophthalmitis of the other eye, which should also be treated with a similar injection directly into the vitreous humor. According to him, these injections were of use in checking and ameliorating the inflammatory process. Subsequently he published⁷ three

¹ Experiments to determine the effects of injections into the anterior chamber, for example those performed by Axel (Revue Générale d'Ophthalmologie, T. viii, 1888, p. 313) do not belong to the present classification. As Dr. Berry pointed out, injections into the anterior chamber and into the vitreous can scarcely be compared.

² Archives of Ophthalmology, Vol. I, p. 560.

³ Die Entzündung der Entzündung und die Wirkung der Entzündungserregenden Schadlichkeiten. Leipzig, 1891, p. 177 et seq.

⁴ Journal de la Anatomie et de la Physiologie, 1873.

⁵ Archiv f. Ophthalmologie, Bd. xxviii, Abt. III, 1892, p. 114.

⁶ Pathogénie et traitement de l'Ophtalmie sympathique. Annales d'Oculistique, Vol. ciii, 1890, p. 183.

⁷ Nouveaux cas d'Ophtalmie Sympathique, Guéris par les Injections intra-oculaires de Sublimé. Annales d'Oculistique, Vol. civ, 1890, p. 229.

cases of sympathetic ophthalmia cured by intra-ocular injections of corrosive sublimate, the strength of the injections being in two instances 1 to 1000 and in one 1 to 500.

In the discussion of a paper communicated by Darier, Abadie's Chief of Clinic, to the French Society of Ophthalmology, on the 8th of May, 1891, concerning sub-conjunctival injections of sublimate in ocular therapeutics, the question of intra-ocular injections of the same drug received attention. Wecker regarding the transition from intra-ocular to sub-conjunctival injections as a decided advance, and doubting the efficacy of the former method of administration. In the close of the discussion, Abadie expressed himself as willing to abandon the intra-ocular injections of sublimate for sub-conjunctival injections, provided it is demonstrated that they are more efficacious, inasmuch as certain observers have doubted their efficacy and, moreover, have not merely been disappointed in their results, but have seen positive harm follow.

Occasionally reports of successes from the use of Abadie's treatment of migratory ophthalmia have appeared in the journals; for example, Baquis reports a remarkable case of this character: a woman aged 26 years sustained an injury of the left eye, resulting in an adherent leucoma. At the end of three months chronic irido-cyclitis produced sympathetic ophthalmia in the left eye. The author then injected 3 drops of a sublimate lotion, 1 to 500, into the sympathizing eye. Marked improvement occurred. At the end of eight days the injection was repeated, but there were also twelve mercurial frictions, which caused the absorption of the exudates in the pupillary field, showing that there was an intense neuro-retinitis in the sympathizing eye. At the end of six months the cure continued. This author states that he was encouraged to use Abadie's method, not only by the results obtained by the reporter, but on account of the researches of Dr. Ovio of Padua, on the intra-ocular circulation and the nutrition of the vitreous. This experimenter definitely asserts that weak sublimate lotions may be injected into the vitreous without causing chronic lesions, and without causing the vitreous to diminish in any way the microbicidal power of the sublimate solution, no matter how weak they may be.

Darier¹⁰ states that he has experimented in 1889, on rabbits with the intra-ocular injections of "various substances," and that in studying daily the modifications produced by the substances on the vitreous body and the deep membranes of the eye, he was struck by observing how promptly the solutions thus introduced were absorbed without causing excessive disturbance, provided they were very dilute. The character of the substances is not described in the paper to which reference has been made.

At a meeting of the Ophthalmological Society of the United Kingdom, Nov. 10, 1892, Berry¹¹ gave an account of some facts elicited by experiments on rabbits, undertaken by his assistant, Dr. Chasaud, with the object of ascertaining the effect of different

solutions of various antiseptic substances. In the details of these experiments, as given by the abstract given by the author, it is to be noticed, that in the first series of experiments, the vitreous was found to be very sensitive. The antiseptics used at first were, first, a weak solution of bichlorid of mercury, in which some quantity of potassium chlorate was added, the vitreous was found to be very sensitive, and the injection was tolerated by the eye and vitreous body. Second, antiseptic fluids. In two cases of purulent conjunctivitis in man, chlorid water injected into the vitreous led to immediate improvement and the eyes were saved, although sight had been lost before treatment was adopted. In the discussion which followed, Griffith suggested the propriety of the use of trichlorid of iodine as an intra-ocular injection—an antiseptic, as is well known, which has been much lauded by Pfäfer and others in France. Berry expressed the belief that the use of intra-ocular injections was a distinct advance in ocular therapeutics, and Mr. Hartridge, referring to cases which frequently occurred where the injection of a germicidal solution was evidently indicated, thought that if this method could be demonstrated to be a safe one, a very desirable addition to ocular therapeutics would be made.

Therefore, both from the clinical and the experimental standpoint, it is desirable to add new data. Those which I present are entirely experimental and comprise:

1. The injection into the vitreous chamber of rabbits of various antiseptic substances, namely, bichlorid of mercury, 1 to 500, 1 to 1,000 and 1 to 5,000 respectively; cyanuret of mercury 1 to 1,000; aqua chlorinata, official strength; blue pyoktanin 1 to 1,000 and trichlorid of iodine 1 to 1,000.

2. The injection into the vitreous chamber (dogs and rabbits) of an emulsion of staphylococcus pyogenes aureus of the sixth generation, and after the development of purulent hyalitis the injection of antiseptic fluids (bichlorid of mercury and aqua chlorinata).

3. The simultaneous injection of the staphylococcus emulsion and the antiseptic fluids.

FIRST SERIES.

Experiment 1.—2, 8, 1893. Full grown, slate-colored rabbit. Five minims of bichlorid of mercury solution, 1 to 500, injected into the vitreous, 2, 9, 1893. Vitreous cloudy and at the upper portion somewhat in the position of the injection, a large, dark cloud and a smaller detached one lower down, 2, 20, 1893. No change in the permanent lesion of the vitreous.

Experiment 2.—2, 17, 1893. Full grown, black rabbit. Five minims of bichlorid of mercury, 1 to 1,000, injected into the right vitreous; 2, 20, 1893. Vitreous cloudy, 2, 24, 1893. Vitreous entirely opaque; practically no reflex from the fundus; 3, 1, 1893. Rabbit killed and eye placed in Müller's fluid.

Microscope.—Choroid edematous; retina practically indistinguishable, being merged into a tissue composed of round and oval cells, well developed fibers and blood channels, through the outer layers of which are freely scattered oval and round densely pigmented cells. Additional areas of blood corpuscles and patches of granular debris are visible.

Experiment 3.—2, 17, 1893. Full grown, white-nosed Maltese rabbit. Five minims of bichlorid of mercury, 1 to 1,000, injected into the right vitreous, 2, 20, 1893. Large, greenish-white cloud occupying vitreous, 2, 24, 1893. Similar appearance, giving somewhat the appearance presented by connective tissue formation in vitreous, 3, 6, 1893. Eye removed and placed in Müller's fluid. Ophthalmoscopically the vitreous was occupied by a huge whitish mass covered with reddish spots, probably hemorrhages, and giving the impression of extensive detachment of the retina.

Microscope.—Fine granular debris in anterior chamber; remains of vitreous granular, but no connective tissue

⁸ Des injections sous-conjunctivales de sublimate Thrapeutique oculaire, Arch. d'Ophthal., Vol. XI, 1891, p. 449.

⁹ Annali d'Ottalmologia, Vol. XXI, fasc. 4 et 5, Abstr. Arch. d'Oph., December, 1892, p. 781.

¹⁰ Des injections sous-conjunctivales de sublimate. Annales d'Oculistique, T. CIV., Avril, 1893, p. 242.

¹¹ Intra-ocular Injections of Antiseptic Solutions. Ophthalmic Review, December, 1892.

formation. Choroid imperfect and detached (section, however, broken somewhat, hence possible fault in technique); retina extensively detached, in places normal in structure, but in others proliferation of Müller's fibers, connective tissue framework, passing into vitreous and forming a delicate network of fine fibers. (Compare results obtained by Probsting loc. cit. page 139.) The lesions are analogous to proliferating retinitis.

Experiment 7.—2, 17, 1893. Full grown, gray rabbit. Five minims of bichlorid of mercury, 1 to 5000, injected into the right vitreous. 2, 20, 1893. Large, dark cloud occupying vitreous. No change before rabbit's death, four days later.

Experiment 8.—5, 5, 1893. Full grown, buff-colored rabbit. Two minims of bichlorid of mercury, 1 to 500, injected into left vitreous. Immediately afterwards two air bubbles and a small circular cloud visible with ophthalmoscope. 5, 9, 1893. Dark opacity in the vitreous up and out, stationary, and resembling a fly's wing. The rest of the vitreous clear. 5, 11, 1893. Opacity in the vitreous unchanged. 5, 17, 1893. Previously described opacity remains stationary. Slight general haze in the vitreous. 5, 20, 1893. Rabbit dead. No change in the opacity.

Experiment 9.—Large, buff-colored rabbit (pregnant). Two drops of bichlorid of mercury, 1 to 500, injected into the left vitreous. Immediately afterwards a dark streak marking the track of the needle, a small dark cloud just in the center of the vitreous. 5, 9, 1893. Circular opacity in the vitreous with small, central spot. The rest of the vitreous clear. 5, 11, 1893. The large circular opacity, with a smaller dark center described in previous note, unchanged. The remainder of the vitreous clear. 5, 17, 1893. Opacity in the vitreous of dense white color, shaped like two superimposed rings; rest of vitreous clear. 6, 1, 1893. No change in previously described opacities. Rabbit killed and eye placed in Müller's fluid; not yet examined.

Experiment 10.—2, 17, 1893. Full grown, black rabbit. Ten minims of aqua chlorinata injected into left vitreous. On withdrawing syringe a large blob appeared beneath the conjunctiva, and the vitreous seemed to be filled with a cloudy substance and several air bubbles. 3, 6, 1893. Extensive clouding of the vitreous, with probable detachment of the retina. 3, 20, 1893. Eye placed in Müller's fluid; no change, other than deepening of opacity, having occurred.

Microscope.—Choroid for the most part in place, but edematous, prolapse at point of entrance of needle. Retina extensively detached and scarcely recognizable, being associated with a band of tissue fiber and round and oval cells and inflammatory material extending from nerve entrance to anterior portion of eye.

Experiment 11.—2, 17, 1893. Full grown, white-nosed Maltese rabbit. Ten minims aqua chlorinata injected into left vitreous. 3, 6, 1893. Vitreous has remained clear; that is, there have been no dark opacities or white infiltrations, and the eyeground is visible without apparent change in the retina. 3, 20, 93. Eye placed in Müller's fluid, but not yet examined.

Experiment 12.—2, 17, 1893. Full grown, gray rabbit. Ten minims of aqua chlorinata injected into left vitreous. 3, 6, 93. Extensive white clouding of the vitreous, and probable detachment of the retina. 3, 20, 1893. Eye placed in Müller's fluid, but not yet examined.

Experiment 13.—3, 8, 1893. Full grown, white and gray rabbit. Ten minims of aqua chlorinata injected into right vitreous. 3, 11, 1893. Cornea hazy and no view of fundus. (Probable contamination from imperfect sterilization of needle.)

Experiment 14.—3, 8, 1893. Full grown white and gray rabbit. Five minims of aqua chlorinata injected into right vitreous. 3, 11, 1893. Large, greenish-white opacity well forward in the vitreous, giving the appearance of an old detachment of the retina, and connective tissue formation in vitreous. No change before rabbit's death, three days later.

Experiment 15.—3, 8, 1893. Full grown white and gray rabbit. Ten minims of aqua chlorinata injected into right vitreous. 3, 11, 1893. Large greenish-white opacity obscuring the entire vitreous. Eye removed and placed in Müller's fluid.

Microscope.—Retina and choroid for the most part in place and of fairly normal appearance, but well forward on right side a circumscribed detachment of retina, the space between retina and choroid being filled with a granular material, coagulated vitreous containing a number of hyperplastic vitreous cells.

Experiment 16.—4, 17, 1893. Full grown black rabbit. Ten minims of aqua chlorinata injected into right vitreous.

Immediately afterwards a large air bubble surrounded by a dark cloud. 4, 20, 1893. Circular white opacities and still some air bubbles present in the vitreous. 4, 28, 1893. Several large, white opacities hanging in the vitreous surrounded, however, by clear vitreous, permitting a view of the fundus. No hemorrhages in the retina and no detachment. 5, 9, 1893. Practically no change from note under 4, 28, 1893. 5, 17, 1893. Irregular, dense, white opacities scattered throughout the retina, between which the fundus is dimly seen, with evident patches of choroiditis down and out. 6, 1, 1893. No change from above. Eye removed and placed in Müller's fluid, but not yet examined.

Experiment 17.—4, 17, 1893. Full grown black rabbit. Ten minims of aqua chlorinata injected into right vitreous. Immediately afterwards numerous air bubbles surrounded by a cloud. 4, 20, 1893. Streaks of dark opacity and clouding the vitreous, partially obscuring the fundus. 5, 4, 1893. Entire vitreous opaque and whitish. Lens beginning to be cataractous. 5, 9, 1893. Diffuse opacity of the entire vitreous, presenting the general appearance of a white cataract. 5, 11, 1893. Eye removed and placed in boro-glycerin, but not yet examined.

Experiment 18.—2, 20, 1893. Full grown white and gray rabbit. Five minims of cyanuret of mercury, 1 to 1,000, into right vitreous. 2, 24, 1893. Vitreous cloudy and eyeground invisible. No change before rabbit's death.

Experiment 19.—2, 20, 1893. Full grown white and gray rabbit. Five minims of cyanuret of mercury, 1 to 1,000, injected into right vitreous. 2, 24, 1893. Vitreous cloudy and streaked, but appearances of whitish masses and detachment of the retina lacking. No clearing of vitreous before the rabbit's death, three days later.

Experiment 20.—Five minims of cyanuret of mercury, 1 to 1,000, injected into left vitreous. Immediately afterwards dark streaks in vitreous and several air bubbles. 3, 11, 1893. Vessels of the retina visible, but the vitreous hazy and streaked. Rabbit dead two days later, without change.

Experiment 21.—3, 8, 1893. Five minims of cyanuret of mercury, 1 to 1,000, injected into left vitreous. Immediately afterwards dark streaks in vitreous and several air bubbles. 3, 11, 1893. Vitreous shows large, greenish-white opacity obscuring the fundus. Eye removed and placed in Müller's fluid.

Microscope.—Choroid edematous; retina much broken and detached, due to imperfect technique; typical prolapse of choroid into wound made by entrance of needle. The internal portion of the puncture is closed with granular pigment cells from the choroid; beyond is a tissue composed of round and oval cells (granulation tissue) capped at the scleral orifice with pigment granules.

Experiment 22.—3, 8, 1893. Full grown gray and white rabbit. Exact repetition of Experiment 16.

Experiment 23.—4, 17, 1893. Full grown black rabbit. Five minims of cyanuret of mercury, 1 to 1,000, injected into left vitreous. Immediately afterwards, a large air bubble surrounded by a dark cloud. 4, 20, 1893. Whitish and darkish opacities in the vitreous partially obscuring the retina. 4, 28, 1893. Vitreous opaque and whitish. 5, 9, 1893. Scattered whitish opacities throughout the vitreous obscuring any view of the fundus. 5, 17, 1893. Entire vitreous opaque, of a dense white color.

Experiment 24.—4, 17, 1893. Full grown black rabbit. Five minims of cyanuret of mercury, 1 to 1,000, injected into left vitreous. 4, 20, 1893. Whitish and grayish opacities in vitreous, largely obscuring the retina. 4, 28, 1893. Entire vitreous filled with an irregular whitish mass covered with hemorrhages. 5, 9, 1893. Practically no change from note under 4, 28, 1893, except that in the upper and the inner portion of the vitreous there is a break in opacity, permitting a red reflex from the fundus. 5, 11, 1893. Eye removed and placed in Müller's fluid.

Microscope.—Choroid detached; retina not distinguishable, being bound up with extensive tissue formation in vitreous composed of young fibrous tissue, inflammatory cells, pigment cells and blood corpuscles.

Experiment 25.—5, 11, 1893. Large buff-colored rabbit (pregnant). Two minims of trichlorid of iodine injected into right vitreous. Immediately afterwards two air bubbles and a small ring of opacity visible with the ophthalmoscope. 5, 17, 1893. Large circular opacity of dense white color with a clear center directly in the center of the vitreous; the rest of the vitreous clear. 6, 1, 1893. Circular opacity described above, with strands of similar color passing in several directions through vitreous. Eye removed and placed in Müller's fluid, but not yet examined.

Experiment 26.—5, 11, 1893. Full grown buff-colored rabbit.

Five minims of blue pyoktanin, 1-1000, injected into right vitreous. Immediately afterwards a small purple cloud visible in the center of the vitreous. 5, 17, 1893. Irregular dark opacity up and in, and the entire vitreous of a faint, purplish hue. No detachment of the retina. 6, 1, 1893. No change before rabbit's death, two days ago.

SECOND SERIES.

Experiment 1.—2, 8, 1893. Full grown albino rabbit. Five minims of an emulsion of staphylococcus pyogenus aureus of the sixth generation injected into right vitreous. 2, 9, 1893. Some purulent conjunctivitis, entire cornea hazy, iris dimly visible below in the upper and inner portion of the cornea and yellowish, purulent mass. Five minims of bichlorid of mercury injected directly into the vitreous. 2, 10, 1893. Much increase in the purulent keratitis. Eyeballs soft. Germicidal injection repeated. 2, 17, 1893. Rabbit dead from general infection.

Experiment 2.—2, 24, 1893. Full grown white and gray rabbit. Production of extensive hypopyon keratitis and probably purulent hyalitis by emulsion of staphylococcus. Five minims of bichlorid of mercury 1-5000 injected without result. Rabbit dead from general infection.

Experiment 3.—2, 8, 1893. Large mongrel poodle, full grown. Five minims of emulsion of staphylococcus injected into right vitreous. 2, 9, 1893. Slight conjunctivitis, cornea hazy and pus in the central layers. No view of fundus. Ten minims of bichlorid of mercury 1-500 injected into vitreous. 2, 10, 1893. Extensive purulent keratitis, the eye soft, injected, and apparently in a state of panophthalmitis. Germicidal injection repeated. 3, 8, 1893. No further treatment was given to the mongrel poodle except to wash his eye with warm water. The conjunctivitis gradually disappeared and the eyeball lost its inflammation. At this date the eye is quiet, slight injection of the episcleral vessels, no pus anywhere visible, the cornea hazy in its lower portion, but the iris visible above, being a result entirely unexpected after the injection of the staphylococcus.

Experiment 4.—2, 20, 1893. Gray and white rabbit. Five minims of staphylococcus emulsion injected into right vitreous. 2, 21, 1893. Five minims of bichlorid of mercury, 1-500, injected. 2, 24, 1893. Purulent ulcer and hypopyon and the rabbit dead of general infection.

Experiment 5.—2, 20, 1893. Full grown rabbit. Exact repetition of Experiment 4, with the same result.

THIRD SERIES.

Experiment 1.—2, 27, 1893. Full grown black rabbit. Five minims of staphylococcus emulsion injected into right vitreous, immediately followed by 5 minims of bichlorid of mercury, 1-500. 3, 1, 1893. Cornea infiltrated and a large quantity of pus in its lower portion. 3, 6, 1893. Entire cornea red, pus filling the anterior chamber. 3, 10, 1893. Eye intensely hyperemic; extensive hypopyon. No ultimate improvement.

Experiment 2.—2, 27, 1893. Full grown tan and white rabbit. Five minims of staphylococcus emulsion injected into right vitreous, immediately followed by 10 minims of cyanuret of mercury, 1-1000. 3, 1, 1893. Cornea cloudy and infiltrated. No view of the eye ground. 3, 6, 1893. Large mass of the appearance of lymph filling the anterior chamber and giving the impression of spongy iritis. 3, 10, 1893. Extensive hypopyon keratitis with purulent conjunctivitis. No ultimate improvement.

Experiment 3.—2, 27, 1893. Full grown gray rabbit. Two minims of staphylococcus emulsion, immediately followed by an injection of 10 minims of aqua chlorinata, into the right eye. 3, 6, 1893. Hypopyon keratitis. 3, 10, 1893. Entire cornea cloudy and infiltrated, and pus filling the entire anterior chamber. Eyeball removed and placed in Müller's fluid.

The thirty-one experiments which comprise this research may be summarized as follows:

Normal Eyes.—There were six injections with bichlorid of mercury, the dose varying from 2 to 5 minims; in all, permanent lesions visible with the ophthalmoscope were produced in the vitreous; two eyes examined with the microscope showed extensive new formed connective tissue in the vitreous, together with detachment of the choroid and retina on the one hand and, on the other, lesions indicating an early stage of proliferating retinitis.

There were eight injections with aqua chlorinata,

the dose varying from 5 to 10 minims. In all, permanent vitreous lesions were produced, except in one (Experiment 8), in which the vitreous remained clear; that is, there were no well-formed dark opacities, or white areas of infiltration. One eye in this series was contaminated by imperfect sterilization of the syringe. Two eyes were examined with the microscope, and showed in one after thirty-one days had elapsed, extensive detachment of the retina and the formation of a band of tissue composed of young cells and fibers constituting the so-called inflammatory material, which passed from the optic nerve entrance through the entire vitreous; and in the other a circumscribed detachment of the retina three days after the injection.

There were eight injections with cyanuret of mercury, the dose being 5 minims in each, and causing in every instance positive lesions in the vitreous demonstrable with the ophthalmoscope in the form of more or less dense opacities. Two eyes examined with the microscope showed in one detachment of the retina, hernia of the choroid into the wound produced by the puncture with the needle, causing traction on this membrane; and in the other twenty-five days after injection, extensive tissue formation in the vitreous of the type previously described.

There was one injection of trichlorid of iodine, the dose being 2 minims, resulting in dense opacity of the vitreous. There was one injection of blue pyoktanin, resulting in a purplish discoloration of the vitreous, and a cloudlike opacity.

Pathological Eyes.—In the first series there were five experiments—four rabbits and one dog—purulent hyalitis going on to purulent ophthalmitis, having been produced by staphylococcus emulsion. The inflamed eyes were treated by injections of bichlorid of mercury directly into the vitreous, the dose being 5 and 10 minims, and varying in strength from 1-500 to 1-5000. The rabbits failed to show any signs of amelioration, and died from general infection. The dog showed no improvement at first but gradually improved, and one month after the last injection, only two having been given, was discharged with the eye comparatively quiet, a moderately dense macula being all that remained of an inflammation which at its height gave evidence of the most extensive purulent kerato-iritis, probably ophthalmitis.

In the second series there are three experiments, all rabbits, who received a simultaneous injection of staphylococcus emulsion and 5 minims of bichlorid of mercury 1-500, 10 minims of cyanuret of mercury 1-1000, and 10 minims of aqua chlorinata official strength respectively. In no case was there the slightest improvement. The eyeball of Experiment 3 treated with aqua chlorinata was examined with the microscope and showed purulent infiltration of all of the coats of the eye—in other words, an acute panophthalmitis. Hence it is evident that in the normal eyes injected with solutions of various antiseptic substances, only one escaped positive permanent lesion easily visible with the ophthalmoscope, and situated usually in the vitreous, more rarely in the choroid and retina. This exception occurred with aqua chlorinata, and is so unexpected a result that suspicion is not lacking that there may have been failure to introduce the drug as thoroughly as in the other eyes, although there is no note as to any imperfection in the experiment. It is mentioned, however, because as will be remembered, Dr.

Berry has found that chlorin water was better tolerated by the retina and vitreous than other strong antiseptic fluids.

These experiments certainly fail in confirming the observations of Ovie, that weak solutions of sublimate may be injected into the vitreous without causing chronic lesions; that is to say, a solution of 1:5000 will produce as much disturbance as a lotion of 1:500. It seems evident from the experiments that under any circumstance more would depend upon the dose of the drug injected than upon the strength of the solution used. Two minims seem to be much less likely to cause a general clouding of the vitreous than 5 or more minims, but none the less, even in this small dose, in each instance they caused a chronic and dense vitreous opacity. In addition to the lesions which are so evident with the ophthalmoscope, the microscope shows that they were not confined alone to the vitreous, and that others, not ordinarily detectable, were present. Thus, according to circumstances, we deal with edema and rarefaction of the choroid; sometimes with its detachment; with detachment of the retina and a type of retinitis analogous to that which is designated proliferans; and with connective tissue formation in the vitreous of extensive character. Not only this, but it is interesting to note that in two of the punctures examined there was well-marked hernia of the choroid. How much such incarceration of this membrane would add to the danger of the treatment it is difficult to decide. It is suggestive of the fact that other punctures in operative surgery in this region may be followed by a similar result.

The entire failure to check the purulent inflammation called into existence by staphylococci emulsion, by injecting into the vitreous strong solutions of bichlorid of mercury, or to prevent its occurrence by a simultaneous injection of a solution of bichlorid of mercury, cyanuret of mercury, or aqua chlorinata, is instructive, as showing an indifferent therapeutic power on the part of these injections; but it should be remembered in all fairness, that the inflammation was exceedingly active, that the number of experiments is comparatively few, and that the animals used were rabbits, whose well-known susceptibility to all agents that cause suppuration render them peculiarly liable to the activities of the staphylococci, and equally difficult to impress with counteracting remedies. The apparent cure of the mangled ear is interesting as an isolated fact, but can not be accepted in strong confirmation of the treatment chiefly because it is a single experiment and needs confirmation. In fact, to test the therapeutic value of these injections, dogs should be submitted to a similar series of experiments.

The evident conclusion of the whole matter, from the experimental standpoint of the present research is, that the vitreous, choroid and retina withstand badly intra-ocular injections of various antiseptic solutions; that these injections in rabbits have no influence in preventing or checking a purulent inflammation originated by staphylococci injection; that in a dog intra-ocular injections of bichlorid of mercury were followed by the cure of a purulent ophthalmitis; that if the drugs are to be employed, the dose should be a small one, probably not more than 2 minims, in this respect conforming with Verne's original recommendation.

DENDRITIC KERATITIS.

Read in the Section on Ophthalmology at the Forty-Fourth Annual Meeting of the American Medical Association.

BY WM. H. WILDER, M.D.

PROFESSOR OF OPHTHALMOLOGY, CHICAGO POLYCLINIC; PATHOLOGIST AND ASSISTANT SURGEON TO THE ILLINOIS CHARITABLE EYE AND EAR INFIRMARY, ETC.

In 1871, at the Heidelberg Ophthalmological Congress, Horner¹ described a disease of the cornea characterized by the appearance of numerous vesicles arranged in groups, accompanied by severe pain, photophobia, lachrymation and conjunctival irritation coincident, in many cases with herpes febrilis of the nose, lips, eyelids and other parts of the face. In the thirty-one cases observed by him, there was in every case some catarrhal inflammation of the respiratory passages, and in twenty-eight there was present a herpes of the nose or lips. To this affection Horner gave the name, "herpes febrilis cornea."

Inquiry as to the cause of this condition has been further prosecuted by subsequent writers, notably by Mlle. Kendall,² a pupil of Horner, who in 1880, analyzed 115 cases from the Zurich clinic.

These were differentiated from Zoster and classed as herpes febrilis. As to the general diseases that were held to have some causal relation to the corneal affection, coryza, catarrh, or cough preceded or co-existed with thirty-six; pneumonia with thirteen; passing chill and fever eleven; intermittent fever three; rheumatism two; gastric catarrh two; hay fever, typhoid, toothache, whooping cough, cessation of a chronic discharge of nose, erysipelas each caused one case; two occurred while patients were in childhood; some mild illness accounted for three; while in thirty-seven there was no existing malady or assignable cause for the herpes of the cornea.

With these observations accord well the opinion of Godo³ who attempted to differentiate a symptomatic and an idiopathic form of the malady; in the former of which there was a period of general illness followed by the appearance on the cornea of vesicles which, breaking down, left small ulcers. Godo observed that malarial infection was present in nearly one-third of his cases, and ascribed to it the cause of the corneal herpes. Still later, Haab, who succeeded Horner in Zurich, Fuchs, Adler and others have noticed the frequency of herpes of the cornea following influenza. A valuable contribution to this subject is an inaugural thesis by Wangler,⁴ which appeared in 1889, and contains a study of all the cases, 150 in number, that had been observed in the Zurich clinic since 1871. This number shows nearly 4 cases to each 1,000 patients (about 0.37 per cent.), which indicates that the affection is not so rare as has been commonly supposed.

In the Ophthalmological Section of the Eighth International Congress of Medicine at Copenhagen in 1881, Hansen-Grut reported a condition of the cornea which he termed "dendritic keratitis." He describes it as "a superficial ulceration with a chronic course and a tendency to become serpiginous." It begins with slight pain and conjunctival injection. The epithelium ulcerates rapidly and during the whole course of the malady, the pain, injection and photo-

¹ Zehender's Klin. Monatsbl. 1871, p. 26.

² Josephine Kendall, "Herpes cornea," Inaug. Diss., Zurich, 1880.

³ De l'herpes febrilis de la cornea, Recueil d'Ophthal., 1880, p. 184.

⁴ Ueber herpes cornea, Zurich, 1889.

⁵ Transactions of Eighth International Congress Ophthal. Section, Aug. 1881.

phobia are comparatively insignificant. "The ulceration continues to propagate itself, *adans tons les sens*,⁵ by means of buds or excrescences, so that the line of demarcation of the ulceration, which remains very superficial during the whole course, becomes very irregular. The surrounding parts remain perfectly clear and the cornea does not become vascular. This affection must not be mistaken for vesicular keratitis. It is in no way connected with frontal herpes, nor with herpes accompanying bronchial catarrh or pneumonia, the form so well described by Horner." In a later communication, he differentiates dendritic keratitis from herpes cornea and says: "In the former there is no question of vesicles, and in no case was there any previous disease that could have occasioned an herpetic eruption."

Somewhat later, Emmert,⁶ apparently without a knowledge of the contribution of Hansen-Grut to the subject, recorded and described six cases of a new affection, which seems from the description to be similar in nature to those seen by the latter author. In these cases there was a form of ulcerative keratitis beginning as a point of grayish sub-epithelial opacity, from which branches were thrown out, these in turn dividing and throwing off branches to either side. The ulceration was progressive but remained superficial and was accompanied by more or less photophobia, lachrymation and redness of the conjunctiva. On examination of scrapings from the furrows he found bacilli.

While both writers suspected that the malady was of mycotic origin, Emmert believed it to be connected in some way with the scrofulous and tuberculous diathesis, but Hansen-Grut denies this influence. Emmert observed in a number of his cases that the point of departure was an ulcer, possibly from some abrasion, or from a foreign body on the cornea, which seemed to furnish the door of entrance for the microorganisms. Both these writers appear to have been unaware of the fact that Chas. J. Kipp⁷ of Newark, N. J., in 1880, four years previous to the announcement by Hansen-Grut of the discovery of a peculiar dendritic form of ulceration of the cornea, had read a masterly article before the American Ophthalmological Society, describing an affection which, in its salient features is remarkably similar to that recorded by the Danish observer, but ascribing the cause to malarial infection. "This ulceration," he says, "is commonly first noticed shortly after an attack of intermittent fever, often simultaneously with the appearance of herpetic vesicles on the nose and lips. In a number of patients who had annual visitations of this fever, each attack was regularly followed by the ulceration of the cornea." The ulceration began with severe pain in and around the eye, especially along the course of the supra-orbital nerve, with circumcorneal injection, photophobia and lachrymation, symptoms which in Hansen-Grut's cases were quite insignificant. If examined early enough, one or two slightly raised opaque lines were seen on the cornea, which on the following day had increased in length and had been transformed into a shallow ulcer. He does not speak of the epithelium being raised to form vesicles. The ulcer spread slowly by sending out at places club-shaped, slightly raised, grayish offshoots from its sides, which were nothing more than small areas of

new infiltration in connection with the already ulcerated area. In this way was formed a branching, dendriform ulceration which had a tendency to extend over the greater part of the cornea if not checked.

In most of Kipp's cases, the ulcer remained superficial and showed no tendency to extend deeply as in serpiginous infected ulcer; and a hypopyon was rarely seen in connection with it. In this respect, as well as in chronicity and the length of time required for complete healing, this ulcerative process resembles that described by Hansen-Grut, while in most particulars, the description accords so well with that of Emmert, that one is constrained to believe the process is the same. Within the past eight months, three cases of this interesting affection have come under my observation, which although presenting no new features, resemble in some respects all the so-called different varieties of this condition.

Case 1.—J. P., age 30; Polish; came to Chicago, Polielinie March 30, 1892, with a superficial ulcer of the left cornea which began a few days before as a soreness of the eye. There was considerable temporal pain, lachrymation and photophobia. On the cornea was seen an ulcer beginning near the upper margin and extending downward, and on each side of it was a little branch or bud that suggested at once dendritic ulceration. No history of any recent illness was obtained, but he had suffered from malaria some years ago. He was given quinia sulph. grs. iv t. i. d. The ulcer extended and seemed to become deeper. Small offshoots were thrown out from the main branch, but after crossing the central part of the cornea the process ceased and healing took place rather rapidly so that by April 22 he was well.

The opacity that remained marked the course of the ulcer. (Fig. 1.) The treatment consisted of instillations of atropin gr. iv. 3i., hot applications to relieve the pain, and quinin.

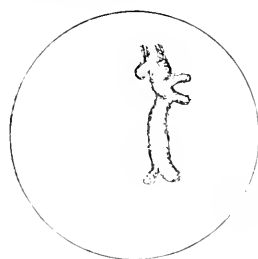


FIGURE 1.

Case 2.—J. G., age 52; was first seen June 15, 1892, at the Chicago Polielinie, when he complained of pain in left eye, with great lachrymation and photophobia. Trouble began eleven days before, and had been gradually increasing. A superficial ulcer of the cornea could be seen extending from above downward. This branch had a small offshoot to the left, and the floor of the ulcer had a grayish appearance. There was severe temporal and frontal pain, and pressure upon the supra-orbital nerve and its branches caused excruciating pain. Patient had suffered extremely from malaria when in the army, nearly thirty years ago, and since then had had from time to time attacks of neuralgia, malaise, etc., that he attributed to malarial poisoning. Cornea was not anesthetic. Ocular and palpebral conjunctiva considerably injected. Ordered grs. x. of quinin early in the morning, for the pain seemed to be most severe in the forenoon; atropin and hot applications to the eye. Two days later he seemed to be better, and the dose of quinin was diminished.

June 25, Ulcer seemed to be spreading downwards;

⁵ Centralblatt f. praktische Augenheilkunde 1885, p. 202-311.

⁷ Transactions of the American Ophthal. Society, 1880.

⁶ Op. cit.

⁷ Op. cit.

another little bud was seen to the left. A few days later as the disease was not checked, the ulcer was cauterized thoroughly with 95 per cent. carbolic acid, after dropping into the eye a 2 per cent. sol. of fluorescein in order to differentiate the ulcerated area, which was then stained green, the healthy cornea remaining uncolored. The eye appeared better next day; the upper part of the ulcer had healed, but in a few days the trouble began again, the ulcer gradually creeping around the center of the cornea, always remaining superficial, the main stem sending off small branches. July 10 it was again cauterized, and Fowler's solution substituted for the quinin, 5 drops three times a day. In a few days the ulceration ceased and the cornea soon healed. (Fig. 2.) At no time in the course of the disease,

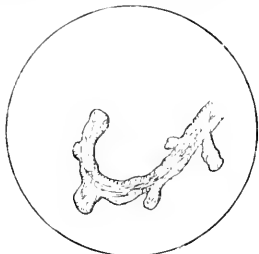


FIGURE 2.

was there any hypopyon or any evidence of inflammation of the iris. The opacity that remained some time was not very dense, and when the patient was last seen, seemed to be clearing away rapidly.

Case 3.—O. H., German; age 24; came under my care at the Cook County Hospital Oct. 8, 1892. Had hemorrhage of lungs two years ago, and was inoculated with Koch's tuberculin. Has lost flesh lately. Had some inflammation of eyes five years ago, and was fourteen days in a hospital. Two weeks ago recovered from an illness which was characterized by chill followed by fever and sweating, the paroxysms occurring every second day. Present trouble of right eye began two weeks ago with redness, dimness of vision, photophobia, lachrymation, pain and continuous irritation which gradually grew worse. On examination the conjunctiva was seen to be somewhat swollen and injected. On the surface of the cornea were superficial

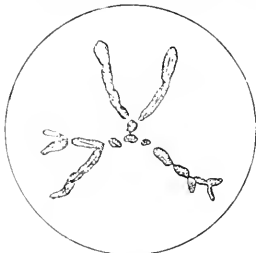


FIGURE 3.

ulcers arranged in a branching form. These minute ulcers had become confluent in some places, while in others they remained separated from each other by a narrow isthmus of unbroken epithelium. The instillation of a 2 per cent. solution of fluorescein brought out this point very distinctly.

(Fig. 3.) During the examination the patient had a severe chill which began at 1 p. m., followed by fever (T. 105, p. 120) and sweating. The examination of the blood by Dr. Hesse, the house surgeon, showed the presence of the plasmodium malarie. Ordered 15 grains of quinin in divided doses that evening, and the same quantity the following morning; after that 5 grains every four hours; atropin and hot applications to the eye. Patient improved rapidly, had no return of the chill and in a few days the ulcer was sealed leaving a faint opacity marking the course it had taken. There was no appearance of irritation of the iris.

Are the different writers who contend that they are describing essential and distinct forms of corneal

disease justified in their claims? Can it be proven that the "dendritic keratitis" of Hansen-Grut and the "keratitis dendritica exulcerans mycetica" of Emmert are separate and distinct forms of ulceration as these writers aver; or that Kipp's malarial keratitis is a variety occurring only as a result of miasmatic infection; or must we accept the opinions of Haab, Wangler, Kendall and Hagnauer that all these cases properly belong to the class of herpes febrilis originally described by Horner.

According to Hattenhoff,¹⁰ to whose article in the *Annales d'Oculistique*, of June, 1892, I am greatly indebted, Hagnauer, in a thesis for his doctorate written in 1891, presumably under the supervision of Haab, complains that during the last twelve years several authors have described as new, forms of superficial keratitis which were so like the herpes of Horner as probably to be the same. Hagnauer contends that the cases of Hock (Centraltbl. f. Augenheilkunde, December, 1885), Macrochi (Klin. Monatsbl. f. Augenheilkunde, Mai, 1890), Gillet de Grandmont (Archiv. d'Ophthalmologie, 1887, p. 422) belong in the category of herpes febrilis. He places also in the same class the cases of Kipp¹¹ and Van Millingen.¹²

In spite of the rarity of intermittent fever in Zurich, five cases are ascribed to this disease. Kipp's¹³ experience leads him to believe that malarial fever was the cause of the corneal disease in 90 per cent. of all the cases in which the peculiar ulceration was present. Furthermore, he thinks the affection is identical with that described by Hansen-Grut and Emmert, and does not doubt that it is of a mycetic nature.

The contention of the latter authors that in cases of dendritic ulceration there is no question of vesicles does not seem to be well grounded, since most cases would probably present themselves to the surgeon only after the delicate epithelium covering the vesicles had broken down, when only the minute ulcer would be seen. Haab has had the opportunity of seeing but one case in which the vesicles were intact. The further observation of these writers that in their cases there was no coincident herpes of the face, nor any febrile affection that would be likely to occasion such an eruption, only accords with the forty or more cases of Kendall, and the cases of others in which there was either no previous illness, or it was so slight as to pass almost unnoticed. The fact that in some cases the subjective symptoms of pain, photophobia and lachrymation are marked, and in others quite insignificant, certainly does not furnish a very accurate differential sign.

That attacks of malarial fever may induce an ulceration of the cornea that assumes a dendritic form, as has been so ably presented by Kipp, is unquestionable, but that the keratitis and the resulting ulceration are the direct result of the malarial poison is to be doubted. The fact that in many of Kipp's cases there was a simultaneous eruption of herpes vesicles on the face would point rather to the explanation that the corneal trouble was also herpetic and that the small vesicles quickly breaking down and becoming confluent, left the irregular branching ulceration. In my third case (Fig. 3),

¹⁰ *Annales d'Oculistique*, June, 1892.

¹¹ *Op. cit.*

¹² *Centraltbl. f. Augenheilkunde*, January, 1888.

¹³ *Trans. Amer. Ophth. Soc.*, 1889, p. 331.

which to my mind was unquestionably induced by the malarial fever, this point seemed to be clearly demonstrated. In this case, as shown in the figure, there were some very minute ulcers which seemed to be separated from the others in the branch by a narrow isthmus of unbroken epithelium, suggesting that the branch had been formed by the confluence and breaking down of little vesicles that were adjacent. The staining of certain points in the branch more deeply than others with fluorescein, seemed to indicate that these were the points of the original infiltrations. That anti-malarial treatment acts well in cases in which there is malarial poisoning has been pointed out by Kipp,¹¹ Hotz¹² and others, but this can hardly be cited as proof of the direct relation between malaria and dendriform ulceration. In Case 2, the exhibition of arsenic in 5 drop doses of Fowler's solution apparently worked like a charm, but I am still in doubt as to whether it was the anti-malarial or the caustic treatment that effected the cure.

Hagnauer observed sixteen cases of herpes corneæ, in a period of six weeks, in patients affected with the grippe, and Hansen,¹³ Pfleger,¹⁴ Greff,¹⁵ Eversbursch¹⁶ and others, have recorded cases observed in the last epidemics of influenza, that in appearance simulated keratitis dendritica. It seems quite probable that future observations will tend to simplify the pathology of this interesting subject by classifying all dendriform ulcerations as herpes of the cornea, rather than adding the complication of another variety of keratitis.

70 State Street.

TWO CASES OF BRAIN TUMOR WHERE OPTIC NEURITIS WAS THE ONLY POSITIVE SIGN—AUTOPSIES.

Read before the Section on Ophthalmology at the Forty-fourth Annual Meeting of the American Medical Association.

BY EDWARD P. MORROW, M.D.

OPHTHALMOLOGIST TO AULTMAN HOSPITAL, CANTON, OHIO.

Although pathognomonic symptom is a term in medicine, yet taken in its strict interpretation we have no symptom by which we can positively determine a disease without question. Taken in its better sense, a characteristic symptom of a disease, we may call optic neuritis a pathognomonic symptom of brain tumor. This has been so well established that it needs no discussion. The object of this report is not to further establish that fact, but to present two cases where optic neuritis was the first, and up to the time of its discovery, the only positive sign upon which a diagnosis could be based. For that reason I take it, brain tumor, with its ophthalmic aspects may be worthy of a discussion here, inasmuch as the ophthalmologist is sometimes called upon to give his opinion and to aid in the diagnosis of a case. To give positive or negative evidence as to choked disc may be all that is asked of him, but if he is also able by his knowledge of the relation between choked disc and intracranial diseases to differentiate between abscess, tumor, aneurismal tumor, etc., as well as to give some opinion as to its proba-

ble location within the skull, his services will surely be of more value than those of the specialist whose knowledge as well as his practice is limited to the eye.

Case 1.—Is a lad 17 years of age, well formed and well nourished, of good parentage. There is a large family of boys and girls all in good health. In April, 1887, he had a fall from a bicycle, striking his head and rendering him unconscious, from which he promptly recovered. From that date, however, he was under treatment from time to time, for what his physician supposed to be a general run down state. He had no special symptoms except weakness and malaise with occasional dizziness when walking. The physician under whose care he was at that time, tells me that at no time did he have any symptoms that led him to suspect any cranial trouble. In November, 1887, the family changed physicians and employed Dr. James Fraunfelder of Canton, Ohio. The boy made occasional visits to his office, complaining mostly of dizziness and occasional vomiting. The doctor suspected some head trouble, but continued to treat him expectantly until in December, when he took to his bed, saying he was too tired to be about. Shortly after this he complained that his vision was imperfect and confused. My service was asked Dec. 15, 1887, to determine the cause of his eye trouble, and if possible shed light upon the diagnosis. I found the patient in bed. His greatest complaint was that he was tired, did not sleep well, and did not want to exert himself. While he had had occasional headaches up to this time, they had not been severe nor localized. There was no paralysis or febrile condition. An examination of the eyes revealed moderately dilated pupils, that reacted to light rather sluggishly.

With such tests of his vision as could be made, it was found that he could read large types and distinguish objects in the room. His confusion of vision was probably diplopia, although it was impossible to make tests to prove it. Such tests as could be made showed no paralysis of ocular muscles. The ophthalmoscope showed at this time a double optic neuritis in the swollen stage, with numerous retinal hemorrhages in the region of the disc. The revelation of the choked disc with the history of the head injury and character of the symptoms led at this time to a provisional diagnosis of cerebral abscess in the latent stage. The later gradual and uniform development of symptoms changed the diagnosis to that of brain tumor. These symptoms were, gradual and increasing pain, localized to right side, vomiting, gradually increasing in frequency. Facial paralysis and paralysis of external rectus muscle of right side. At no time was there rigor or rise of temperature, nor were the symptoms sudden or rapid, thus excluding any suppurative process. During the last week of his illness he had several epileptiform convulsions; except during these, he retained consciousness and a fairly good intellect up to the time of his death, which occurred the last week in January, 1888, five weeks after the ophthalmoscope revealed the optic neuritis.

Autopsy.—Body fairly well nourished. Calvarium removed, external and internal surface of skull normal. Calvarium not unusually adherent to dura mater; dura mater hyperemic. Surface of brain when dura was removed showed no abnormality or asymmetry. No unusual amount of fluid in arachnoid space. Brain removed without membranes. The optic nerves when exposed showed no sight and touch no unusual appearance. Longitudinal sections of the brain were made from above downwards. The tissues were normal in appearance and consistency until the temporal lobe of right side was reached; here the tissues began to soften from above downward until a glomus, pear shaped, amber in color, soft and somewhat commingled with the cerebral substance was found, lying at the base of the middle lobe. Its long axis, more than two inches, was directed backward and inward. The large end, over an inch in diameter, was backward and within the temporo-sphenoidal lobe, the small end forward and outward.

Case 2.—Also a young man, 19 years of age. The history I obtained is imperfect, as he was living in the country and did not consult any physician early in his trouble. When he did, he went the rounds of all of them, so that it is impossible to get any connected report. In November, 1892, he came into the hands of Dr. J. F. Marchand of Canton, Ohio, with whom I saw the case, and to him I am indebted for the following history of symptoms: he first complained early in the summer of 1892 of an unsteadiness of gait; this continued until late in the summer, but was not sufficiently annoying for him to seek advice. Later, however, he had

¹¹ Op. cit.

¹² Chicago Med. Journal and Examiner, December, 1881.

¹³ Hospital Tidende, 1891.

¹⁴ Reviewed in Annales d'Oculistique, Fev. 1892.

¹⁵ Berlin Klin. Wochenschrift Nr. 27, 1889, 1891.

¹⁶ Münch. Med. Wochenschrift, 29, 1889.

seasons of vomiting, and for this he saw a number of physicians without relief. In September of the same year he took to his bed, not because of any inability to be about, but apparently from the beginning of a lethargy which continued to develop and from which he never could be wholly aroused. When I first saw him in November, 1892, he was vomiting considerably and had by this time become somewhat emaciated. His intellect was dull, his condition was passive in the extreme. He answered questions in short, shouting monosyllables, yes or no. It took him considerable time to understand what was said to him, but when he did understand, his answers were intelligent and correct. He complained of some headache, but it was seldom severe, and at this time not localized. The first examination of the eyes made at this time revealed widely dilated pupils. Eyes straight. Tests showed remote and proximate vision normal. The media were clear and fundus normal, except considerable hyperemia of the disc, which by subsequent examinations proved to be commencing optic neuritis. Under treatment with bromids and ergot his vomiting ceased for quite a period and his condition somewhat improved.

A subsequent examination made January 15, 1893, showed a double optic neuritis in the swollen stage, with numerous hemorrhages in the retina. There was still considerable vision, as he was able to read a typewritten address on an envelope and other such tests as could be obtained. There was no paralysis of any muscle of the body, and at no time up to the time of death did any develop. The subsequent history is one of constant decline. Emaciation became extreme, although he ate largely and vomited but little. Toward the end he became blind, developed the cephalic cry and was reduced to imbecility. On the morning of March 12, 1893, he ate a hearty breakfast and died almost instantly afterwards.

Autopsy.—Body greatly emaciated; calvarium removed; membranes anemic; no arachnoid fluid; brain removed without membranes; surface of brain showed no asymmetry, but bloodless. Sections of brain made horizontally from above downward, nothing abnormal except anemic condition until ventricles were opened. These were enormously enlarged and distended with fluid. Further sections of the cerebrum showed no evidence of lesion. When the cerebellum was examined a tumor, disc shaped, about one-half inch in thickness and two inches in diameter, was observed upon the superior surface of the cerebellum, covering the superior vermiciform process and extending about equally over each lateral hemisphere. The tumor was a soft gliona and broke down under slight pressure. An examination of the optic nerves showed nothing abnormal to sight or touch.

Among the points of interest, those especially claiming attention are I think, 1, that the ophthalmoscope was the first to give objective and positive evidence of a cerebral lesion in either case; 2, the obscurity of the symptoms and the similarity in both cases of cerebral abscess in the latent stage. In Case 1, a positive diagnosis was not made until late, on account of the head injury being taken as a cause of abscess. In Case 2, a diagnosis of brain tumor was made, not because of any uniform symptoms of brain tumor, but because of the absence of any ascertainable cause of an abscess; 3, the location of the tumor. Tolerance of the nerve elements of the temporal lobe has been shown many times in abscess following injury or ear diseases. Tolerance is also shown in Case 1 to a tumor in the same location until it reached considerable size, when by encroaching upon the sixth and seventh cranial nerves, strabismus and facial paralysis resulted.

In Case 2, the remote position from intracranial nerves would account for the absence of paralysis of parts supplied by them. The mental condition in Case 2 was due, not to the location of the tumor primarily, but in all probability to the great distension of the central cavities of the brain and the consequent anemia, with its effect upon the nutrition of the elements. We find, however, in both cases, that while the other intracranial nerves tolerated the neo-

plasm, that the optic nerve succumbed to inflammation.

A point of interest in the autopsy is the absence of fluid in the arachnoid space in both cases, as well as the apparent normal state of the optic nerves to the unaided senses. No microscopic examination of the nerves was made to determine the condition of the sheath or intervaginal space.

Of the two prominent theories advanced for choked disc, namely, the lymph space and the vasomotor paralysis theory, I can not see that these cases add to or subtract from either. Certain it is that our knowledge of the pathology of optic neuritis is unsatisfactory and that neither of the theories, clever and enticing as they are, are able to withstand criticism or investigation. The conclusions reached by Gowers¹ are rational and in accord with the present state of our knowledge. He says: "It is probable that optic neuritis is rarely due to a single factor, and that the most potent element is the descent of a process of tissue irritation, which when it reaches the papilla sets up a more intense inflammation; that in some cases this influence is alone effective; that in others it is aided by the distension of the sheath which hinders the escape of effete products, increases edema, or even conveys irritating material.

"The distinction between optic neuritis and choked disc is one of degree and not of mechanism. So far as optic neuritis has any single significance, it is that of an irritative process within the skull."

DR. DE SCHWEINITZ—I have listened with interest to Dr. Morrow's paper, and would urge the importance of placing upon record, in connection with careful ocular examination, all cases of intracranial lesion, especially tumors, in which the position of the disease had been substantiated by a necropsy.

We all know that there are the so-called "quiet regions" in the brain. I had a case in my own practice, of large tumor of the right frontal lobe, without the presence of active symptoms until about thirty hours before death. The tumor occupied the white matter of the right frontal lobe as far back as the bases of the first and second convolutions, and from the ventricular surface involved the head of the caudate nucleus, and by softening, the structures as far back as the thalamus, and yet was practically, if not entirely, quiescent. Optic neuritis had been present for some time and was probably the only symptom of the brain tumor until thirty hours before death, when convulsions, hemiplegia and conjugate deviation of the head and eyes to the left side were noted. These symptoms were the result of a fresh hemorrhagic lesion in the left crus and on the left optic thalamus.

I would urge the importance of a careful examination of the field of vision in all cases, especially if operative interference upon the intracranial lesion is contemplated. I have the report of a case of epilepsy, not Jacksonian in type, which has existed for two years, with no other symptom save the convulsive attacks and headaches. The fields of vision were concentrically contracted. Two years later double optic neuritis and left lateral hemianopsia were manifest. On the strength of the late development, hemianopsia, Dr. Wood diagnosed a secondary lesion in the cuneus, thinking it probable that the original lesion, a tumor, was connected with the cerebellum, because this was the "region of silence" nearest to the area which gave evidence of the disease by reason of the hemiopic defect in vision. The patient was trephined by the late Dr. Agnew,

¹ Lectures on the Diagnosis of Diseases of the Brain. W. R. Gowers, M.D., F.R.C.P., 1884, p. 161.

and a cystic tumor, or area of inflammatory degeneration, found within the cuneus beneath the gray matter. The patient died, and at the autopsy a large tumor occupying the second and third temporal convolution of the right side and approaching the fourth convolution, was discovered, together with a patch of hemorrhagic softening in the cuneus and a line of softening running nearly the whole length of the center of the occipital lobe. The field of vision in this case correctly located a lesion in the cuneus, although it gave no evidence of the tumor in the temporal lobe on the right side, which hence may be involved without the production of immediate direct symptoms. This case, utilized to illustrate the importance of the field of vision in localizing intracranial lesions, has been fully reported, both from the neurological and the surgical aspect, by Drs. Wood and White.

Dr. Morrow—In reply to Dr. de Schweinitz's remarks regarding the field of vision, I will say that it was impossible to get any satisfactory tests of the field. Such rough tests as were possible were of no value, and so were not reported.

I believe it to be highly important to impress upon the general practitioner the necessity of early and frequent examinations in cases of suspected head trouble, as well as in those cases where the diagnosis is clear, for the reason that positive evidence can often be obtained by the ophthalmoscope and perimeter, both as to the condition and location, that would escape other means.

PURULENT OPHTHALMIA FROM THE STAND- POINT OF ITS SPECIFIC MICROBIC CAUSE;

WITH A PLEA FOR A MORE ENERGETIC, RATIONAL, ABOR-
TIVE TREATMENT WHERE POSSIBLE.

Read before the Section on Ophthalmology, at the Forty-fourth Annual Meeting of the American Medical Association at Milwaukee

BY ALFRED HINDE, M.D.

SENIOR SURGEON EYE AND EAR DEPARTMENT, CENTRAL FREE DISPENSARY; OPHTHALMOLOGIST TO THE NEUROLOGICAL CLINIC, AND ASSISTANT TO THE CHAIR OF OPHTHALMOLOGY IN RUSSIAN MEDICAL COLLEGE, CHICAGO, ILL.

(Concluded from page 563.)

Mauriac¹² decides that "the abortive treatment is indicated and has some chances of succeeding in acute gonorrhea only during the first hours of its onset." Diday¹³ believes: "That in the early stage every gonorrhea can be aborted," and "that the abortive treatment is neither locally nor constitutionally dangerous." Two methods may be followed: a strong solution may be used for a short time in the urethra or a weaker solution may be left in contact for a longer time. A 5 per cent. solution of nitrate of silver is allowed to remain in the urethra from forty to ninety seconds, according to the pain produced. A free discharge occurs after two days, and as a result of the burning may continue for four days and then gradually ceases in a few days more. The abortive treatment is considered worthy of trial in view of the serious complications at times following a gonorrhea. If possible complications govern the use of abortive treatment of an urethral gonorrhea how much more urgent is this plan in a similar inflammation of the conjunctiva, because of their infinitely greater frequency and more deplorable results to the eyesight of these cases. According to Horner¹⁴ the blind in different countries owe their loss of eyesight to this disease in from 20 to 79 per cent.

In the newborn eye, Credé¹⁵ of Leipsic, recommended the instillation of one drop of a 2 per cent. solution of nitrate of silver and had the satisfaction of noting a reduction of purulent attacks from 7.5 to 0.5 per cent. In the lying-in hospital of Halle,¹⁶ under the same treatment these cases fell numerically from 12 to 3 per cent. *The mechanical removal of the destruction of the conjunctiva is the suppurative indication in all these cases. Remove the discharge and the loosened epithelium by watery solution and brush, using at the same time and in the meantime an energetic solution of the most powerful microbicide as possible.* The personal element in the treatment of all diseased conditions enters largely, and the followers of a plan are not always as successful as the originator. On this account, though all agree upon the same remedy, a few still advocate its use in strong solutions most carefully applied, for direct destructive effect; whereas, a more numerous company nowadays use nitrate of silver in weak solutions more freely and without injurious risk and with equally good results. Without known exception, it is decided that the remedy should only be used after suppuration has commenced.

Such a conclusion I most forcibly condemn as inaccurate and unscientific, and cite as my authorities the pathological facts of this paper, and those of my own clinical experience. For years past I have looked upon all forms of conjunctivitis as closely associated with mycotic processes, and have treated them on anti-bacillary lines, and invariably their severity and duration have been most favorably modified thereby. If one microbe can produce a colony, and the latter only results in that wonderful process of attraction of leucocytes from blood vessel to mucous surface, and which we designate suppuration, where is the wisdom of waiting microbic multiplication with its resultant pus before applying our anti-bacterial methods. *Here, without bacteria no pus* is sound anti-septic teaching, and if we destroy, or remove them from the conjunctival surface, where recently implanted, or few in number, we will avoid the appearance of suppuration and escape entirely the so-called acute stage of the case under consideration.

Under any circumstances ample irrigation with thorough brushing of the conjunctival surface for the mechanical removal of secretion and microbes fills the indication. For the purpose of removing microbes from an infected instrument, H. Knapp¹⁷ in 1886 found that irrigation with running water was insufficient, but by rubbing the blade with his fingers at the same time as washing and afterwards polishing with a towel he succeeded in sterilizing it. Gayet¹⁸ of Lyons, after carefully disinfecting the conjunctival sacs of his cataract patients still found that microbes remained in 75 per cent. of them on making cultivation experiments. Hence simple water, or solutions of antiseptics, with irrigation of the conjunctiva alone, are insufficient to insure thorough cleansing, and Knapp's rubbing of the instrument finds its parallel in a thorough brushing of the conjunctiva. This method, however, did not suggest itself to me in this way, but was thought of as an ordinary common sense procedure. If brushing will remove germs from a dermal surface why not also from a mucous membrane?

A fountain syringe and light pressure was suggested years ago by Dr. C. S. Bull.¹⁹ A mucous solu-

ent in the shape of bicarbonate of sodium, will be a good addition to simple sterilized water, and again it is indicated because the gonococcus grows best in an acid medium, and Dr. M. A. Castilian¹⁷ called attention to this fact and recommended its use in gonorrheal cases in solutions of 8 to 10 per cent. He claimed that in old cases in which other remedies had failed the alkaline medication "led to rapid and complete recovery." In a later communication¹⁸ he claims to have had excellent results in acute gonorrhea from the use of a 1 per cent. solution. A watery solution of boric acid can be used ad libitum, though we can not say this of solutions of corrosive sublimate, for Dr. Friedheim¹⁹ of Leipzig, working in Prof. Neisser's clinic, has called attention to the fact that "perchlorid of mercury even in solutions of 1 to 20,000 causes pain and the anti-bacillary action is not great" in gonorrheal cases. The conjunctiva, however, is not as sensitive as the urethra to this remedy, idiosyncrasy being excluded.

Friedheim had an unusual advantage of observation, in 1,200 cases of gonorrhea, difficult of cure by the ordinary plans, and in the laboratory of discovery of the gonococcus, his investigations were carried out on anti-bacillary lines, and his conclusions are worthy of our attention in so far as we can apply them to the treatment of the conjunctival inflammation. He tried to find out the best remedy that on local application would most completely kill the gonococcus, lessen the inflammation, and promote epithelial desquamation. The best²⁰ results were obtained from a solution of nitrate of silver varying in strength from 1 to 4000 (gr. $\frac{1}{4}$ to $\frac{31}{16}$) to 1 to 2000 (gr. $\frac{1}{4}$ to $\frac{31}{16}$). Injections of the amount of 300 minims and retained for three minutes, were made three to six times daily, which were followed by increased and more purulent discharge; "But in about four days the secretion diminishes, becomes thin and contains a quantity of epithelium. The gonococci also diminish in a remarkable manner and after a few days disappear altogether. When this has taken place the number of injections of nitrate of silver is reduced to two and afterward to one daily, and other injections such as boric acid, or some preparation of zinc (or tannic acid) are used as well. But in spite of the almost total disappearance of the discharge the one daily injection of nitrate of silver is to be kept up for many weeks." Where nitrate of silver is not so well borne even in weaker solutions than those mentioned, a certain amount of success was gained by substituting solutions of "salicylate of mercury 1 in 270, with sodium chlorid, which completely destroys the cocci without much concomitant irritation." Other local remedies are referred to only to condemn, because of their uselessness as anti-microbes in permissible strength without producing undue pain and inflammatory reaction. "In the very rare cases in which no anti-bacterial injection could be tolerated internal remedies were resorted to." *The best percentages of complications was found in the use of nitrate of silver injections.* Neisser himself, at the recent meeting already referred to, when considering treatment, says that medicines should only be used which: "a, destroy gonococci; b, increase the inflammation as little as possible; c, have no injurious action upon the mucous membrane, such as solutions of nitrate of silver 1 to 1-1000 to 1 to 1-2000, ammonia sulpho-ichthyolate 1 to 100, sublimate 1 to 30000 to 1 to 20000." Thus

science teaches what empiricism has long known by clinical experience, that of all remedies nitrate²¹ of silver is the one *par excellence* for specific catarrhal inflammation of mucous membranes. Our therapeutics have scarcely advanced in equal ratio with our recent bacteriological progression, yet the foregoing observations are sufficiently exact to show us that *weak solutions of this favorite remedy are amply sufficient to destroy the gonococcus without endangering any of the ocular tissues, and without causing undue pain and inflammatory reaction.*

With the foregoing data as a guide I have long treated my conjunctival catarrhs with such satisfactory and rapid recoveries that now I care not whether they are specific or simple in character provided they are seen before complications of the eyeball impend, or have already occurred; provided also that my patient, or friends will intelligently favor and follow the treatment prescribed.

When seen during the incubative stage I regard with especial probability of a specific origin all cases of rapidly increasing conjunctivitis in the newborn; in females of every age and condition; in right eyes in right-handed, and in left eyes in left-handed adults.

If suppurative has already ensued; or, in adults, if inquiry elicits the information of a gonorrheal focus previous to the appearance of the eye inflammation, the diagnosis is without difficulty.

In all these cases free irrigation of the conjunctival sac, with thorough brushing of the tarsal portions and the retrotarsal folds is at once resorted to, generally without, but occasionally preceded by the use of a solution of cocaine. It is largely a matter of choice, in my opinion, whether you use sterilized water, solutions of bicarbonate of sodium, or boric acid, or the weaker solutions of bichlorid of mercury. The freshly made solutions of nitrate of silver of 1 to 4000 to 1 to 2000 appear to be of added advantage, and latterly I have, with increased satisfaction, brushed into the affected membrane in the absence of ocular ulceration, a limited amount of a 2 per cent. solution of nitrate of silver, washing off all excess after the brushing is ended. For a brush I cut off, evenly, half the length of fur of an ordinary camel's hair pencil, and find that the remaining stub is sufficiently firm for the purpose required. The brushing is continued until the parts are thoroughly clean and free from all secretion. Where cocaine is not used, some pain is complained of, and continues for a time after each treatment. This can be prevented by the use of cocaine before and during this short period of irritation. The ice cold applications of sterilized water, or weak antiseptic solutions on sterilized cotton, that are always applied in the foregoing lid and fornix inflammations, and used continuously between treatments and instillations, very quickly control any reaction due to the brush, and patients rarely complain of the method of treatment so great and rapid is the relief they experience from the severe eye symptoms of which they at first complained. In private practice daily brushings are carried out, but in dispensary cases where this is impossible it was found that when applied every second day the diseased process was rapidly controlled.

After two to four such thorough brushings the case is completely changed from a severe acute to a slight chronic inflammation with a corresponding decrease in the number of pus cells of the discharge. Further require-

ments are simple removal of the exudations and two or three applications, once in twenty-four to forty-eight hours, of a 1 to 2 per cent. solution of nitrate of silver, kept up until the reduced succulence of the mucous membrane and the decreased discharge call for the transient use of the usual astringent solutions.

If the foregoing method is adopted early enough and done thoroughly, complications never occur, and the duration of the infection is halved.

In those further advanced cases where adenomatous, thickened, and inflamed lid tissues prevent eversion of the upper lid, irrigation of the eye is as thoroughly accomplished as is possible, and where the cornea is intact, free use of two or three drops of a 2 per cent. solution of nitrate of silver, instilled into the conjunctival sac and the lids lifted from the ball so as to permit the remedy to reach the ultimate confines of the fornices, is the chosen plan of treatment. After waiting a few moments the eye is again flushed with simple diluent; and ice cold applications, and half hourly antiseptic instillations applied between daily office treatments.

The lid swelling is thus rapidly reduced so that turning can be accomplished in one to two days, and the described brushings resorted to. In those cases, when first seen, where complications of the eyeball impend, from lid-pressure causes, free canthotomy is done, because of its being the lesser of two evils. The part that the ocular conjunctiva plays in these specific inflammations appears to be different in its resulting exudate from that of the palpebral portion and that of the retrolarsal folds. The exudative inflammation of the latter is peculiar in the fact that its cellular elements are so numerous, whereas the chemotic exudation of the ocular, or scleral conjunctiva consists largely of fibrin-forming elements with some serum and few emigrating leucocytes.

A thorough believer in the bacterial pathology of to-day, and recognizing the character of the exudate into the scleral conjunctiva in the chemosis of these cases, I consider as worse than useless, for the purposes of pressure relief of a threatened cornea, the scarification of this portion of the conjunctiva. Knowing that, because of its connecting tear passages and on account of the presence of the ubiquitous pus microbe, it is practically impossible to insure aseptic operation of the conjunctiva under the best possible conditions of freedom from inflammation, as Fick,² in forty-nine perfectly normal conjunctival sacs, found only 12 per cent. without bacteria, and thirty-six others, affected with slight catarrh, contained them; knowing that an army of microbes, in these purulent cases, is only waiting a doorway of entrance, that fortunately the compact stratified epithelium of the scleral conjunctiva and cornea prevents, so that they can readily attack and overcome the tissues with greatly lessened physiological resistance on account of their impaired vitality;—how then can we expect to aid the nutrition by wounding without removing the fibrino-plastic exudate, and simultaneously opening up the lymph channels of the conjunctiva and subconjunctival spaces, these communicating with the same channels of Tenon's capsule, and those of the latter with similar lymph vessels within the sub-choroidal³ space of the eyeball, the pus microbes thus finding a ready made entrance with a possibility of terminating the case in the form of a suppurative choroiditis and loss of the eye. This

exudate may temporarily block the entrance way of the pyogenic microbes, but it is also the choicest soil for their growth and multiplication. For these reasons incision of ocular tissues for therapeutic purposes ought only to be a *desideratum* in infective inflammations of the conjunctiva. Moreover, in all purulent cases where early, effective, rational treatment is carried out, experience has shown that it is never necessary.

In the intervals between the personal treatments of these cases half hourly to hourly instillations of solutions of boric acid 2 per cent. to 1 per cent.; solutions of sublimate up to 1 to 5000; and fresh solutions of the nitrate of silver 1 to 4000 to 1 to 2000 have been used for home treatment. Of the above solutions I prefer those of nitrate of silver, and use them in all cases where reactionary irritation is slight or absent and the cornea intact. Many cases are greatly benefited by their use three or four times daily, the milder solutions being used in the meantime.

Low temperature of the lids checks the multiplication of the microbes and continuous ice-cold applications soon reduce the swelling, pain, and increased temperature of the ptomaine-poisoned parts. These are used as long as the acute-inflammatory stage continues, and are afterwards directed subsequently to each caustic treatment and kept up until the reactionary irritation has disappeared.

If when the case first appears there is ulceration and infection of the cornea sublimate solutions are chosen for irrigants, and, after cocaineizing the eye, a 1 to 500 solution, on a cotton-tipped probe, is accurately and thoroughly applied to the ulcerated surface once daily, holding the application against the cornea for five to fifteen minutes. The sublimate is five times⁴ stronger than carbolic acid as an anti-bacterial agent and the appearance of the eye after its use, as above, is free from that unsightly whiteness that carbolic acid, in its 95 per cent. solution, produces. All excess of solution is avoided and the eye is afterward irrigated. Where the cornea alone is involved, myotics are chosen as additional remedies, not on account of their myotic action, but because, after a preliminary transient increase, they produce a decrease of the intra-ocular tension by contracting the blood vessels, thus decreasing serous exudation. In this way they sustain somewhat, if they do not actually increase the nutrition of the inflamed and softened corneal tissues (Ad.⁵ Weber) by limiting pressure from behind. A mydriatic is the remedy where iritis or cyclitis impends, or has occurred, and in such cases only, because, after a preliminary reduction of tension, the intra-ocular fluids are increased by it, resulting in increased intra-ocular tension and added pressure from behind upon the inflamed cornea that will probably produce a staphyloma, and perforation of the latter. On this account a supportive compress bandage over the affected eye should in all these complicated cases be worn during the intervals of treatment. Paracentesis of the anterior chamber through the bulging cornea is never performed by me until perforation is assured, or positive, progressive, intra-ocular infection has supervened—for the reasons already given. Again, repeated⁶ experiments and clinical observation have shown that the eyeball, like other parts, can take care of without injury, and overcome or absorb, a certain proportion of infective bacteria without loss of the organ. Once more, a⁷ hypopyon is frequently

of non-microbic origin and its substance free from bacteria, and it is readily absorbed without damage to the eye. It is therefore in those cases only where the infection overcomes all resistance, either from the number or virulence of its microbes, that section is called for, and in these cases even, it can scarcely do more than relieve the tension pains of a panophthalmitic condition.

After the onset of ocular complications hot applications are used instead of cold ones, because they are more anodyne and comforting and less likely to further impair the decreased vitality of the tissues of the eyeball. I almost invariably advise them as hot as can be borne and applied with sufficient frequency and continuity to control all pain. They are used until reparative processes are well established. The antiphlogistic and supportive eye bandage is retained until the repaired cornea is again unyielding; as is also the myotic, unless contraindicated as above.

In one-eye cases the fellow eye is, where feasible, protected from the possibilities of infection by the usual eye shields.

Since instituting the foregoing treatment in my practice the lessened fear of cases of purulent ophthalmia has been conducive to increased personal comfort. Under it and when seen early the prognosis of simple and specific catarrh of the conjunctiva is practically the same. Where the treatment is faithfully carried out complications do not occur. The duration is greatly reduced. Where complications already exist, the only eyes that are lost are the ones, when seen, involved in a virulent, progressive and uncompassable ocular infection in which all therapeutics are without avail. The plan of procedure is but the compilation and application of facts gathered from numerous sources. Whatever originality appears has been born of careful observation and clinical experience, and with the sole desire to rationalize our treatment and enhance the value of our methods in the management of these often desperate cases. With full confidence I present this treatment for the consideration of those present, and feel assured that on its lines, faithfully followed, gonorrheal ophthalmia will fail to produce corneal complications in the usual three-fourths of the afflicted eyes and will equally fail to make blind the 40 per cent as found by Klein.²

CONCLUSIONS.

1. That all cases of purulent conjunctivitis are of microbic origin and due to Neisser's gonococcus.

2. That all cases originate from a gonorrheal focus, by devious paths, often, but not always traceable.

3. That those parts of the conjunctival sac having a cylindrical, or a modified cylindrical epithelium, viz.: the palpebral portions and that of the fornices, are the seats of election of the micro-organism.

4. That the location of the gonococcus on the mucous membrane is at first *superficial*, then *inter-epithelial*, and still later *sub-epithelial* and all combined.

5. That its special habitat is within the pus cell, and is also *endo-cellular*, as well as *intra-epithelial*.

6. That the associated inflammation of the adjacent tissues is due to the lymphatic absorption of the toxins of the microbe.

7. That the compact stratified epithelial layer of the scleral conjunctiva and cornea is very resistant to the attack of the gonococcus.

8. That ocular complications are due to pressure necrosis, producing an *infection atrium* through which the streptococcus and may be the staphylococcus find ready entrance to tissues with greatly impaired physiological resistance, and often rapidly destroy them—resulting in perforation of the cornea, intra-ocular infection and loss of the eye. This is a secondary infection.

9. That the therapeutical indication is the mechanical removal or destruction of the gonococcus, with its ptomaine, and that if this is done early and thoroughly in the weeping stage, the period of acute inflammation will be cut short and the ocular complications avoided.

10. That it is well in the incubative stage, even without positive evidence of a gonorrheal origin, to regard with suspicion all cases of severe monocular catarrh, and especially so in the female, irrespective of age or condition, and to treat them as if due to the gonococcus.

11. That the mechanical removal of the discharges and the loosened epithelia and therewith the microbe and its ptomaine, by thorough brushing of the *palpebral conjunctiva* and that of the *fornices* and ample flushing of the conjunctival sac with simple diluents or weak microbicidal solutions fulfills the etiological indication, and is non-injurious in all severe cases of simple catarrhal conjunctivitis.

12. That of all local remedies nitrate of silver is the most potent and, at the same time, least irritating microbicide we possess. It prevents complications, and can be used in sufficient strength to destroy the gonococci without risk of injury to *intact* ocular tissues, and that solutions of greater strength than 2 per cent. are unnecessary.

13. That in cases, when first seen, where complications already exist, brushing of the palpebro-fornix conjunctiva should be resorted to with thorough frequent irrigation of the conjunctival sac,—preferably with sublimate solutions up to 1 to 5,000. If undue lid-pressure exists *free* canthotomy is advisable; but scarification of the sero-fibrino-plastic chemosis of the scleral conjunctiva does not relieve exudative pressure on the ocular tissues, and it opens the doorway for secondary infection with pus microbes and is a dangerous proceeding.

14. Where the cornea alone is inflamed, the added guarded daily use of a bichlorid solution 1-500 to the infected area is the best treatment; together with myotics, not on account of the latter's mycotic action but because, after a preliminary increase, they reduce intra-ocular tension by contracting the blood vessels and diminishing serous exudation, and thereby they improve the nutrition of the ulcerated, softened corneal tissues. *Paracentesis* of the anterior chamber, through the bottom of the ulcer, is called for only in those cases where perforation impends, or where positive, progressive, intra-ocular infection exists.

15. The use of a mydriatic is best limited to those complicated cases where the uveal tissues are threatened, or inflamed, because, after a preliminary reduction, it increases intra-ocular tension by impeding the outflow of fluids from the eyeball, thus resulting in increased posterior pressure on the softened cornea,—impairing nutrition and aiding bulging.

16. A supportive compress bandage is antiphlogis-

tic and of great use in preventing staphylococcal results in complicated cornea, and its use ought to be continued until the healed cornea is again unyielding.

17. Ice-cold applications check microbic multiplication, and ought to be used *assiduously* to the end of the acute stage, or until ocular complications ensue. After the latter occur, applications as hot as can be borne are more comfortable and more conducive to the improvement of the nutrition of the impaired ocular tissues.

18. As a prophylactic in monocular cases, the other eye ought to be sealed against infection; and the risks to others, from these cases, thoroughly advertised.

19. The treatment of the initial focus of infection, where ascertainable in the affected subject, must be rigidly carried out on the same lines, and simultaneously with the conjunctival inflammation.

16 Laffin Street.

ARE AMERICAN WOMEN PHYSICALLY DEGENERATED?

BY EDMUND ANDREWS, M.D., LL.D.
PROFESSOR OF CLINICAL SURGERY, CHICAGO.

Some wild errors are afloat on the subject of woman's supposed degeneration. In the October number of the *North American Review* Dr. Cyrus Edson, Commissioner of Health for New York, gives a horrible picture of American feminine "deterioration."

He says that "there is at the present moment in this country a condition existing among the women which is the cause of the greatest alarm." It begins, in his opinion, in the schools, where by ambition and by rewards for success and disgraces for failure, growing girls are goaded to a disastrous amount of mental strain and over-brain work. "Thus stimulated they drive their brains and do the work" until their physical powers are wrecked, and in an "enormous number of cases . . . the women have broken down as the result of a lack of stamina sufficient to meet the physical strain of child-bearing." Again he says: "An increasingly large proportion of the women of the American race are unable to perform their functions as mothers."

"We seem to be able to bring the women up to a certain point in mental development, and then they cease to be able to be mothers." And again he says it is a "fact that an enormous and increasing number of our women are so exhausted physically" (by over study) "before marriage that the

birth of one child, or at most of two children, leaves them physical wrecks."

Again Edson says: "Let me briefly state facts as they are. An American girl, educated as it is our pride to educate her, marries the man of her choice amid the warm good wishes of all her friends. She is clever, bright, beautiful. . . . One, or at most two children are born, and if we meet her we scarcely recognize her. She looks dragged and worn, she is fretful and peevish, she has become a burden to her husband. . . . worse than all, because it is the cause of all, she is a confirmed invalid."

Now this does not convey a correct impression. The Doctor, if he does not quite say it, leaves the average reader to infer that an "enormous number" constituting a "large proportion" of the American women become "physical wrecks" and "confirmed invalids" after bearing "one, or at most two children."

Myself, and three friends while talking over these gloomy assertions, determined to "sample" the community, and see how many of the women known to us had become "physical wrecks" after bearing "one or at most two children." Each of us have an extensive acquaintance, not only in and around Chicago, but among families now located all the way from the Atlantic to the Pacific ocean. With pencil and paper we jotted down all the families whose condition we knew, mostly of New England, New York, Pennsylvania and Ohio origin. In short, they were nearly all purely American in blood. We took them all impartially, sick or well, without selecting or rejecting on account of health.

By a very moderate amount of conference together, supplemented by a little inquiry, we readily made a list of 163 families in which the mothers had borne from one to thirteen children. Classifying them according to their health we found the facts as follows:

1. Fifty-two mothers had borne from one to thirteen children each, and came out with robust, magnificent health; better than that of average men or women. Three of these had borne respectively eleven, twelve, and thirteen children, and came through in brilliant health. In fact the women with large families seemed on the average to come out the best.

2. Ninety-five mothers, who had borne from one to eight children each came out in good, average, nice health, without being, however, so robust as the first class.

3. Eleven were delicate, but not great sufferers.

4. Five were confirmed invalids.

No class of men or women is totally exempt from sundry ills, and occasional deaths, but we could not find a single one physically wrecked by childbirth in a constitution exhausted by over study. We found several who had been delicate before marriage, and became robust after bearing children.

When deaths occurred among these generally healthy women, it was from the occurrence of mechanical injuries, typhoid fever, consumption, cancer, pneumonia, etc., and not from previously exhausted systems "broken down under the physical strain of child-bearing."

These women, had already at the time of our enumeration produced about 545 children which averages over three and a third to each mother, and as many of them are still young, and nearly all healthy, they will yet add many more to the list of offspring.

37 Paris Cor. of the JOURNAL AM. MED. ASSOC. quoted by the Medical Record, Nov. 3, 1888, p. 552.

38 Gaz. des Hôpitaux, Oct. 13, 1891, quoted by Medical Record, March 26, 1892, p. 347.

39 Quoted by Noyes, loc. cit. p. 229.

40 and 41 Noyes, loc. cit. p. 300.

41 H. Knapp, loc. cit. pp. 45, 46, pp. microbes.

42 H. Knapp, Arch. of Ophthal., March, 1885, p. 46.

43 Noyes, Dis. of the Eye, 1890, p. 213.

44 A Treatise on Dis. of the Eye, J. Soelberg Wells, 1885, p. 118.

45 Arch. Med. Bulges, editorial, Med. Record, May 26, 1888, p. 356.

46 Medical Record, Sept. 19, 1891, p. 317.

47 Provincial Med. Journal, Jan. 1, 1890, from Arch. für Dermat. und Syph., also Med. Record, June 21, 1890, pp. 708-9.

48 Analysis in British Medical Journal, i.e.

49 Week's paper, Medical Record, Aug. 3, 1889, p. 114.

50 "Ueber Microorganismen und conjunctivaleck," Weisbaden, 1887.

From Noyes, loc. cit. p. 212.

51 Schwalbe, quoted by Noyes, Dis. of the Eye, 1887, p. 618.

52 See paper by Weeks, Medical Record, August 3, 1889, pp. 113-14. In recently published lectures in the London Lancet, Sir Joseph Lister regards carbolic acid used by his methods, as possessing greater germicidal qualities than corrosive sublimate. For eye use, if not generally, we are incredulous of the scientific accuracy of this conclusion.

53 Meyer, Dis. of the Eye, p. 75, Ed. 1887. 54 H. Knapp, loc. cit. p. 44.

55 Ibid. pp. 45-6. 56 Noyes, loc. cit. p. 310.

On the whole, we finished our extempore study with a cheerful conviction that the women are for the most part all right, and can be depended on to replenish the earth and rule in it in the future as they always have done in the past.

No. 6, 16th Street, Chicago.

GOLD IN THERAPY.

Read at the Meeting of the Mississippi Valley Medical Association, Oct. 4, 1893.

BY E. A. WOOD, M.D.
PITTSBURG, PA.

Gold is one of the old remedies which has been crowded to the wall by the more brilliant achievements of modern pharmacy. It is safe to say that one-half the medical profession never prescribe gold; the large body of the other half use it occasionally, while a very small minority employ it constantly in the class of cases in which it is best suited.

Gold, practically, to the main body of the profession, is a new remedy. From the company it has fallen in with of late, gold is open to suspicion, and whether it is a partner in the "Keeley Cure" or not, many will be prejudiced against it. It would seem timely and just to drag the old drug from its dusty closet, and tear it away from its bad company that we may learn what standing it really deserves in therapeutics.

What, then, is the pathological condition in which gold is especially indicated as a curative agent? Let us answer this question with as much precision as possible. If gold has a place in therapy it must fill a special place, for it, like all other drugs, is no universal panacea. What is its place?

What say authorities in reply to this question? In view of its great age, it is astonishing how meager the literature. It is still more astonishing that until within a very recent period we had practically but one preparation of gold—the chlorid of gold and sodium. That preparation to-day is the one given, and by it the standard of gold is rated as a curative agent. Gold is as old a remedy as mercury, and yet gold to-day is almost unplaced in therapeutics. The compounds of mercury are legion, its history voluminous, and its therapy accurately known and established. We know more perhaps about mercury than about any other drug; we know less of gold than of most drugs.

Authorities agree in declaring that the chlorid of gold and sodium is an alternative, behaving very like mercuric chlorid. No author gives gold a very wide range in therapy; no one attempts to name the exact pathological condition in which it is best indicated and most efficient; and nearly all who have written on gold in therapy, whether designedly or not, succeed in "darning it with faint praise." Syphilis is one of the diseases in which it is commended, some say in the secondary lesions, others that it is best suited in the tertiary form. The praise given gold in syphilis is not high, certainly not so loud as the praise given mercury. It is said to be aphrodisiac and emmenagogue. *Tubercularis*, cirrhosis of liver, lungs and kidneys are said to be cured by gold. Some praise it in diseases of the glandular system, especially in disease of the glands of the stomach and intestines, increasing appetite, and promoting secretion, digestion and nutrition. It is said to give force to brain action, to give courage to the despond-

ent, hope to the hypochondriac, and content to the melancholic. All speak of it as affecting the gums without salivation, producing an eruption of the skin and gold fever. The latter I have never seen.

That is the sum and substance of what therapeuticians say of the chlorid of gold and sodium. But there are three questions which are still unanswered: First, is the chlorid of gold and sodium more efficient in the lesions named than any other drug? Second, is gold in therapy limited to the one double salt? Third, what is the special pathological condition in which gold is most efficient as a curative agent?

Leaving out the first question for the present, I shall undertake to answer the other two as observation and experience have taught me.

My more immediate purpose is to direct your attention to some preparations of gold other than the chlorid of gold and sodium, samples of which are before you.

The first preparation I shall notice, and the one with which I am best acquainted, through prescribing it for the past seven months in the place of the double salt, is the liquor aurii et arseni bromidi. The successful combining of gold with bromin, mercury, arsenic and other metals, is owing to the indefatigable labors of Dr. W. F. Barclay of Pittsburgh, who persevered in face of the decree of some chemist that such compounds are impossible. There stands the liquid bromid of gold and arsenic. There stands the liquor of gold and mercuric bromid. Here are other preparations of gold combined with other metals. As there is no filtering employed in the manufacturing of these liquors, every atom of the metals must be present. The two liquors are, as you see, beautifully red and transparent, elegant as the garnet fluids in the show bottles of a druggist's window. I am not sure that it will not fade under exposure to light, but I know that after months standing not a shadow of sediment mars its complete transparency. It is almost tasteless. The dose—10 drops—contains one thirty-second grain of gold and one-sixteenth grain of bromid of arsenic. The mercuric bromid of gold contains one thirty-second grain each of gold and bromid of mercury to 10 drops, which is the dose. Each preparation is pleasant to take, is more readily absorbed than the chlorid of gold and sodium and, in my experience, more assimilable and active than the double salt. Of course the gold is modified and its action intensified by the combination with other metals. It is probable that gold will readily combine with all other metals used in therapeutics.

The class of diseases in which I have found gold to be peculiarly efficient, and in which it seems to be especially curative above all other drugs, is that class in which *sclerosis* is the chief factor. In naming *sclerosis* as a class, I am perhaps taking undue liberty with the nomenclature of the pathologist, since the term *sclerosis* is generally understood to mean induration of the tissues of the brain and spinal cord. Literally, it is proper to apply the term *sclerosis* to any organ or tissue in which induration is the factor. When we marshal such pathological conditions into a class, we shall find that *sclerosis* has a wider and, it seems to me, a more significant meaning than hitherto attached to the word and the lesions it names. It would seem as though we have reduced therapeutics to an exact science when, instead of a name, we establish an

exact pathological condition, with the remedy most efficient in removing that condition. That is the exactitude we have in gold as a special curative agent in all forms of sclerosis.

Cirrhosis of the liver, interstitial nephritis, atheroma and its associate, calcareous degeneration of the arteries. The circumscribed induration following embolism or bloodlet in the brain tissue, senility and its train of decrepitudes—for what is old age but a general sclerosis—all belong to the class I have named. Cirrhosis of the lungs, certain forms of consumption—fibroid consumption, miliary tuberculosis, and especially that form of consumption in which masses of lymph become organized in the lymphatics of the lungs as we see the process in the glands of the neck and called adenitis. Without naming all the lesions that may be classified under the head sclerosis, I will state, as my belief, founded on an experience of twenty years, that gold is far more efficient in them all than any other drug I know of. I desire to say in addition that the liquid preparations of gold as combined with bromin, arsenic, iodine and mercury are as much superior to the chlorid of gold and sodium as is quinin over the crude Peruvian bark.

In addition to its efficiency in the sclerosis it would seem as though gold, at least the liquor aurii et arseni bromidi, exercises a power as a tonic and nutrient to the nervous system, especially to the nervous systems of those who have advanced to fifty and beyond. May it not be that in cases of neurotic diseases of the aged there is a sclerosis? Certain it is that gold is not so efficacious in functional nervous ailments of the young. It is just to remember, too, that the association of gold with bromin and arsenic may have very much to do with its curative powers. But for all that, gold and its preparations is the medicine for those in middle life and in old age. It stimulates the brain, incites a flow of spirits, gives sleep to the sleepless, courage to the despondent and intensifies sexual desire and power. Gold should maintain physical vigor and prolong life even if taken when there is no disease except the inherited tendency to decay before reaching the Bible limit of life.

In presenting a few cases taken from my clinical day-book I beg leave to remark that I appreciate incredulity, and with that thought before me I am guarded in my statements, feeling that a modest conservatism will be tolerated by you, whereas you would smile at and ignore the vivid praises of the enthusiast.

E. H., aged 57, roofer, temperate with good heredity and void of syphilis or any cachexia. Had complained of what he was told was rheumatism of the knee-joints since February, 1892. Visits to seashore, and Mt. Clemons, together with medication from various physicians, did not arrest the disease which grew steadily worse. On the 14th of May last I saw him with Dr. Barclay. His knees were swollen, stiff and painful, preventing rest or sleep. He preferred to have his legs amputated rather than endure his agony. We diagnosed the case as *Athritis Deformans*, and put him on the liquor aurii et arseni bromidi. In six weeks time he pronounced himself cured, the pain and stiffness were gone and the swelling was very much reduced. He still remains well up to date.

R. E. M., aged 45. Heredity good. Having treated him for a year for locomotor ataxia, by suspension, ergot and other usual remedies, I placed him on the liquor of gold last July. He sleeps better, appetite improved, not so despondent; the girdle pain and the pain in feet is very much abated; but there is no improvement in the coordination. He is still taking the gold.

C. T., periodical drunkard. Took the gold two weeks, at the end of which time there were ulcers in the mouth and the teeth in lower jaw were loosened.

M. M., aged 52. Heredity good. Very fond of women and noted for his sexual powers and endurance. Had suffered for eighteen months with neuralgia of the left trifacial nerve. Had tried various forms of treatment, among others that of having the sound teeth extracted from the left lower jaw, but without relief. Speaking was painful, mastication impossible and swallowing of liquids agonizing. He was haggard with pain and loss of sleep. In spite of his protest I treated him for syphilis by giving him mercury and the iodid of potassium. He improved very considerably, but the pain persisted though to a slight degree, and grew worse on stopping the mercury. In June last I put him on the mercuric bromid of gold, with rapid improvement, and he pronounced himself cured. He still takes the gold occasionally.

I have administered the bromid of gold and mercury in two cases of iritis with evident advantage.

Two cases of fibroid consumption, with cavities, both the result of neglected pneumonitis, are astonishingly improving under the use of the bromid of gold and arsenic internally and the inhalations of papoid glycerol by the atomizer.

One case of pneumokoniosis, "grinders' consumption," had resisted treatment for four years, during which the patient lost in weight while cough and expectoration increased. In July I put him on the bromid of gold and arsenic with papoid inhalations. September 27, coughs a little on rising in the morning, expectoration no longer black. Gained fifteen pounds in weight.

One case of miliary tuberculosis in which the pulse was 130, temperature 101, respiration 30, is rapidly improving on the gold.

Two cases of diabetes have improved under the use of gold, one of them so much so that he was accepted last August as a good risk by one of the foremost life insurance companies. In both cases I gave codein at the beginning of the treatment, but left it off and continued with the gold.

A case of adenitis, with enormous enlargement of left side of neck, is being rapidly cured by the bromid of gold and arsenic.

Does gold ever fail to cure? Yes, if given in cases unsuited for it. But in the sclerosis, while it may fail, it will accomplish more cures than any other remedy.

POINTS OF DISSIMILARITY BETWEEN US AND HOMEOPATHIC PHYSICIANS.

An Address read before the Lancaster City and County Medical Society, July 5, 1893.

BY J. L. ZIEGLER, A.M., M.D.

PHILADELPHIA.

Mr. President and Gentlemen: THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION for May 27, 1893, publishes the annual address of the President of the Philadelphia County Medical Society, read May 24, 1893, by Jno. B. Roberts, A.M., M.D., entitled "Points of Similarity Between Us and Homeopathic Physicians."

Dr. Roberts believes "that the tests of qualification for membership in the Philadelphia County Medical Society should not be the college from which the applicant received his diploma, but an education enabling him to understand and appreciate the science of medicine, and an honest purpose to treat his patients by all means and methods which experience, investigation and research show to be serviceable."

Admitting the proposition to be true, then one who graduates from the Hahnemann Medical College, and desires to become a member of the Philadelphia County Medical Society, would have to repudiate his college and the doctrines it inculcates, or practice a gross fraud upon the community and the society with which he desires to connect himself.

of the human race for thousands of years, and these would never have prevailed to such an extent, had physicians endeavored rationally and zealously to cure and eradicate each miasm by internal homoeopathic treatment, and used selected medicines, instead of tampering with their local symptoms by topical applications.

I believe the itch insect was not discovered when Hahnemann invented his system; it has since been demonstrated to be a very lively "spirit-like force or dynamis," a very inveterate sort of "miasmata," a "materia morbi" come to plague the homoeopaths, what a terrible scrambling among the faithful! and then the typhoid bacillus, the comma bacillus of cholera, the pneumococcus, the gonococcus and a host of other cocci that have come to disturb the equanimity of the spirit-like homoeopathic allatus; but then these are only spirit-like miasmata, a sort of miasm to speak, to be cured, eradicated and stamped out by smelling a homoeopathic pellet about as large as a mustard seed more or less moistened with the thirtieth potency of some antipsoric, anti-syphilitic or anti-syphilitic as the case may be. But seriously what of the law of similars, the great concentrated principle of homoeopathy, the "similia similibus curantur," the one great law of the system? and here let me remind you that this is the principal feature which makes us to differ, and which Dr. Roberts believes to be of so little importance that we could easily coalesce, join the same medical society, meet each other in consultation, and take each other by the professional hand as brothers pursuing the same noble calling.

This dogma is based upon the supposition that there are three sources of disease depending upon the existence of three miasms (syphilis, sycois, and the itch), and that they are antagonistic; that is if a syphilitic disease and aporic disease exist at the same time in the body, that one or the other will be held in abeyance in the body until the one that has the precedence shall have expended its force, when the other will manifest itself; but if they should be similar, that is both psoric or both syphilitic, then the stronger will eradicate or cure the weaker, and thus effect a spontaneous cure—hence Hahnemann inferred that drugs prepared and administered homoeopathically that are capable of producing symptoms in the healthy body similar to the symptoms of the disease, do eradicate the actual disease. He says: "Consequently experience leads to the undeniable conclusion that the living human organism is far more disposed and inclined to be affected, and to have its feelings altered by medicinal powers than by other noxious agencies and contagious miasms, or to express the same in other words: *Extraneous, various agencies possess a subordinate, and often, extremely conditional power; but drug potencies possess an absolute, unconditional power far superior to the former in ability to produce ill health (morbidity) of the human body* (*Organon*, page 76, Sec. 33). Again:

"The greater intensity of artificial disease produced by drugs, does not constitute the only condition of their ability to cure natural diseases. In order to perform a cure, it is necessary that drugs should possess the power of producing in the human body an artificial disease, *of such a kind that which is to be cured; for it is by virtue of its similarity, combined with greater intensity, that the drug disease is substituted for the natural disease, thus depriving the latter of its power to affect the vital force.* This is true to such an extent, that even nature herself is unable to cure an older disease through the accession of a new disease affection, even of greater intensity, nor can the physician perform a cure by means of drugs incapable of producing in the organism a diseased condition similar to that which exists in it." (*Organon*, page 76, Sec. 34).

"All these examples prove that neither the efforts of nature nor the physician have ever been able to extinguish or cure a disease by means of a dissimilar morbid potency, however powerful; but they prove that according to eternal and irrevocable laws of nature which were hitherto misinterpreted, cures are made to result *also from a morbid potency which is similar to a poison and somewhat weaker in strength.* (*Organon*, page 88, Sec. 48). Again he says: "The true homoeopathic method of cure is the only correct, the only direct and the only possible means to be employed by human skill, as surely as it is possible to draw but one straight line between two given points" (*Organon*, page 92, Sec. 54).

This is a very strong and positive assertion, but how does Hahnemann know of this certainty, of the potency of drugs—he tells us that it is proved by actual experiment upon the healthy human body—not by appreciable doses but by highly attenuated potencies or dilutions. This is the last

great fallacy of the system, and is best explained in Hahnemann's own words. He says: "Medicines should, therefore, be distinguished from each other with scrupulous accuracy, and proved by pure and careful experiments with regard to their powers and true effects upon the healthy body. For upon the accuracy of this test, proving depend life and death, sickness and health of human beings. The test should be so conducted as to result in the acquisition of accurate knowledge of drugs, as well as to avoid every mistake in using them in disease, for the uttering selection of remedies is the only condition for the speedy and permanent return of the body and soul, the highest gift bestowed on man." (*Organon*, page 125, Sec. 129). Again: "The most recent experiments have taught that crude medicinal substances, if taken by an experimenter for the purpose of ascertaining their peculiar effect, will not disclose the same wealth of latent powers as when they are taken in a highly attenuated state, potentiated by means of trituration and succussion. Through this simple process the powers hidden and dormant, as it were, in the crude drugs, are developed and called into activity in an incredible degree. In this way the medicinal powers, even of substances hitherto considered inert, are most effectually developed, by administering to the experimenter daily from four to six of the finest pellets of the thirtieth potentiated attenuation of one of these substances; the pellets having been previously moistened with a little water, should be taken on an empty stomach for several days." (*Organon*, page 127, Sec. 128).

The only answer to this attenuated absurdity would be to pass it over in silence, were it not that in the latter part of this nineteenth century, a professor occupying the chair of the institutes of medicine devotes the major part of his time to prove the efficacy and superiority of the Hahnemann method of treatment, and that we are asked by the president of the Philadelphia County Medical Society to lay aside our manhood and unite in consultation with the disciples of this finely spun moonshine.

Let us examine the doctrines in the abstract—doctrines upon which the whole superstructure of homoeopathy is built:

1. Disease is caused by a spirit-like force; a dynamis.
2. All diseases not subject to surgical skill arise from three miasms, namely: syphilis, sycois and the itch.
3. These three miasms are antagonistic.
4. That drugs properly potentiated are capable of causing similar diseases in the healthy human body to a greater extent and are always more powerful than this dynamis.
5. That this power is proved by the administration of drugs properly potentiated, to the healthy body.
6. That this power possessed by drugs is capable of removing disease, when given in attenuated doses, by causing a similar but more powerful drug disease.

This is the whole system of homoeopathy expressed in a few words. But we may abridge this system still further into two propositions, viz: 1, that disease is a spirit-like force and not a materia morbi; 2, that drugs possess (when properly attenuated and potentized) the power or spirit-like force to produce a similar drug disease, but always more powerful, thereby expelling the actual disease—that is, one evil spirit expelling another evil spirit—Satan casting out Satan. But the good Book tells us that a house divided against itself can not stand, but must fall. As already stated, the discovery of the itch insect and the many demonstrations of the bacteriologist effectually refute the first proposition, and as the second depends upon the first, in fact, all the propositions are dependent upon the spirit-like force, both as a cause and a cure of disease, nothing remains of homoeopathy but the name; no sensible person can believe such fatuous extravagances.

But Dr. Roberts says that "If the action of homoeopathic medical societies, of homoeopathic medical journals, and the spoken and written statements of homoeopathic physicians are examined, it is evident that very many of those whom the public regard as homoeopaths, have comparatively little faith in the infinitesimal doses of Hahnemann or in the infallibility or universality of his law."

I am fully aware of this fact, but it only proves the fraudulent practices of the homoeopaths.

Their pretended adherence to the homoeopathic system—calling themselves homoeopaths and at the same time using our medicines in the same appreciable doses and attributing their cures to homoeopathy, is a gross fraud upon the community.

No one objects to their practicing the system pure and simple—they will know that homoeopathy would not exist to-day if they would practice it as laid down by Hahnemann.

although they use his *Oрганон* as a textbook and teach its principles as superior in their efficacy. Hahnemann despised such physicians, who practiced both systems. He says: "Who would honor this careless and pernicious class with the name of homeopathic physicians after the salutary art? May their just rewards await them, that if ever sick they may be cured after their own fashion." (*Organon*, page 267).

Hahnemann was sincere; he believed our system to be pernicious and homeopathy the only possible method of cure; he denounced our method as wrong in toto.

Almost every page of the *Organon* has dire allusions to the effects of the old school practice, which he alleges produces an incurable drug disease, and he expresses his gratitude to an all-wise Creator who has allowed homeopathy to be discovered. Now, his pretended followers almost worship Hahnemann. They build colleges and call them after his name; they rear monuments and statues to his memory everywhere; they sing loud praises of his virtues; they make his great work, the *Organon*, their textbook; then they fill their medical cases with every variety of old school drugs, practice our system under the cloak of Hahnemann, and thus impose on a credulous public. Language is inadequate to express my contempt for such procedure. "I had rather be a dog and bay the moon than such a Roman."

The president of the Philadelphia County Medical Society pleads for their reception in our medical societies, excuses their practice of the *similia similibus curantur* and their silly dilutions as so small a matter that we should embrace them as brothers. Methinks I see the ghost of Hahnemann smile at the humiliating picture. Dr. Roberts quotes from homeopathic journals and homeopathic writers to show our similarity. He says: "This rather lengthy series of quotations from homeopathic writers has been made to establish my point; that we and most of them are for all practical purposes similar and at one. They, as well as we, are free to choose whatsoever is thought to be the proper remedy for a diseased condition, and to give it in whatsoever dose is considered curative." If such be the case, and we do not doubt it, let them abandon the name of homeopathy, practice rational medicine and show fruits meet for repentance. Let them cease to oppose legislation and to demand a separate board of medical examiners. If they are sincere and so near similar to us that Dr. Roberts can see no difference; if, after practicing their silly nonsense for nearly a century, and by every subterfuge endeavoring to convince a credulous public that their method of treatment is the only true and positive method of cure, they are now beginning to see its folly, let them come to us in a legitimate manner by acknowledging their error and cease to teach their dogma of *similia similibus curantur* to their students. We are not under obligations to them, nor will we "crook the pregnant hinges of the knee where thrift may follow fawning." The gist of this matter is a paving the way toward a revision of the Code of Ethics, so as to allow a few specialists and those who hunger after the almighty dollar in the way of consultation fees to consult with homeopaths without violating the Code. It behooves the profession to watch these men and not let them touch the Code by way of revision. It is good enough for all, and its provisions prevent no one from pursuing a gentlemanly, true and honorable course.

THE DISSIMILARITY BETWEEN PHYSICIANS AND HOMEOPATHISTS.

A REPLY TO THE PRESIDENTIAL ADDRESS OF DR. JOHN B. ROBERTS.

Read before the Philadelphia Medical Society, Oct. 11, 1893.

BY SOLOMON SOLIS-COHEN, M.D.

PROFESSOR OF CLINICAL MEDICINE AND APPLIED THERAPEUTICS IN THE PHILADELPHIA POLYCLINIC; ONE OF THE PHYSICIANS TO THE PHILADELPHIA HOSPITAL.

This communication is presented at the request of a number of members of this Society who desire a record to be made of their dissent from some of the views advanced by Dr. Roberts in his paper entitled, "Points of Resemblance Between U.S. and Homeopathic Physicians." The subject matter having been discussed by me at length in a paper read before the Society some years ago, I may be pardoned for confining myself on the present occasion to a brief review of a few of Dr. Roberts' "Points" and to the introduction of but one counter-point.

I have read somewhere an apologue which, slightly modified to suit the present occasion, runs thus:

In the country of the Hounhyns, concerning which land, its inhabitants and their customs, an interesting and reliable account has been left by the late learned and ingenious Gulliver, there was at one time an agitation in favor of what was termed "liberalization of the Constitution." In furtherance of this movement there was presented to one of the scientific societies, by an eminent and thoroughbred stallion, a very able paper entitled, "Points of Resemblance Between U.S. and Jackmules."

With the great generosity and candor which were its author's characteristics, this paper, while admitting that all mules were not alike, and that the earlier breeds had been quite obnoxious, yet claimed that in recent times a great change had taken place, that, indeed, mules were becoming every day less mules; and it counted in favor "of the great body of mules at the present time," even down to the least fraction of an inch by which their ears had been shortened, and the last hair in the little bunch at the end of their tails, every point wherein they had never so slightly departed from the anatomy of the more lowly line of their parentage, and approached to the form and features of the noble line that they shared with the speaker. Many of the younger Hounhyns were moved by his eloquence to respond to the generous impulses of the advocate of fraternization; and it appeared as if his views might prevail. At this juncture a veteran "stud" arose, and with great gravity and deliberation spoke about as follows:

"My noble friend has shown most clearly and convincingly that many Jackmules have done their best to imitate U.S. Let me even admit for argument's sake that he has succeeded in establishing many points of similarity. But he must grant me permission to call attention to one point of difference. There never was a mule yet but he was sired by a jackass."

Dr. Roberts pays a handsome and well-deserved tribute to the personal and social qualities of educated homeopaths. I can cordially indorse all that he has said upon this topic. The question of scientific or ethical truth, however, is an impersonal one, and should be so considered. The fact that Washington was a slaveholder did not make slaveholding right; and neither the high character of Dr. Roberts, nor that of many members of the homeopathic fraternity can make white black or black white, make straight that which is crooked, or make crooked that which is straight.

The question before us is one of simple honesty, and to decide it needs neither learned citation of authorities nor casuistical subtleties. Either the name, "homeopathist," means something or it means nothing. If it is meaningless there can be no legitimate reason for retaining it. If it has a meaning it means separation from and opposition to progressive medical science; it means an assertion of belief in a certain well-defined dogma opposed to reason and to experience; an assertion, moreover, made for effect not upon medical colleagues, but upon the lay and uninstructed public. It is only right, then, to hold those who make use of that name to all the implications of the voluntarily assumed designation.

A professed homeopathist can no more sever himself from the history of his sire than a mule can sever himself from the lineage of his sire. Without jackasses, no mules; without continual Hahnemannian fecundation in each generation, no homeopathy.

I agree fully with Dr. Roberts, that neither "a physician's political, religious, or social beliefs and affiliations, nor his opinion that in 'similars' he sometimes finds a remedy of value, should disqualify him" from membership in this Society. But who has ever urged that any of these things should be disqualifications? That one's possible "opinion" that in "similars" he sometimes finds a remedy of value" does not act as a disqualification, Dr. Roberts himself shows in the further course of his paper, quoting, moreover, the language of the American Medical Association: "neither is there any article or clause of the Code of Ethics that interferes with the exercise of the most perfect liberty of individual opinion and practice."

What Dr. Roberts either fails to see, or refrains from commenting upon, is the fact that to hold the "opinion that in 'similars' one may sometimes find a remedy of value," is quite a different matter from labelling one's self "homeopathic." To believe that in electricity "one sometimes find a remedy of value," is not, therefore, to be an "electro-pathist"; to use water as a therapeutic agent in suitable cases does not make one a "hydropathist." The difference

is so obvious that to enlarge upon it would be to doubt the intelligence of the Society. Equally great is the difference between one who sometimes uses a remedy that in healthy persons would produce effects resembling some of the symptoms of the disease, and one who assumes a title when it means anything, means that his everyday practice is designedly based upon the so-called "law of similars." In words, Dr. Roberts ignores this difference; nevertheless, he practically admits it, or there would have been no necessity to write his paper. It does not require an elaborate thesis to demonstrate that twice two is four. One needs not frequently plead for the removal of a disqualification that he admits does not exist.

Dr. Roberts is doubtless correct in his repeated assertions that "very many of those whom the public regard as homeopaths have comparatively little faith in the infinitesimal doses of Hahnemann, or in the infallibility or universality of his law," and that "to-day there is comparatively little belief in or practice of homeopathy as advocated by Hahnemann." A good lawyer would have hesitated to make such admissions in a paper written in defense of homeopaths. They prove, however, the sincerity of our former President; a proof strengthened when he further states that "the real homeopathy . . . pays no attention to the microscopic and chemic changes in tissues and organs, but believes in selecting a remedy which . . . causes symptoms similar to . . . the totality of the symptoms seen in the patient."

But if this belief, which Dr. Roberts very properly characterizes as "unscientific and unworthy of credence," is in Dr. Roberts' own language "the real homeopathy," what kind of homeopathy is that which he says is practised by the great body of those "whom the public regards as homeopaths?" It must be an unreal, a false, a fraudulent homeopathy. And Dr. Roberts' proposition reduced to plain English is this: "We can not admit to membership in this Society the real homeopaths because they are loyal to a dogma which is unscientific and unworthy of credence; but we ought to admit the false homeopaths because they only pretend allegiance to that dogma."

Mr. President, I have more respect for the honest simple-minded donkey than I have for the disingenuous and uncertain mule.

There is, however, one proposition in Dr. Roberts' paper with which I desire to express my full and unqualified assent, and upon the principle enunciated in which we can all, I think, find a common meeting ground. I, for one, should be most happy to aid in bringing about its incorporation into the organic law of this Society. Dr. Roberts says: "The test of qualification for membership should not be the college from which the applicant received his diploma, but an education enabling him to understand and appreciate the science of medicine, and an honest purpose to treat his patients by all means and methods which experience, investigation and research show to be serviceable."

With this opinion, let me repeat, I am heartily in accord. It is quite evident, however, that such an education as Dr. Roberts describes can not be received in a sectarian school, despite the use of any number of scientific textbooks; and one has only to read the first homeopathic journal that comes to hand to see that even among the "unreal" homeopaths, while they do have considerable knowledge of the empiric practices of physicians, which practices they copy more or less intelligently—very few have an adequate comprehension of the principles of scientific medicine. But the most certain evidence that the official representatives of homeopathy in Pennsylvania do not "understand and appreciate the science of medicine" has been given by their demand for the establishment of sectarian examining boards. Any one who elects to go before such a board, thereby declaring his lack of acquaintance with scientific therapeutics and practice, and the limitation of his studies to the theories and methods justly termed by Dr. Roberts, "unscientific and unworthy of credence," voluntarily excludes himself from the ranks of the profession; voluntarily enrolls himself as a sectarian. We certainly can not accept the certificate of such a board as evidence of an applicant's possession of "an education enabling him to understand and appreciate the science of medicine and an honest purpose to treat his patients by all means and methods which experience, investigation and research show to be serviceable." On the contrary, it is a direct evidence of partial and narrow education; of training limited to what Dr. Roberts has well termed, "unscientific and untrustworthy" theories and practice. If, however, a graduate of a sectarian college after sufficient practical experience to compensate for his want of school education, should desire to enter the ranks

of the profession, and had, as at present, no other society to join, not only would he be doing his social and professional duty, but also by doing so, he would permit his patients to be treated scientifically, and if after due investigation, the members of the report that the claims in personal character, professional knowledge, and scientific spirit, worthy of admission into this Society, it would give me great pleasure to cast my vote in his favor.

To conclude, the great point of dissimilarity between physicians and interday homeopaths is that the former deny the latter of adherence to a dogma which is not only "unscientific and unworthy of credence," and an "obstacle to progress," but which they themselves do not believe in; an "unreal" profession of faith which may serve to attract patients, but which can not be considered straight-forward. So long as any one voluntarily makes such profession he renders it impossible for self-respecting physicians to meet him upon equal terms.

If, however, one whose personal character fits him for membership in this Society, but who had formerly professed homeopathy, becomes convinced of his mistake, and desires to join the ranks of scientific medicine, he should be freely received; provided only that he repudiates any sectarian designation and gives to the censors satisfactory evidence of his professional attainments. More than this we ought not to ask. Less than this we can not honorably accept.

DOMESTIC CORRESPONDENCE.

Hectic Fever.

A. STIN, TENN., Oct. 9, 1893.

To the Editor.—After many years of special experience in the treatment of pulmonary consumption and its various complications, I find the prescription herewith enclosed the most efficient and least disturbing to combat hectic fever:

R Phenocoll.

Salicin 50 grs.

Sulphate Hydrate gr. 24.

M. ft. 24 capsules.

Sig: One capsule every four to eight hours, as may be necessary to cool or prevent hectic fever. Of course, such other treatment, local or constitutional, as may be indicated should be diligently administered.

Yours truly, Q. C. SMITH, M.D.

Wayne County, Mich., Medical Society.

DETROIT, MICH., Oct. 10, 1893.

To the Editor.—At the annual meeting of the Wayne County Medical Society the following officers were elected for the ensuing year: President, Hal. C. Wyman, M.D.; Vice-President, F. B. Smith, M.D.; Secretary, R. H. Horner, M.D.; Treasurer, C. Henri Leonard, M.D. Board of Directors: J. E. Clark, M.D.; E. W. Jenks, M.D.; James Newell, M.D.; J. E. Westgate, M.D.; K. Ganss, M.D.

Yours truly, E. B. SMITH, Sec'y.

Diphtheria.

WISCONSIN STATE BOARD OF HEALTH,
OFFICE OF THE SECRETARY.

APPLETON, WIS., Oct. 6, 1893.

To the Editor.—Replying to your letter of inquiry: the newspaper reports of the prevalence of diphtheria in Grantsburg, Wis., have been greatly exaggerated. Official reports received at this office to October 5, show that there was probably an error of diagnosis of first cases, but since the true nature of the disease has been known, it has been brought thoroughly under control.

There has been a total of seven deaths to above date. No new cases have been reported during the past week.

Very truly yours, J. T. REEVE, Sec'y.

BOOK NOTICES.

A Manual of Medical Treatment or Clinical Therapeutics.—By J. BERNY YEO, M.D., F.R.C.P. Professor of Therapeutics in King's College, London. In two 12mo. volumes containing 1,275 pages, with illustrations. Complete work, cloth, \$5.50. Philadelphia: Lea Brothers & Co. 1893.

This excellent work will be found very useful to general practitioners. Those fond of formulae will find them here to their satisfaction and except that the author uses the English system of weights and measures and nomenclature, no fault can be found with them. In these days of International Societies, the tendency is to unite on the decimal system of weights and measures; but the Englishman is always satisfied with his "right and tight little island," and its customs; and in the nineteenth century when every nation but his own has adopted a decimal money standard, he stands aghast at any proposition to change the relative value of his absurd division of money into pounds, shillings and pence, and is utterly unable to understand that among the labor-saving devices of scientific literature the decimal system ranks as chief.

The pathology of the diseases treated, although brief, is quite abreast of the latest literature on the subject, and the treatment recommended is unexceptionable. We notice, however, the same tendency to the recommendation of European health resorts and mineral waters, in exclusion of every other, that characterize most continental books on therapeutics. One may look in vain for a single reference to any American health resort, although the European resorts are very fully considered. It would be unfair to change this against this particular work, because this fault is common to all of its class. Why should an American, knowing the facts, recommend Nice in preference to Asheville or Los Angeles, or Carlsbad in preference to Hot Springs? The truth is, that in the matter of advertising our own mineral springs and healing resorts, we are not in the same class with the European. In that favored land, advertising has become a fine art.

We have wandered into these reflections, while examining this very valuable work of Dr. Yeo, and can only express the hope that when the second American edition shall be provided, the just advantages of American resorts may have their place. Notwithstanding the omissions pointed out, the work is deserving a place in the library and will be a welcome addition to the literature of medical therapeutics.

The Theory and Practice of Medicine Prepared for Students and Practitioners. By JAMES T. WHITTAKER, M.D., LL.D., Professor of the Theory and Practice of Medicine in the Medical College of Ohio; Lecturer on Clinical Medicine at the Good Samaritan Hospital; Fellow of the College of Physicians of Philadelphia; Member of the Association of American Physicians, of the American Academy of Medicine, and of the AMERICAN MEDICAL ASSOCIATION. With a Chromo-Lithographic Plate and three hundred Engravings. Octavo, 810 pages; Extra muslin, price, \$5.75; leather, \$6.50. New York: William Wood & Company.

It is customary for the unthinking to consider that surgery alone has profited by the wonderful discoveries of Pasteur, but a glance at the frontispiece of Dr. Whittaker's book and at the text of the various articles, will convince the most skeptical that this bacteriological epoch has revolutionized the practice of medicine not less than that of surgery.

The author fully accepts the microbic theory as applied to general medicine. He says in regard to malaria:

"Malaria for a long time has been supposed to be caused by a malarial germ, but no one positive proof, however, that the isolated malarial germs of Marchand and Brumpt, who succeeded in producing the disease in animals, and from the spores of an affected individual into the blood of a healthy man. All efforts to discover any demonstrable malarial germs in the blood have remained futile up to the time of the present writing. The French military surgeon of Algeria, Dr. Laveran, has discovered in the red blood corpuscles peculiar

annuleoid bodies employed with characteristic protoplasmic motion, and containing granules of pigment matter. Certain smaller bodies, of irregular, semi-lunar or crescentic outline are also found in the blood plasma, connected together often by fine threads. These bodies are present in the blood of malaria in greatest abundance during a chill, and disappear to a great extent after the attack. Many of them are clear, more or less spherical, sometimes flagellated, hyaline masses, undiscernible without the use of dyes. They gradually increase in size until they fill the body of the corpuscle during which process they undergo peculiar segmentation. The intra-corpuscular body receives the name, *plasmodium*. Besides the plasmodium, flagellate structures with three to eight long active cilia, may be seen floating free in the blood of more acute cases, or may be discovered in the blood drawn from the spleen, which is regarded as the habitat of malaria in the body. Golgi claims that the various types of fever, anomalies, etc., depend upon peculiarities or differences in these parasites, and Laveran maintains that the crescentic forms are found only in invertebrate and cachectic cases. So, too, it is said that quinin destroys only the plasmodium, and that arsenic has more effect on the crescentic form. Concentrated aqueous solutions of ferri-chloride and methylene blue are the best staining agents for ordinary diagnosis."

We have quoted this paragraph thus freely that it may be seen how far the old lines have been cast off.

There is some lack of precision in the composition and a faultiness of style; for example: "Diseases of the mouth for the most part reveal themselves readily to inspection. Daylight is the best," etc.; whether daylight is the best inspector, the best disease or the best revealer is uncertain, but here as elsewhere, the average reader knows what impression or idea the author means to convey. The charm of the textbooks of Watson and of Flint lies in their clearness of expression and their precision, scarcely less than in their choice of words; the first two characteristics, the reader has a right to expect of all authors; the last is a gift of the gods to the few, and is not essential.

The work under review is without question the most original that has appeared on the subject for a long time, and the defects of composition that we have pointed out are so trifling in comparison with the great merit of the work, that we only mention them to insure their avoidance in the next edition, which we predict will speedily follow.

New York County Medical Association. Register of Members and Manual of Information. 12mo. cl. pp. 116. Published by the Association. New York: 1893.

This is an official list of the members of the New York County Medical Association, and as well the names of "other practitioners of rational medicine resident in the City and County of New York * * *

Unfortunately in the State of New York, and *there only*, the regular profession is divided, the meridian line being the AMERICAN MEDICAL ASSOCIATION and adherence thereto. In the existing *division* the New York County Association adheres to the National organization, and thus coöperates with the profession as it is maintained in all the other States of our common country."

A history of the recent effort by the AMERICAN MEDICAL ASSOCIATION to restore harmony is briefly related.

Medical Society of the State of Washington.—Transactions for 1893. This little volume records the proceedings of the Fourth Annual Meeting. The papers are well written and show that our occidental brethren are quite up to the professional mark. Dr. G. D. Shearer of Tacoma, is the Secretary.

Wisconsin State Medical Society Transactions.—The annual volume of the Wisconsin State Medical Society lies on our table. It is well printed and contains some excellent papers, many of which exhibit much painstaking, original work. The Transactions compare favorably with those of other States. Dr. Chas. S. Sheldon of Madison, is Secretary.

Syllabus of Lectures on the Practice of Surgery. Arranged in conformity with the "American Textbook of Surgery," by N. SEXTON, M.D., Ph.D., LL.D. Flexible covers, cl. pp. 221. Philadelphia: W. B. Saunders. 1894.

This well-arranged syllabus of a system of lectures on surgery will be found very useful to teachers and students

1111

Journal of the American Medical Association
PUBLISHED WEEKLY.

PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE
PER ANNUM, IN ADVANCE \$ 5.00
SINGLE COPIES 10 CENTS

Subscriptions may begin at any time and be sent to:

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 68 WABASH AVE., CHICAGO, ILLINOIS.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or local Medical Society, who is entitled to send delegates to the Association. All applications for this certificate must be made to the Secretary of the Association, Dr. Richard C. Smith, 1206 South Webster St., Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues and subscription for THE JOURNAL. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

All members of the Association should send their Annual Dues to the Treasurer, RICHARD J. DUNGLISON, M.D., Lock Box 1271, Philadelphia, Pa.

SATURDAY, OCTOBER 21, 1893.

QUARANTINE IN CANADA.

With reference to the World's Fair exhibit of the models of the disinfecting chambers in use at the St. Lawrence quarantine the following will be of interest:

Grosse Isle, about 700 acres in extent—larger than the grounds covered by the World's Fair—and thirty-one miles below Quebec, was purchased and equipped as a quarantine station in 1832, when cholera first visited this country. It was then provided with the best means and methods for the ends in view at that time known. There still remains a massive and roomy hot air disinfecting oven. It had also a liberal supply of detention and isolation buildings, wash houses, etc. The presence and use of these appliances and buildings provided all that sanitary science of that day considered requisite for a first class quarantine station during the sailing vessel period. They rendered it then and for many subsequent years the best equipped quarantine in the world.

The importance of this station will be appreciated when it is stated that in one season alone—the ship fever year, 1847—an immigration of more than 99,000 was dealt with there from May to September. The hospital records for that time show an admission of over 8,000 sick. A little monument in the cemetery bears witness to 5,424 interments in that short season alone.

Following the change from sailing vessel to steamships, as immigrant carriers, and the advancements in sanitary science, the station has been equipped with all the requirements of modern maritime sanitation. It has now three steam disinfecting chambers 25 x 5 x 8½, double jacketed and fitted with steam gauges, vacuum pumps, electric contact thermometers, registering dials, etc., for the disinfection of clothing and luggage. In connection with these are three sixty-horse power boilers for steam supply, with feed pump,

settling tank, etc. Above these chambers, on the second story, are twelve rain or needle baths for the personal washing of the suspected, while their clothes are passing through the steam chambers.

A detention building has been erected to give saloon passengers the same accommodation as they have in a first class steamship. Two buildings have been adapted with staterooms, baths, etc., for second cabin passengers, and the storage buildings have had their wooden bunks replaced by galvanized iron beds. There is for this class of passengers also an ample supply of baths and water closets. These buildings, a mile and a half from the hospital division, provide for the detention and isolation of 128 saloon, 200 second cabin and 1,500 storage passengers. There is also a bacteriological laboratory. Two powerful steam pumps supply water from the end of the pier to a 50,000-gallon reservoir from which it is piped to the buildings for all but drinking purposes. An artesian well is being sunk for potable water, and there is a condensing and aerating apparatus in connection with the boilers calculated to yield a daily supply of 2,000 gallons. The disinfecting steamer and the inspecting steamer are fully equipped with the most modern appliances, including steam hose, mercuric chlorid solution drenches, a sulphur dioxide blast furnace, etc.

All vessels are inspected at Grosse Isle or, in the case of mail steamers, at the advance inspection station at Rimouski, 150 miles below, where the mails are landed. If, upon inspection a vessel is found to be infected, it is dealt with at the Grosse Isle station; if found healthy it is allowed to proceed and land its immigrants at Quebec, or Lévis opposite Quebec. At these sub-stations *all* the immigrant luggage from healthy vessels passes through steam disinfection before it is allowed to be checked or forwarded. More than one hundred thousand pieces of luggage from healthy vessels have been so disinfected already this season. The plant for this purpose, at the Quebec landing place, is similar to that already described for Grosse Isle, except there is one chamber instead of three.

It may be added that Halifax, Nova Scotia, St. John's, New Brunswick, William's Head, in the Straits of Fuca, and the Province of British Columbia on the Pacific coast, have been similarly equipped with all the recognized requirements, rendering them also quarantine stations of the first class.

From the foregoing it will be seen that the utmost care is being taken by the Dominion of Canada to protect herself and her neighbors against the introduction of contagious diseases.

HOSPITAL GROUNDS TO BE BISECTED.—The trustees of the Episcopal Hospital of Philadelphia are up in arms on a proposition to bisect the hospital grounds by the city extension of Fillmore Street.

THE LIMITATION OF TUBERCULOSIS.

In our last week's issue we published an account of the action of the Michigan State Board of Health, by which the physicians of that State are hereafter required to notify the local health officer of the existence of consumption and all other diseases due to the *bacillus tuberculosis*, the same as in cases of small-pox, scarlet fever or diphtheria. The local health officer is to notify the State Board, and the State health officer will then give such instructions relative to restrictive measures, as the nature of the case and stage of the disease seems to warrant. The Board has already issued a pamphlet perhaps generally applicable, showing how to restrict these cases.

The great increase in the number of cases of tuberculosis throughout the country makes it desirable that some means of limiting the ravages of the disease be systematically undertaken, and if this move of the Michigan State Board shall prove beneficial, even in slight degree, the whole country will come into line.

The cause of tuberculosis being well known, and its mode of transmission thoroughly understood, there is no longer reason why determined effort should not be made to stay the ravages of this dire affliction. In consumptives, the care of the sputum, the mouth disinfection, the disinfection of all excreta, and the careful disinfection of the wearing apparel, are most valuable means of preventing the spread of the disease from the patient to others.

Personal restriction is a harsh measure, and should only be required in very advanced cases, those, in other words, that are better off when kept quiet; but there is surely reason enough for requiring the sick man to keep away from crowded assemblages and public conveyances. There is undoubtedly danger to the public health in allowing a patient with advanced phthisis to mingle freely with crowds, and contaminate the air with the products of expiration in public conveyances. The expired air coming direct from the lungs, more or less charged with tubercle bacilli, is as fruitful a source of propagation of the disease as could well be imagined.

It is not to be expected that the same limitation can be effected on other forms of tuberculosis, especially those of the bones and joints, and yet in many cases there comes a period in the history of these cases when there is generally disseminated tubercle, and often the same condition develops in the lung as in cases of primary lung infection.

The success or failure of these efforts of limiting the spread of tuberculosis, happily begun by the Michigan Board of Health, can not be determined for at least a twelve-month. It is fortunate, however, that the system of registration in use in Michigan is so complete that we shall, soon after the year's trial, have definite and conclusive figures.

CHILD LABOR CERTIFICATES.

Many members of the medical profession are doubtless unaware of the enactment in Illinois of a very effective law, placing the duty of inspection of factories in which children are employed under a superintendent. The law absolutely prohibits the employment in factories of children under fourteen years of age. It provides that all children between fourteen and sixteen shall have a certificate, from an authorized physician, asserting that they are in such health and in such a state of development as to permit them in the judgment of the physician to work in the factories without danger. This certificate must assert that the physician has examined the applicant and seen him at work, and that he considers him able to do the work proposed without detriment to his subsequent health. In the operation of this law, children have brought to the inspector, certificates from physicians who have evidently made them in a perfunctory way, either entirely ignoring the condition of the applicant or having never seen him at work as the certificate requires. It must be remembered that this law is intended to prevent the premature decay and the arrest of development of our young factory laborers, and it is intended in this way to diminish the subsequent expenditures of the State, the county and the city in the care and maintenance of the defective classes. It is only necessary to invite attention to some of our more destructive trades, in which children are employed, to make apparent the wisdom of this provision. Incidentally these requirements would keep the labor of children out of the market and prevent undue reduction of the wages of adults through the competition of child labor. The physician, in examining the child, should thoroughly compare him with the well fed and well developed child of his age. He should pay special attention to the development in those directions most apt to be arrested by the trade into which the child is going, and by the position in which he will be required to work. The physician should do his work conscientiously, knowing that, if he neglects his duty in this matter, the wreck of humanity which is likely to result, will have to be maintained in wretchedness at the expense of his own children when they come to manhood and womanhood and become taxpayers. The physician should in no circumstances sign these certificates until he has actually seen the child at work in the factory for which the certificate is required.

THE HEALTH OF AMERICAN WOMEN.

Elsewhere in our columns Prof. EDMUND ANDREWS gallantly defends our American women from the aspersions cast upon them by Dr. CYRUS ENOX who in a recent number of a monthly magazine held

them up to popular condemnation for alleged physical deterioration and defective training.

We doubt not that other defenders will break a lance in this fray under the leadership of PHOT. ANDREWS in case it shall be necessary, but at present it seems that as Dr. Eison's charges against American women were based on mere assertion, while PHOT. ANDREWS supports his opinion by figures, the latter has decidedly the better side of the question, and should receive the thanks of the women of America for his timely and prompt defense.

ABSOLUTE ALCOHOL FOR SCIENTIFIC PURPOSES IS DUTY FREE.

The decision of the United States Circuit Court, S. D. New York, *in re* Kny, rendered June 27, 1893, is just reported in 57 Federal Reporter, p. 190, affirming the decision of the board of general appraisers, which reversed the classification of the collector of the port of New York on certain so-called "absolute alcohol." The latter classified it as "alcohol, 198 degrees, \$4.95," at \$2.50 per proof gallon, under the provisions of paragraphs 329 and 333 of Schedule H of the tariff act of October 3, 1890. Against this classification the importers protested, claiming that the article was a scientific preparation for college use, and duty free, under paragraph 677 of the free list of said tariff act. This "absolute alcohol" was made by chemical action by adding lime, and then distilling the liquid over again, by means of which the high percentage of 99.5 of alcohol was obtained, and was from two to three times higher in price than the regular alcohol of commerce, running only to 95 per cent. That it was "not intended for sale," within the meaning of said paragraph 677, was to be understood that it was not intended to be disposed of by sale to any other person than the corporation or society for whose special use the importation was permitted to be made, though in this case it was admitted that the importers' profit in furnishing the article to the colleges in question was about 20 per cent.

RIGHT TO USE GEOGRAPHICAL NAMES FOR MINERAL WATERS.

Whether a geographical name may become a trademark, when adopted as such, where its owner is the owner of the place of origin, and has the monopoly of the vendible product, is an open question. But where a person alleges title to all the mineral springs situated in a certain place, and the exclusive right to the sale of the waters thereof, and that the name, as applied to said waters, has become of great value to him, and has always constituted an important and necessary incident and means to the sale of said waters, that such a name may be so used, and will be protected against infringement by other persons not obtaining their product from the same locality, is

well settled. So says the United States Circuit Court in the case of *La Republique Francaise v. Schaeffer*, decided July 3, 1893, just now reported, 57 Fed. Rep. 37, where it holds that the word "Vichy," used in connection with mineral waters, and derived from the locality in France where the waters are obtained, is a trade name, or "nom commercial," within the meaning of the industrial property treaty with France of 1883, and as such is entitled to protection in the United States though it has not been deposited as required by the treaty in the case of trade-marks.

TRY A NEW NAME.

We suggest that some of the "Tri-State" societies try a new name to avoid triangular confusion. We now have a Tri-State Society of the brethren of Missouri, Iowa and Illinois, another of Indiana, Kentucky and Illinois, another of Arkansas, Tennessee and Mississippi, and another of Alabama, Tennessee and Georgia. There is room in the AMERICAN MEDICAL ASSOCIATION for all of them, and all would be stronger if united in one great body. The great need of the profession is organization, and medical men should join the parent medical Association on the broad ground of mutual scientific interests and material advancement. The door is always open to members by application at any season. We hope each member may aid the great movement now going on, which has for its object the formation of one of the most powerful medical associations of the time, in the AMERICAN MEDICAL ASSOCIATION.

SOCIETY NEWS.

Twenty-first Annual Meeting of the American Public Health Association in Conjunction with the International Congress of Public Health.

Abstract of the Proceedings of the Joint Sessions of the Congress, held in Chicago, Ill., Oct. 10, 11, 12, 13 and 14, 1893.

OCTOBER 10. FIRST DAY. MORNING SESSION.

The Congress convened in Hall Seven of the Memorial Art Palace, and was called to order by the President of the World's Congress Auxiliary, the Hon. Charles C. Bonney of Chicago, at 10:30 A. M.

Prayer was offered by the Rev. Dr. Parsons, after which addresses were delivered by Hon. C. C. Bonney, Mrs. Charles Henriotin, Dr. A. R. Reynolds, Commissioner of Health of Chicago, representing the Mayor, Dr. E. Liceaga of Mexico, and Dr. Sarah H. Stevenson of Chicago.

Mr. Bonney then introduced Dr. S. H. Burgin of Boston, President of the American Public Health Association, as President of the Congress, who replied briefly to the several addresses, after which he delivered his Inaugural Address. (See October 14th issue of THE JOURNAL, p. 551.)

After some announcements by Dr. Brewer, the Congress adjourned until Wednesday morning.

OCTOBER 11.—SECOND DAY. MORNING SESSION.

The Congress was called to order at 10 A. M. by the President.

The first paper read was by DR. ALBERT L. GIBON, Medical Director U. S. N., entitled, "Sanitary and Medical Service on Emigrant Ships."

REPORT OF THE COMMITTEE ON RESTRICTION AND PREVENTION OF TUBERCULOSIS.

This report was read by the Chairman of the Committee,

DR. J. N. McCORMACK of Bowling Green, Kentucky. The Committee offered as its report the following conclusions and recommendations:

1. Tuberculosis has been conclusively demonstrated to be contagious, by bacteriological experiments, by clinical observations, and by a study of the history of the disease.

2. Tuberculosis is a preventable disease. Its preventability follows as a logical sequence upon its contagiousness, but has likewise been demonstrated in practical life.

3. The contagium of tuberculosis resides entirely and solely in broken down tubercular tissue. A person suffering from tuberculosis, therefore, does not become a source of danger to others until he begins to give off broken down tubercular tissue, either in the form of sputa from the throat or lungs, diarrheal discharges from the bowels, or matter from a tuberculous sore such as lupus, white swelling, cold abscess, serofula or tubercular inflammation of a joint.

4. A person suffering from tuberculosis can be made entirely harmless to those about him by thorough sterilization of all broken down tissue immediately upon its being given off. With proper precautions it is therefore possible to live in the closest relation and upon the most intimate terms with consumptives without contracting the disease.

5. Tuberculosis is not hereditary. A predisposition to the disease can be transmitted from parent to offspring, but this is more true of tuberculosis than it is of all other contagious diseases.

6. A predisposition to tuberculosis can be created anew by malnutrition or by anything which depresses the nervous system.

7. Tuberculosis affects animals as well as man, and is identically the same disease in both. In domestic life human beings and animals mutually infect each other.

8. The media through which human beings are ordinarily infected by animals are milk and meat.

9. Houses in which consumptives have lived and in which immediate sterilization of all broken down tissue has not been practiced, are infected houses and are liable to convey the disease to subsequent occupants.

10. Spitting upon floors and into handkerchiefs, and permitting the broken down tissue to dry and become pulverized is a prolific cause of spreading tuberculosis.

11. Temporary occupation of hotel rooms, sleeping-car berths and steamer cabins by consumptives in the infectious stage can infect them so as to convey the disease to subsequent occupants, unless proper precautions are taken against contamination of the bedding, furniture and walls with broken down tubercular tissue.

We recommend the following practical measures for the prevention of the disease:

1. The notification and registration by health authorities of all cases of tuberculosis which have arrived at the infectious stage.

2. The thorough disinfection of all houses in which tuberculosis has occurred, and the recording of such action in an open record.

3. The establishment of special hospitals for the prevention of tuberculosis.

4. The organization of societies for the prevention of tuberculosis.

5. Government inspection of dairies and slaughter houses, and the extermination of tuberculosis among dairy cattle.

6. Appropriate legislation against spitting into places where the sputum is liable to infect others, and against the sale or donation of objects which have been in use by consumptives unless they have been thoroughly disinfected.

7. Compulsory disinfection of hotel rooms, sleeping-car berths and steamer cabins which have been occupied by consumptives, before other persons are allowed to occupy them.

The reports and recommendations of the Committee were adopted.

TROPICAL DIARRHÆA.

This paper was contributed by SIR JOSEPH FAYRER of London, England, and read by DR. GIBBS.

This is a form of disease which is generally, if not always, the result of tropical and climatic influences and the debility and cachexia induced thereby. It is now not infrequently observed in Europe, owing to the ever-increasing means of communication, with foreign countries. It is apparently generally confined to adults, is insidious in its onset, slow in progress, and often, when not arrested sufficiently soon, fatal, owing to irremediable degenerative changes. It has been described by many observers both English and foreign, in India, China, Cochin China and Batavia. Most of the

cases seen in this country come from India, China or Ceylon. In India it is met with frequently, where a form of it is known as 'hill diarrhæa,' from its proneness to affect dwellers in hill stations, especially those who have previously lived in the plains; atmospheric changes, vicissitudes of temperature, greater altitude, rarefied atmosphere and possibly water being concerned in its causation. Some authors consider it a distinct disease from the white flux, which may be seen in any part of the country, but they are so much alike as to justify the belief in their identity, at all events for practical purposes. Occasionally there is a resemblance to certain forms of chronic dysentery; the two conditions may be associated or one may merge into the other.

Tropical diarrhæa occasionally makes its appearance years after the subject of it has returned from the tropics. It not infrequently begins without any previous apparent derangement of health, though it is sometimes preceded by dysentery, diarrhæa, some indication of malarial infection or functional derangement of the liver or other abdominal viscera, and is not noticed until excessive soreness of the tongue and loss of strength and wasting reveal the gravity of the condition.

Symiology.—This form of diarrhæa may begin with simple looseness of the bowels, or may supervene on ordinary diarrhæa or chronic dysentery. The action produces a sense of relief. The dejecta at first may be natural and bilious, but gradually become light-colored, frothy, pulsatious and copious. As the disease advances they are occasionally tinged with blood, and the sufferer becomes more attenuated, exhausted and incapable of any prolonged exertion. The appetite may be good, but rawness and tenderness of the mouth and tongue frequently accompanied by aphthous spots and ulcerations interfere with its gratification.

Treatment.—From the insidious character of the disease, tropical diarrhæa not infrequently gains ground before radical measures for its relief are resorted to. Successful issue depends much on the patient's resolution and perseverance in carrying out instructions. Alterations of temperature, errors of diet, fatigue or excitement, exertion, mental or physical, should be avoided. Physiological rest should be insisted on.

There is a tendency in the earlier stages to get well. The object is to favor this tendency and not thwart it by neglect of precautions. Diet is the most important consideration and must be strictly regulated and adhered to; and scarcely less important is the question of clothing, habits and modes of life. Milk *alone* should be the only diet, and it must be given in small quantities often repeated, say from four to six ounces every hour, day and night. Larger quantities at longer intervals will not do. When in the twenty-four hours an adult is able to take three to four quarts of cow's milk in this way, ample nourishment is afforded to support his strength and to enable him to recover. This method of treatment was begun by the author before his leaving India in 1872. After prolonged experience and trial of all other forms of remedy, he has found it more effective than anything. It seldom fails except in the very advanced and chronic cases, or in very aged persons. The conclusion arrived at is that though drugs are generally of little avail, if milk, taken as prescribed, does not succeed, there is but small chance that any other form of treatment will do so.

CHOLERA INFANTUM AND ITS TREATMENT.

By DR. MANUEL SEPTIEN of Queretaro, Mexico.

The treatment proposed is exceedingly efficacious. It consists in the total suppression of all food and medicine during twenty-four or forty-eight hours, and the prescription of pure cold water in great abundance. The author said there is scarcely any disease that causes a greater mortality in childhood than that known by the name of estival diarrhæa or infantile cholera. In one single week, the last one of July of the present year, there were 1,226 deaths in 33 of the largest cities of England, caused by this disease alone. Statistics show everywhere a notable increase in the number of deaths during the months of June, July and August, that is to say, during the warmest season of the year. The malady is not limited to children only, but attacks also a great number of adults and old people, being less mortiferous in the latter than in the former, in whom it causes a mortality of 50, 60, and even 80 per cent. Only Asiatic cholera, to which it has the greatest similarity, can be compared to it for its ravages. It is undoubtedly of microbial origin as recent investigations have shown.

Energetic drainage is the supreme effort which nature executes to rid the organism of the deleterious elements that poison it. To try to suppress it by therapeutical means

is not an easy or rational thing to do. It would be to order the natural curative process. The only thing that can be done is to oppose the extreme dehydration of the tissues by restoring to them without delay at least a part of the water lost. This is the therapeutic indication, and nothing can take its place, nothing but pure cold water.

All the curative methods tried leave much to be desired. Their results are very uncertain; all consist in the administration of various medicinal substances, non-astringents, absorbents, antiseptics or antiparasitics, and in the prescription of some alimental regimen. Such treatments, according to the author, are not in conformity with the great principle that governs therapeutics, namely, to *logical rest of the organs that suffer*.

The author had practiced successfully the treatment recommended by Luton of Reims. He summarized the points of his paper as follows: 1, to suppress all nourishment and medicine for one or two days; 2, to give at discretion pure cold water; 3, to return by degrees to a rational regimen.

ORIGIN AND DISSEMINATION OF TYPHOID FEVER.

By PROFESSOR W. T. SEDGWICK of Boston. Professor Sedgwick's remarks on this subject were impromptu. He first dwelt upon the reorganization of the State Board of Health in Massachusetts in 1880, shortly after which an experiment station was established at Lawrence for the purpose of studying typhoid fever chemically and bacteriologically, and looking to the purification of the water. In 1880 an epidemic of typhoid fever broke out upon the Merrimac River in the city of Lowell, and shortly afterwards appeared at Lawrence, nine miles below. These epidemics afforded unusual opportunities for the investigation of the epidemiology of typhoid fever.

SECOND DAY—AFTERNOON SESSION.

MR. ALLEN HAZEN of Lawrence, Mass., read a paper entitled

THE SEWAGE DISPOSAL PROBLEM IN AMERICAN CITIES.

He said one of the striking features of the sanitary development of American cities is the very rapidly increasing number of places which for one reason or another are treating in some way their sewage. It is not so many years since there was hardly a sewage purification plant in the United States, while at the present time there are some thirty municipalities in a dozen different States which give their sewage a more or less thorough treatment. Of these a number are in the far West, where the sewage has a commercial value for irrigation which has probably been considered quite as important as the sanitary advantages secured by the treatment, but the greater number are in the East, where a dense population and increasing desire for cleanliness in the waters of streams and lakes, and particularly in water supplies, has brought to an issue problems which as yet have scarcely received the attention of the inhabitants of the less thoroughly settled States.

There are two sewage problems which are entirely different in their nature, although the same remedies may often be applied to both. There is first the pollution of rivers and lakes to such an extent that they produce a nuisance to the people who live upon their banks, and secondly the pollution of water supplies by sewage. The first case is often that of a city upon the banks of a small river which becomes so reduced in volume in dry weather that the sewage may fairly be said to be the predominating element in its composition. Up to a certain point, rivers are capable of taking sewage without causing a serious nuisance to the people who live upon their banks, so long as they do not drink from them, but when this quantity has passed, deposits are formed, decomposition sets in, and the stream is rendered foul in appearance and objectionable in its odor. The exact quantity of sewage which can be mixed with water without causing a nuisance varies with local conditions and can only be approximately estimated, but as long as the limit is not passed, and the bodies of water not used for drinking, the disposal of sewage by turning it into such water is entirely unobjectionable and by far the most satisfactory method possible.

Where the sewage of a town is entering the public water supply of a neighboring town, or worse yet, its own supply, the problem is entirely different. The removal of the organic matters of the sewage becomes of secondary, although still an important matter, while the removal of those germs of disease, which would otherwise work such mischief among the consumers of water becomes the one important point.

The author said that the treatment of sewage by some of the world's sanitary engineers is a very important one. He said that the State Board of Health at the Lawrence Experiment Station, in Massachusetts, has been studying the condition of sewage upon and in the water, and has found that as a quantity of sewage treated and a quantity of water obtained, than had been supposed to be the case in a study of European practice.

It is impossible, by any combination of chemicals, to secure the purification which approaches even remotely the result obtained by land treatment, but when the problem is simply to keep the water into which the sewage flows reasonably clear, the result with careful manipulation is quite satisfactory. When, however, the treated sewage finds its way into the source of the public water supply, the effluent produced by even the most complete chemical precipitation can not be regarded as an entirely unobjectionable addition, and such water should be further treated by filtration before use.

THE COLLECTION AND DISPOSITION OF ANIMAL AND VEGETABLE WASTE IN THE CITY OF MILWAUKEE.

By DR. C. O. B. WENIGER, Commissioner of Health of Milwaukee. As early as 1879 the city of Milwaukee began to grapple with the garbage problem, and it has been a long and serious struggle until a recent date. In the winter of 1891 and 1892, the State Legislature passed an act authorizing the Common Council of the city to enter into a contract for the disposition of garbage, with the advice of the Mayor and the Commissioner of Health. It was decided to let the contract for five years to a company who would build a plant fourteen miles out of the city, collect and remove to said plant all garbage, offal, dead animals, both great and small, and animal matter of the city of Milwaukee, including refuse matter from the commission houses, etc., to said plant in which they would dispose of it in a sanitary manner. This contract went into effect and the work was commenced in June, 1892.

The Company constructed a plant at an expense of some \$110,000. They purchased a powerful steam barge for transportation; they put on fifty steel, air-tight wagon tanks for collection, and two large covered wagons for the collection of large dead animals. Since the first of September, 1892, the plant has been in operation to the satisfaction of the city officials of Milwaukee, creating no nuisance or stench whatever that can be reasonably objected to in its location, and the collection and transportation of the material during that time has been fairly satisfactory.

DISPOSAL OF GARBAGE AND WASTE OF WORLD'S COLUMBIAN EXPOSITION.

By COL. W. F. MORSE of New York. Since the meeting of the American Public Health Association two years since, marked progress has been made in the destruction of garbage and waste of cities by fire. Six years' experience has shown this method to be of far greater value than any other, and improvements in furnaces and reduction in cost of operation have steadily made it more popular and useful.

England has now furnaces in every large city and the number is yearly increasing. This country is awakening to the value of this method, and it has been inspected and recommended at a great number of places. The most striking and effective work done in the world is at the World's Fair, where two furnaces of the Engle Sanitary Company have been at work since the first of May. It was early seen that the sanitation of the Fair, the care of the health of the great multitudes resident and who would come as temporary guests, would demand the best, and only those which had been thoroughly tested, methods of providing for the drainage, and the collection and disposal of the great mass of daily accumulating garbage and organic waste. After the drainage was arranged the question of sewerage disposal and garbage destruction came up. A contract was made with the Engle Sanitary Company of Des Moines and New York, for two garbage cremators to burn 100 tons of sewerage sludge, garbage and stable refuse. These two furnaces were built in the fall, and at the opening of the fair were ready for work. They are in the extreme southeastern part of the grounds, near the Forestry Building, back of the power house of the Intramural Railroad, employing the well-known device of the Engle Company, two fires, one at either end, the one burning the mass of garbage on the grates, the other destroying

the smoke, and all results of this combustion. These furnaces have been in constant work every day since May 5.

The garbage is brought at night from 11 p. m. to 8 a. m., and placed at once in the furnaces. From twenty-five to forty loads each of one ton, having sometimes ashes or water in large amounts mixed therewith. Everything goes into the furnaces—four horses, two emuls, cows, deer, elk, pigs, goats, dogs, etc., all follow the same road and are burned with equal ease. No results can be seen from the chimney. A thin, invisible, carbonic acid gas, discharged at a temperature of 1,000 degrees is all that results. No smoke, no odors, nothing that can be offensive is detected. Though in daily use an observer would not know any work was done, unless he came to the building. At 10 a. m. the loads of sewerage cake begin to come. This is a thick, heavy, soggy mass of lime, fecal matter, paper pulp, etc., with 60 per cent of water mixed. The quantity varies from ten to eighteen or twenty-five tons, and is the most refractory material to burn yet found. The fires are oil fed by jets of air, a pressure of twelve ounces of air doing the same work that is done in the boiler house with 120 pounds of steam. The ashes are used by Exposition people for filling low places, though they have a value of \$10 per ton for fertilizers.

There are six burners spraying oil, the whole using thirty-seven and one-half gallons per hour. The cost for fuel and labor is from 75 to 80 cents per ton for sewerage sludge and 50 to 70 cents for garbage.

At other places where these same furnaces are used, the cost is reduced by bringing to the furnace, the paper, sweepings, and all kinds of city combustible waste, which makes fuel to burn wet matter and reduces the cost of from 12 to 15 cents per cubic yard or 30 to 40 cents per ton. Official reports from Savannah were read showing the cost for last eight months to be 11 cents per cubic yard.

The work has been continuous; no stoppage, no nuisance, performed under observation of thousands of persons, inspected by many interested in this work from abroad, and has met with deserved credit and favor from the Board of Administration. By adoption of similar furnaces at four points in Chicago the whole garbage nuisance could be abolished, the same work done for the city that is here performed, at a reduced cost, and the vexed problem of garbage disposal settled and got rid of once for all. This is no theory or experiment. This company was asked to do this work because they had demonstrated elsewhere their ability. There are forty furnaces, or more, built by the Engle Company and in successful operation, more than twenty times as many as have been built by others, but this is the most successful instance of the destruction of garbage on a large scale that has been seen in this country.

HOW CAN WOMEN PROMOTE PUBLIC SANITATION?

By DR. SUKRAH H. BRAYTON of Evanston, Ill. She said as instructors in hygiene, nurses, have a wider scope for sanitary reform than physicians; living as they do with the families they attend, their opportunity for the diffusion of knowledge is greater. Undoubtedly there is much that women could do on health boards; there is more that they must do among their own sex to increase the sum of sanitary knowledge among all classes and promote intelligent cooperation with health authorities, whoever they may be.

THE PROGRESS OF SANITARY KNOWLEDGE AMONG THE WOMEN OF ENGLAND.

This was the title of a paper contributed by LADY PRIESTLEY of England, and was read by Miss HENRY WARD ROGERS of Evanston. The author of the paper went back twenty years, when she first joined the Executive Committee of the National Health Society, and attended the meetings in a small, dingy, draughty room in a house about as unsanitary as any to be found in London, and traced the progress made in sanitary science from that time to the present. The author would impress upon all mothers, and those who are responsible for the welfare of others, the desirability of giving personal care and forethought, which alone can avert the consequences of unsanitary surroundings.

NOTES ON CHOLERA AND ITS MANAGEMENT IN HULL, ENGLAND.

This was the title of a paper contributed by Dr. JOHN WARD MASON, Medical Officer of Health in Hull, but was read by Dr. CHARLES N. HENRY of Minnesota, in the absence of the author.

The first epidemic of cholera occurred in 1832, but the total number of deaths from the disease did not exceed 250 on the 10th of August, 1849, the great visitation of the dis-

ease commenced. The total number of cholera and diarrheal victims during the invasion was 1,860, being one in forty-three of the whole population of 11,000. Six hundred persons died from cholera alone, in one week in September. The average age of the victims was from 30 to 36 years of age. Of the total number of deaths recorded, 1,738 belonged to the laboring classes and 122 to the wealthy. The greatest mortality occurred in those parts of the town where the levels were the lowest, and in which the unsanitary surroundings were the most noticeable. It is recorded by an eminent minister that on one day—Black Sunday—he himself interred no less than forty-three bodies of his fellow citizens. The water supply was at that time obtained from the stone ferry waterworks, situated one and a half miles from Hull and two and a half miles from the mouth of the river, the water being obtained from the River Hull, the widespread character of the epidemic being greatly attributed to the impurity of the river water. Since 1849, Hull has increased both in wealth and population, and its area has been considerably extended. The number of emigrants passing through the port en route for America has averaged between 50,000 and 60,000 yearly during the past ten years. The infectious diseases (notification) act, 1889, has been applied to the port as well as to the urban authority. Measles was included among the notifiable diseases on the 10th of February, 1893.

Cholera follows the line of international communication, and with the modern increased facilities for rapidity of transit, so is the danger of its possible invasion increased by emigration or otherwise. England does not depend upon the false security of quarantine, but rather upon its sanitary administrations, and each district should be in such a state of sanitary preparedness that the disease if imported should not spread. The experience of 1892, during the epidemic at Hamburg, in those ports which were exposed, and possibly none more so than the port of Hull, which was in daily communication with that cholera stricken city, must have inspired confidence in the public mind in this country and the continent of Europe, that medical inspection, the due regard for the rigorous inspection of all articles likely to convey infection, improved sanitation and efficient hospital equipment, were alone sufficient to arrest the progress of the disease. Our first line of defense against the introduction of cholera consists of the medical inspection upon arrival both by day and night, of all vessels from cholera infected or suspected ports, and should cholera have developed during the voyage among any of the passengers or crew, the removal of the patients to hospital, the isolation of suspected cases and the detention on board the vessel of such persons who may be in a filthy or otherwise unwholesome condition, and who can not satisfy the medical officer of health as to their place of destination.

The second line of defense against the possible introduction of cholera, or other diseases, should be well protected, and the early preparations against the means by which such diseases if imported, spread, should be studied, thought out and perfected in the interim, and not during epidemic prevalence and excitement. Special attention should be directed towards a pure and unpolluted water supply, the periodical and regular removal of all excreta and refuse matters in the midst of populations, the frequent flushing of all drains and sewers, the prevention of overcrowding, the systematic inspection of common lodging houses, and lastly, but not least, our food supplies.

Hull is essentially a privy town. The death rate of Hull from all causes for the ten years, 1882 to 1891, averaged 20.7 per thousand. The death rate from fevers during the same period was equal to 1.26 per thousand, and for diarrheal alone 1.10 per thousand.

The author then dwelt upon the management of cholera. The precautions which are adopted in Hull of what has been described as "the movement of a sanitary column," as follows:

Immediately upon the receipt of a notification of cholera, or of sudden illness of a choleraic character, either by the medical practitioner in attendance, the sanitary inspectors or the police, the medical officer of health is communicated with and immediately visits the case, or in his absence his assistant. Should the case admit of removal, the horse ambulance, fully equipped with trained men in attendance is immediately requisitioned by telephone. The assistant inspector of nuisances for the district in which the case occurs is forthwith acquainted, and makes his appearance with a column comprising flushers, lime washers and disinfecting staff. He superintends the removal of the inmates of the house to the hospital for the purpose of bathing, and the

disinfection of their clothing, the disinfection of the house, together with all articles of bedding, clothing, etc., which have been exposed to infection, and the destruction of such articles as may be ordered by the medical officer of health or his assistant. The contents of the privy are removed to the destructor for cremation and the interior cleaned, disinfected and lime washed. The subsidiary drains in the immediate vicinity of the house are thoroughly flushed, and disinfectants are freely distributed in the neighborhood of the outbreak.

EVENING SESSION.

At this session DR. GEORGE M. STERNBERG, Surgeon General of the United States Army, delivered a stereopticon lecture on "Pathogenic Bacteria." Slides of the typhoid bacillus, the bacillus of anthrax, of tuberculosis, of glanders, of tetanus, of influenza, of hog cholera, etc., were shown.

OCTOBER 12—THIRD DAY—MORNING SESSION.

The first paper read was by DR. D. E. SALMON, Chief of the Bureau of Animal Industry, entitled,

TUBERCULOSIS AND THE FOOD SUPPLY.

The author assumed without argument, as already established by scientific investigation, that tuberculosis is a parasitic disease, that it is caused by the multiplication of a specific microorganism in the tissues of the animal body and by no other means. Of the two methods by which the disease is contracted, with man as well as with animals, it may be admitted that the most frequent and therefore the most important is the inhalation of the microorganisms suspended in the inspired air. The speaker had no means of estimating the proportion of cases of tuberculosis which arise from infected food, but he was prepared to admit that tuberculosis of the abdominal organs and tubercular meningitis, particularly of children, were generally caused in this way. The author then considered infection through the milk supply and infection through the meat supply. Tuberculosis is one of the most common diseases of milk cows. It exists in many dairies, and may affect 50, 75 or 100 per cent. of the animals in large herds. We do not know the average proportion of cows affected in this country, but in the dairies around our large cities from 3 to 5 per cent. have been affected when the diagnosis was made by the ordinary methods of examination. In the United States we have no statistics of the results of the tuberculin test, except with herds known to be tuberculous. Fortunately the milk from all tuberculous cows does not contain the bacilli. When there are tubercles in the udder, however, the milk may contain immense numbers of these germs, and this is particularly the case if the tubercular mass softens and its contents escape into the milk ducts. The milk from cows so affected must be considered an extremely dangerous article of food.

The prevalence of tuberculosis in dairy cows can be lessened, and the danger from infected milk diminished, by a careful and periodical inspection of the herds from which the milk supply is obtained. This inspection must consist not only of a physical examination, but must also include the tuberculin test. There must in addition be some means provided for securing the destruction of animals found to be tuberculous.

SYPHILITIC INFECTION AS A VEHICLE OF THE COMMUNICATION OF TUBERCULOSIS.

By DR. MANUEL CARMONA Y VALDE of Mexico. The author of this paper cited the history of a case demonstrating the possible association of the syphilitic virus with the pathogenic agent of tuberculosis, and the possibility of transmission not only of the syphilis but of the tuberculosis also. He had found in the ulceration of the throat both characters.

THE INFLUENCE OF HABITATIONS IN THE PROPAGATION OF TUBERCULOSIS.

By DR. MANUEL GUTIERREZ DE MEXICO. Pulmonary tuberculosis is more frequently observed in the United States than in the Republic of Mexico. The statistical records give a proportion of from 118 to 120 per thousand in America, while in sunny Mexico it does not reach the number of 60 to every thousand. One of the causes which contribute to produce so notable a difference in the propagation of so dangerous a disease, is the difference of the elevation in both countries, because we know that dry air is not a vehicle for the multiplication and generation of the bacillus of Koch, and the relative rarefaction of the air is in a direct ratio to the elevation. Mexico being 2,257 meters above the sea level, it

is consequently not difficult to explain its superiority in arresting the conditions favorable to the propagation of a disease which undermines so many constitutions.

The author's attention has been called to the fact that not only in the hotels and public establishments, but also in private dwellings in the United States, there are rooms constantly illuminated with artificial light and in which the light of the sun never penetrates. The individuals who work therein are deprived for many hours of the beneficial action on the economy that we know solar light exerts, and we know that these privations and the special conditions that accompany it can contribute to the development of tuberculosis by producing 1, the anemia and its consequent state of malnutrition, preparing the ground that serves for the cultivation of the germs of the disease; 2, increasing considerably the temperature of the place illuminated, constitutes also a propitious cause of multiplication of the pathogenic principles involved and in the tubercular process.

PROPHYLACTIC AND THERAPEUTIC VALUE OF FOOD.

This paper was contributed by MRS. ELLEN H. RICHARDS of Boston. She said the prophylactic value of food is to keep the human body in a high condition of health. The main object to be gained is to establish a higher standard of health in the community, to make as widely known as possible the fact that most of the ill health now prevalent is needless; that a little self-denial, a little more attention to the rules of hygiene, a little more living in the open air would cause a large number of the diseases now so common to disappear.

HYGIENE OF HAIR DRESSING AND BARBER SHOPS.

By DR. ANGEL CONTRERAS, Pueblo, Mexico. The disease which persons are most liable to contract in barber shops is scurf, and the author therefore touched on what appeared to him the most important points in the consideration of this matter. Scurf is understood to be a disease of the capillary system caused by the presence of vegetable parasites. The disease can be transmitted by some animals which already have it; but the contagion most commonly takes place from person to person, and in families, in educational establishments and in barracks, the disease assumes an endemic character. Several times the center of this propagation has been found in a hair dresser's or barber's shop, and has arisen from the use of instruments which have been badly cleansed. Barbers and hairdressers ought therefore to be very careful in cleansing the utensils which have served for one person before they are employed on another. All the utensils should be subjected to the action of heat for a space of ten minutes, in a vessel or receptacle at a temperature of 120 degrees, and the razors in an oil bath.

THE WATER SUPPLY OF CHICAGO: ITS SOURCES AND SANITARY ASPECTS.

By ARTHUR R. REYNOLDS, M.D., Commissioner of Health of Chicago, and MR. ALLEN HAZEN. The extensions of the various tunnels within the last two years have undoubtedly secured for the city a water less liable to sewerage pollution than was formerly obtained. The available analyses of the water are perhaps inadequate to measure accurately the improvement, but fortunately we can apply that most satisfactory of all tests, the typhoid fever death rate. The improvements in the water intakes have not all been made at a single date, but if we compare the two years ending September, 1892, and Sept. 30, 1893, we find that during the earlier years the shore intakes at Lake View and Chicago Avenue were in common use while the four mile tunnel was not yet opened; while for the greater part of the latter year the shore inlets were entirely closed and the four mile tunnel and the one mile tunnel at Lake View were in use. For the year ending Sept. 30, 1892, the number of deaths from typhoid fever in Chicago was 1,790 in a total of 260,046, or a percentage of 0.72. For the year ending Sept. 30, 1893, the deaths from typhoid fever were 712 in a total of 263,975, or a percentage of 0.26. It is most unfortunate for this comparison that the old supplies were partly in use during the first four months of the latter year, before the four mile tunnel was opened. We may believe that if this had not been the case the comparison would have been still more favorable to the improved supply.

It is a well-known fact that people using a water supply to which they are not accustomed are often more susceptible to any infection which it may contain than are those using such water regularly. A striking illustration was furnished by Philadelphia in the Centennial year, when the typhoid

death rate was nearly doubled, while in Chicago the present year for the first five months of the Fair period the rate has been less than half as high as for the corresponding months of the preceding year; and for the entire year under consideration, in spite of the vast numbers of visitors continually present, there has been a reduction of over 60 per cent. in the typhoid fever death rate. This reduction is most striking, and it can hardly be doubted that the improvements in the water supply have been the chief, if not the only cause. As there is no marked local distribution of the typhoid fever, so there were no exceptions to the general improvement with better water supply. Not a single ward but showed a substantial reduction. Stronger evidence could hardly be produced to show the causal relation between the contamination of the water supply and typhoid fever. The mortality percentages from typhoid fever in a number of cities may be compared as follows: Chicago, 1892, 6.72; in 1893, 2.64; Philadelphia, 1892, 2.22; Boston, 1.22; Paris, 1.01; New York, .90; Brooklyn, .80; London, .49; Berlin, .42. The cities having the lowest typhoid fever death rate, London and Berlin, use only filtered water. London draws nearly all of its water from the two grossly polluted rivers the Thames and the Lea and, after filtering it, applies it to a population that is almost free from typhoid fever. It may be a question worthy of consideration by the engineers whether filtration would not be as cheap and effective a means of improving the water supply as the farther extension of the tunnels.

REMOVAL OF PATHOGENIC BACTERIA FROM DRINKING WATER BY SAND INFILTRATION.

This paper was read by MR. GEORGE W. FULLER of Lawrence, Mass. That drinking water is a carrier of some diseases there can be no doubt. Numerous laboratory experiments by many investigators indicate that the bacteria generally attributed to be the specific organism of typhoid fever, Asiatic cholera and other diseases live in ordinary drinking water for many days. The results of long-continued investigations at the Lawrence Experiment Station, show that the typhoid bacillus is able to live in the water of the Merrimac River, in greatly diminished numbers, for a period of at least twenty-four days. Other investigators, using different water and different conditions, estimate the length of life of this germ at from three to eighty days. The duration of life of the cholera spirillum in various waters has been observed to be from two days to seven months. Modern hygiene demands that drinking water shall be free from pathogenic bacteria, and the means by which such water can be obtained are worthy of our most careful consideration.

During the past forty years many filter plants have been constructed in Europe, and numerous experiments in the filtration of water have been made, particularly during the past decade. This is largely due to the aid of bacteriology which enables us to determine the actual efficiency of filters with regard to the removal of bacteria. The operation of many filters is quite satisfactory, as is shown by the low death rate from these diseases, conveyed by drinking water and by the results of numerous bacterial analyses.

In summing up our present knowledge upon the removal of pathogenic bacteria from drinking water, we may state that in addition to the experience of certain European cities, the Lawrence investigations covering a period of more than five years, and including the bacterial examination of more than eleven thousand samples of water, indicate that it is entirely practicable to construct filters that will economically purify water and remove more than 99 per cent. of bacteria which may be present in the unfiltered water.

"The Potable Waters of the Country Presenting Many Dangers." This paper was read by Dr. Thomas Noriega of Mexico. "Statement of Scientific and Experimental Data for the Establishment of International Maritime Police," was read by Dr. E. Lievaga of Mexico. Dr. Domingo Orvananos of Mexico, read a paper entitled, "Difficulties in the Practice of Quarantine in Some of the Mexican Ports." Other papers were read as follows on this subject: "The Canadian Quarantine System" by Dr. Frederick Montzambert of Quebec, Canada; "Quarantine System of Texas," by Dr. E. M. Swearingen of Texas; and "Quarantine," by Dr. S. B. Olliphant, President of the Louisiana State Board of Health.

EVENING SESSION.

At this session, addresses were delivered by Dr. Sarah Hackett Stevenson of Chicago, on "Municipal Sanitation;" by Miss Ada Sweet of Chicago, on "Voluntary Health and Public Improvement Societies;" a paper by Sir Charles

Cameron of Dublin, on "Importance of Civic Public Hygiene to the State;" "Municipal Sanitation of Minneapolis," by Dr. E. S. Kelly, of Minneapolis, and "The Importance of Sanitary Bureaus; Their Economic Organization," by Dr. Jesus E. Monjeras, Sanitary Inspector of San Luis Potosi, Mexico.

OCTOBER 13—FOURTH DAY—MORNING SESSION.

Papers were read at this session as follows: "The Best Way to Restore the Practice of Vaccination to Its Proper Place as a Preventive of Smallpox," by Dr. Charles N. Hewitt, Secretary of the Minnesota State Board of Health; "Animal Vaccine. Why It Should be Preferred to Human Vaccine," by Dr. Miguel Marques of Chihuahua, Mexico; "La Grippe," by Dr. Gregorio Mendizabal of Mexico; "Diphtheria in the City of Mexico," by Dr. Roque Macouzer of Mexico; "Notes on Scarlet Fever in the City of Mexico," by Dr. Francisco Martin of Pueblo, Mexico; and "Unrest," by Dr. William Oldright of Toronto.

AN EXPERIMENT IN DISINFECTION—HOW AN EPIDEMIC OF PNEUMONIA WAS CHECKED.

This was the title of a paper read by DR. JEROME COCHRAN of Montgomery, Ala. The paper dealt with an epidemic of pneumonia checked by disinfection. The total number of cases during the epidemic was ninety-three; total number of deaths thirty, nearly one-third of the cases. The epidemic occurred in the prison at Pratt Mines, Alabama. The prison was divided into three sections, and while the disinfection was going on in one section the convicts belonging to that section were crowded into the other two sections. The mattresses were taken off, and these together with the blankets were scattered over the floor. Then by means of a force pump and a long hose pipe the ceilings, walls and the floors with their contents were literally deluged with a solution of bichlorid of mercury, 1-1000, until the bichlorid solution stood in puddles and ran in rivulets on the floors. The mattresses were turned over so as to be wetted as thoroughly as possible on both sides. Dr. Cochran has more confidence in the disinfecting power of heat than in the bichlorid. The mattresses, blankets, etc., were therefore put into large steam chambers that had been constructed for the purpose and kept there for six hours, after which they were taken out and dried. In the meantime the disinfected wards were thoroughly scrubbed out, white-washed and fitted up so that they could be occupied again the next day. The convicts, before they were returned to their old quarters, were required to take a bath and to put on clean clothes. In one week the epidemic, attacked at the period of its most rapid increase, went out like a fire under a deluge of water.

A CONTRIBUTION TO THE STUDY OF YELLOW FEVER FROM A MEDICO-GEOGRAPHICAL AND PROPHYLACTIC POINT OF VIEW IN THE MEXICAN REPUBLIC.

This paper was read by DR. E. LICENGA, President of the Superior Board of Health, Mexico. The author presented the following conclusions:

1. The places where yellow fever reigns and which can be considered as centers of infection are in the Gulf of Mexico, Vera Cruz, Frontera, Campeche and the districts on the northern coast of the Yucatan Peninsula, the last named separated by the Yucatan canal from the island of Cuba, where the fever also reigns. On the great Pacific Coast, which belongs to the Mexican Republic, there is not a single yellow fever center.

2. All the Mexican territory on the Gulf of Mexico and on the Pacific Coast is well adapted for the disease when imported.

3. Yellow fever has become epidemic in the following places of the coast on the gulf: Matamoros, Altamira, Tampico, Tuxpan, Papantla, Misantla, Nautla, Alvarado, Gonzavaloas Minatitlan Lagang and San Juan Baptista de Tabasco.

4. The epidemic has extended into the interior, but never into places situated more than 1,008 meters over sea level.

5. On the Pacific there is not a yellow fever center, but it has been imported into the following places: on the peninsula of Lower California, La Paz y Todos Santos; on the continent, Guaymas, Alhata, San Blas, Mansanillo, Santiago, Acaponeta, Puerto Angel, Salina Cruz, Tonala Soconusco, Tapachula and San Benito, and in the interior in Hermosillo y Culiacan.

6. Immunity against yellow fever is obtained after having had the disease in any of its forms. It is possible that this immunity may be lost at times, but it is seldom the case, as

it happens with typhus, smallpox and scarlet fever, we may be had by a person who has had them.

7. The vaccine of Jenner against smallpox, and others which science has discovered, authorize us to look for the one that will prevent the yellow fever. The inoculations against this fever which Dr. Manuel Carmona y Valle has practiced with success should be tried on a large scale, in a uniform manner, in order to be able to find out if they are efficacious. If this experience confirm it, then they should be made compulsory in the countries where the fever reigns. If they should not prove worthy, then the inoculation of blood serum, as proposed by Dr. Sternberg, from persons enjoying immunity, should be tried on a large scale and in a uniform manner.

8. The purification of the drinking waters, used by persons who have to expose themselves to contract the disease, should be recommended. The purification of the water used on board the ships leaving or calling at infected ports should be proposed.

9. The sanitation of the places which are yellow fever centers should be done at once.

10. To prevent, by means of sanitary police measures, the importation of fever into places where it can be developed.

HOW SHALL OUR LEPERS BE CARED FOR?

Was read by Dr. BENJAMIN LEE of Philadelphia, Pa. He said the State Board of Health of Pennsylvania, and the Board of Health of the city of Philadelphia, have had some unpleasant experiences with lepers, which had led both of these bodies to appeal to the general government to establish a colony or colonies where these unfortunates might be provided with the comforts of home and medical care and nursing, and at the same time might cease to be a menace to the health of those with whom they were thrown in close contact. The United States had only gone so far as to make the affection quarantinable at the seacoast, and to order those found suffering from it on arriving vessels to be at once returned to the ports from which they came.

Dr. Manuel Carmona y Valle of Mexico, contributed a paper on "Yellow Fever." Papers were also read by Dr. Luis E. Ruiz of Mexico, on "Typhoid Fever in the City of Mexico," "Some Reflections on the Infection and Contagion of Typhus Exanthematicus," by Dr. Ramon Icaza of Mexico; "Registration," by Dr. S. W. Abbott, Wakefield, Mass.

Dr. John H. Rauch of Chicago, Ill., introduced a resolution to suspend immigration until the pandemic of cholera in Europe was over which, after some discussion, was referred to the Executive Committee.

The American Public Health Association elected the following officers:

President—Dr. E. P. La Chapelle of Montreal.

First Vice-President—Dr. Manuel Carmona y Valle of Mexico City.

Second Vice-President—Dr. J. N. McCormack of Bowling Green, Ky.

Treasurer—Dr. Henry D. Holton of Brattleboro, Vt.

Permanent Secretary—Dr. Irving A. Watson of Concord, N. H.

Place of next meeting—Montreal, Canada, October, 1894.

NOTE—Although the gathering was denominated an International Congress of Public Health, very few outside of the members of the American Public Health Association contributed to the proceedings. The bulk of the work was done by the members of the American Public Health Association.

After drafting introducing and adopting resolutions of thanks, the President declared the Congress adjourned.

New York County Medical Association.—The first meeting of the New York County Medical Association after the summer vacation, was held on the evening of October 16, when Dr. Edward G. Janeway, who was until recently a Commissioner of the Board of Health, read a paper on "Dangers to the Public Health from Overcrowding Population." The discussion on it was opened by Dr. Charles A. Leale, ex-president of the Association, who is especially familiar with this subject on account of his labors in connection with St. John's Guild, which every year treats so many thousands of the children of the tenement houses on its floating hospital excursions and at its seaside hospital on Staten Island. Among others who took part in the discussion were Drs. J. R. MacGregor, also an ex-president of the Association, and

J. Lewis Smith, Jr., an ex-president of the same Association. A second paper was read by Dr. Frank A. Leach, on "The Necessity of a Correct Vision in the Education of the Young."

The County Association is a most flourishing organization, as evidenced by the handsome register of members and a manual of information just issued by it, which shows an active membership of more than 920, as against 815 at the same time last year. Besides the annual report of the Association on the work referred to, contains the decision of the American Medical Association in regard to membership, and report of committee of conference in the interest of harmony in the State of New York, the report of the committee in regard to the revision of the Code of Ethics and By-laws of the National Association, lists of all the presidents of the New York State and American Medical Association, the present officers, and articles on the medical profession and the Columbian Exhibition, the International Medical Congress and the Pan-American Medical Congress.

C. M. & St. P. Railway Surgical Association.—The first meeting of the surgeons of this road was held in room 536, Rad-McNally Building, Chicago, Oct. 4 and 5, 1893.

The meeting was called to order by Dr. A. D. Bouffleur, the surgeon of the road at Chicago, who in a brief address of welcome, outlined the objects of the Association and the work of the session.

Dr. Solon Marks of Milwaukee, was elected chairman for the meeting. Dr. A. J. Bouffleur was elected permanent secretary, subject to the approval of the management of the company, which concurred in the selection.

The following papers were presented:

Injuries of the Head, Dr. H. B. Hemenway.

Shock in Railway Injuries, Dr. L. A. Squire.

Leading Indications for Treatment in Severe Injuries of the Extremities, Dr. J. A. Jackson.

Treatment of Contused and Lacerated Wounds, Dr. Wm. Mackie.

Importance of Controlling Hemorrhage after Railway Injuries, Dr. Ira K. Gardner.

Antiseptics Simplified, Dr. M. S. Caldwell.

First Aid to the Injured by Trainmen, Dr. A. B. Poore.

Injuries to and About the Eye, Dr. C. D. Westcott.

Sacro-Iliac Dislocation, with a Case, Dr. N. M. Dodson.

Antiseptic Uses of Potassium Permanganate, Dr. A. L. Clark.

Special Ethics of Railway Surgeons, Dr. Geo. R. Moore.

Technique of Amputations, Dr. G. D. Ladd.

A Case in Practice, Dr. O. W. Phelps.

A Case in Practice, Dr. N. A. Drake.

Each paper was thoroughly discussed. As there were one hundred and thirty surgeons present, the meeting was both a numerical and a scientific success.

President Roswell Miller addressed the Association on the relations of the surgeons to the management and assured them of his hearty cooperation in all their efforts.

The future management of the Association was assigned to Dr. Bouffleur, the secretary, and an executive committee consisting of Drs. A. B. Poore, Wm. Mackie and B. Thompson.

Pennsylvania Railway Surgeons.—The Twelfth Annual Meeting of the Association of Surgeons of the Pennsylvania Company was held at the Seventh Avenue Hotel, Pittsburgh, Oct. 10. Members were present from all divisions of the system, and a large number were unable to reach the meeting on account of a railway accident. In the absence of President J. J. Larkin of South Chicago, Dr. Mont. Linville of New Castle, presided.

An interesting paper was read by Dr. C. B. Stenzen of Fort Wayne, on "Antiseptic Precautions in the Treatment of Railway Injuries," which was discussed at considerable length by the members present. A number of other papers were to have been read, but were dropped from the program on account of the inability of the authors to be present. Considerable business of a routine nature was transacted and the following officers were elected for the coming year: Dr. Mont. Linville, New Castle, President;

Dr. J. B. Vail, Lima, First Vice-President; Dr. E. J. McCollum, Tiffin, Second Vice-President; Dr. George C. Stemen, Fort Wayne, Secretary and Treasurer; Dr. H. Nye, Enon, Pa.; Dr. L. C. Botkin, Bargar-town, and Dr. S. A. Craig, Freedom, Executive Committee.

The next meeting of the Association will be held in Chicago in October, 1894.

The Railway Surgeons.—The first annual convention of the Ohio Association of Railway Surgeons met at the Forest City House, Cleveland, October 12. President S. S. Thorne called the convention to order with twenty-five delegates present.

American Public Health Association.—The following officers were elected for the ensuing year: Dr. Emanuel P. La Chapelle, President, Montreal; Dr. M. Carmona y Valle of Mexico, First Vice-President; Dr. J. N. McCormack of Bowling Green, Ky., Second Vice-President; Dr. Henry D. Holton, Brattleboro, Vt., Treasurer; Dr. Irving A. Watson, Concord, N. H., Secretary. Place of meeting Montreal, October, 1894.

Medical Journal Publishers' Association.—An organization was perfected at Hotel Willard, Washington, September 8, and elected the following officers: President, Dr. L. B. Edwards, *Virginia Medical Monthly*; Vice-President, Dr. J. C. Culbertson, *Lancet-Obit*; Secretary, Dr. F. King, *Poly-clinic*; Treasurer, J. MacDonald, Jr., *International Journal of Surgery*; Executive Committee: Drs. Stowell, LeGrand, Fairchild, Fassett and Chambers. Next meeting at Cincinnati, in December.

The West Tennessee Medical and Surgical Association will be held at Brownsville, Tenn., October 26 and 27. Dr. J. R. Hillsman of Trezevant is President, and Dr. F. L. Sim, the editor of the *Memphis Medical Monthly*, is Chairman of the Committee on Publication.

The Northwestern Wisconsin Medical Association, held their quarterly meeting October 10 at Stevens Point, Wis.

The Oneida County, N. Y. Medical Society held its semi-annual meeting at Rome, N. Y., October 10.

NECROLOGY.

Dr. H. A. Youmans, an old settler and highly respected physician, died at the home of his son in Waukesha, Wis., October 4.

Dr. WALTER G. STEBBINS, died at Boston, Mass., October 8 of diphtheria.

Dr. WM. FITCH of Dryden, N. Y., died September 14. He was graduated from Albany Medical College in 1846.

Dr. CHARLES E. ANDREWS of Kansas City, Mo., at Adrian, Mich., October 14.

Dr. FRANCIS J. CHAMBERLAIN, at San Diego, Cal., aged 77, October 5.

Dr. JOSEPH VAN DYKE, at Charleston, Ill., October 12.

Dr. BENJAMIN NORTON of Hornellsville, N. Y., October 3.

Dr. L. P. DOBSON of Farmington, Minn., died September 29.

Dr. T. H. GIBNEY at Manchester, N. H., October 16.

Dr. EMIL GELBERG, at Alton, Ill., October 15.

Dr. RICHARD A. MATTHEWS, athlete and physician, died of stomach trouble October 14, at the age of 28 years. He was for two years a member of the *Evening World's* Corps of Physicians for the Sick Babies, and was also the surgeon of the Columbian line of steamships, which runs between New York and Colon. Dr. Matthews was born in this city

and graduated from the New York University. He began to practice medicine in 1891. He was a member of the old Manhattan Athletic Club, and played in its football team in 1887. He was a member of the Staten Island Athletic Club, and played in the lacrosse team. He also rowed in the junior eight-oared crew of that club.—*New York World*.

MISCELLANY.

The Cholera in Hamburg.—Quarantine, S. 1., Oct. 4, 1893. Dr. Nash has lately written the following:

To the Editor of the Times Democrat:

"Having just arrived in New York on the 'Augusta Victoria' from the city of Hamburg, I consider it my duty to state publicly the result of my observations while on my post there.

"I have been stationed in Hamburg since Jan. 6, 1893, as the representative of Dr. Jenkins, health officer of the port of New York, and I think that during that time, with the opportunities at my command, I have been able to inform myself thoroughly as to the actual sanitary condition of the city, the ways of the authorities, and the interests which stand in so close a relationship with America, and I feel bound to contradict the unfair criticisms which have been passed upon the city, and correct the false impressions which have gone abroad as to the conditions prevailing there.

"During the whole of the present year the health of Hamburg has been excellent, the average mortality being far below that of the principal cities of the world. The cleanliness of the streets is exemplary; they are swept and scraped and washed until they almost shine again; the blind alleys and courts are also well looked after. The street brigades are uniformed, and handle their implements in an expert manner. The markets in the different sections of the city are models of neatness. At the close of business hours each day every scrap of refuse and garbage is at once removed under the supervision of the sanitary police corps.

"On my arrival the city was as yet unsupplied with filtered water, but now and since several months the city enjoys the boon of a pure filtered, germ-free water in abundance for all purposes. I can hardly say enough in praise of the city and its authorities for the thoroughly scientific manner, the tireless energy and disregard of expense with which the enormous plant supplying the city with pure water has been established in the short time. At ebb tide the water is led into immense basins, where it is filtered through different strata of sand pipes. Bacteriological examinations repeatedly made of this filtered water have all testified to its purity, and its universal use has given additional proof of it.

"An unfortunate accident occurred on the 16th of last month, by which unfiltered water obtained entrance into the service mains. This accident was due to giving way of the earth, and was immediately repaired, but the consequence of the contamination became apparent. A few sporadic cases of cholera occurred, which, however, spread alarm only in places far distant from the city, where the news was used to injure Hamburg, as had been done repeatedly on former occasions. In the city there was no alarm; the people felt their security and confided in the efficiency of their sanitary authorities. The result has warranted the expectation. Altogether only a small number of cases occurred, mostly of a mild type, and the latest news shows that even these have disappeared. The city will now doubtless return to its remarkable good health record, which, even during the hottest part of the year, was an extraordinary one.

"Tourists and travelers to and from the European continent can not do better than choose the route via Hamburg on account of the superior sanitary conditions of the city

as well as for its other attractions. For Hamburg is a magnificent place. To see the beautiful Alster-Basins, surrounded by pretty parks and fine avenues, lined with handsome buildings and villas, is alone well worth a journey. Good hotels, excellent restaurants, amusements to suit every taste, clean streets and the activity of life and business of a great commercial port, and other points to be considered.

"A few words now regarding the Hamburg-American Packet Company:

"This company has complied readily and thoroughly with the measures required by Dr. J. H. White, the representative of the United States Marine Hospital Service, stationed in Hamburg, and also with whatever recommendations have been made by myself, as representing the New York State Quarantine. Suggestions, of whatever nature, have been gladly received, and cheerful and ready help has been given to both of us in our work. The disinfection of ships and baggage, the supervision and scrutiny of passengers and other measures tending to the welfare of all concerned are done under our control and, in my opinion, no steamships leave any port in more complete sanitary condition than do the steamers of this company. Dr. Jenkins has repeatedly made the same statement regarding the same steamers arriving in New York.

"The company has also, of its own accord, frequently adopted precautionary measures of considerable importance and at great cost, solely for the purpose of guarding against the possibility of any danger.

"As an American residing in Hamburg, and as an official I testify to the conditions as outlined above, and gladly bear witness to the sincerity of the intentions of the city authorities and of the great corporations located there, and if I ask you to publish this letter it is with full reliance on the American spirit of fair dealing, and with the hope that my statement may tend to remove unjust reflections. I am, dear sir, yours very truly,

DR. GEORGE W. NASH.

Representing New York State Quarantine at Hamburg.

To Admit the Physicians.—Opening of Health Department Hospitals to them to be considered to-day. The details of the plan to open the Health Department hospitals for contagious diseases, to the medical profession for the mutual benefit of the profession and the department, will be laid before the Board of Health this afternoon by President Wilson. The plan is simple: it proposes the appointment of six attending physicians, whose duty it shall be to visit the hospitals twice a week at any rate. They may, if they choose, visit every day and at all hours.

Besides these, a fixed number of internes will be assigned to the hospitals, who shall act as assistant resident physicians and hold their places for six months each. This is the system adopted in other hospitals the world over. The internes will be graduates of the medical schools. Their appointment amounts to the establishment of a post-graduate course, which will speedily become exceedingly popular.

The attending physicians will be chosen from among the professors and experts of the four medical colleges in the city. They will be chosen for their conspicuous ability and prominence as practitioners, and upon them will devolve a great share of the responsibility for the management of the hospitals. As lecturers at the colleges they will be allowed to take their classes with them on their visits to the island, under the restrictions of the Department as to dress and disinfection. Thus clinics will be set running in the most natural way—not once or twice a week, but probably every day.

Physicians and internes will be unsalaried, but the latter will live in the hospitals to which they are attached. It is expected that the plan will be promptly adopted and the scheme as here outlined carried out at once. It is likely even that the staff of attending physicians may be chosen and invited to accept. Nothing that has happened in the history of the department has claimed and received such hearty support on the part of the medical profession. *The Evening Star's* announcement yesterday of the impending opening of the hospitals aroused the interest of the doctors thoroughly. It was the one topic of discussion among them yesterday. Without an exception, they in-

dorsed the new departure of the Health Department as the most intelligent and most promising move made by it in recent years.—*New York Evening Star*, Oct. 11, 1893.

The Illinois Board of Health.—The Illinois State Board of Health has issued a circular on the necessity for public vaccination, and says:

"Indications are now multiplying, which point to a general epidemic spread of the disease throughout the whole country as cold weather approaches. Introductions of the contagion will thus grow more frequent and, sooner or later, are likely to find any unprotected community and there establish an outbreak. The State Board of Health urges upon you the necessity of preparation while there is yet time—during the remaining weeks of pleasant autumn weather. Vaccination of all unprotected and revaccination of all those vaccinated within the past few years should be secured without delay.

"The State Board of Health enjoins upon all local health authorities the urgent necessity of measures to secure the vaccinal protection of all over whom they have control. Local ordinances—if not already enacted—should be passed forthwith, enforcing vaccination or revaccination upon all school children, public, private and parochial; upon school teachers, janitors and others; upon all public employes and officials; through all employers of labor, skilled and unskilled, upon their employes as a condition of further employment; through superintendents of public and semi-public institutions, upon every inmate, employee and official of such institutions; all tramps, and especially upon immigrants from abroad. The Board will lend every assistance in its power to secure the end in view and invites correspondence on the subject, to be addressed to the secretary.

"By order of the Board: JOHN W. SCOTT, M.D., Secretary."

The First Professional Organization.—Norwich Doctors Wanted a Medical Practice Act in 1774.—The medical practice act suggests the historical fact that the first step toward professional organization and protection in Connecticut was taken by Norwich physicians on the 3d of March, 1774. On that date the following advertisement appeared in reference to the project:

"A number of Physicians in the County of New London, taking into consideration the importance of those that enter the practice of Physick being endued with competent knowledge to prosecute the undertaking in such a manner as shall best promote the public good, request their brethren of the Faculty in said County to meet at the house of Mr. Azariah Lathrop, in Norwich, on Thursday the 24th inst., at 10 o'clock in the forenoon, to consider upon the matter and prefer a Memorial to the General Assembly at their next Session, that the Practice of Physick may be put under some better regulation."

This memorial, which was signed by Theophilus Rogers and ten other physicians, was the first movement toward medical organization in Connecticut. "Quacks and charlatans" had disgusted the regular physicians, and their demand was for the appointment of a committee legally authorized to examine and approve candidates, if found qualified. The movement, which was in advance of the age, was negatived in the lower house; but the memorialists were the pioneers in the cause of American medical organization, and their unsuccessful first attempt was the initiative step in a series of efforts which have since resulted in the permanent establishment of flourishing State and National Associations, which separate the qualified physician from "the ignorant pretender."—*Norwich (Conn.) Bulletin*, Oct. 9, 1893.

Yellow fever continues its ravages at Brunswick, Ga., from twenty-five to thirty new cases appearing daily. A despatch from Brunswick on Monday stated that supplies of food were being received very slowly and that unless large contributions were quickly made there would be great suffering among the people.

Report of Muncie Smallpox Cases.—The report of the Muncie smallpox cases has been submitted to the Governor. It

shows that since the disease first appeared there the number of cases has been 136. Fourteen cases are now under treatment at homes and the hospital. Thirty-nine convalescents are reported. The same number are well, but have not been discharged. Thirty-one cases have been cured. There have been sixteen fatal cases. Last week \$19,000 was appropriated from the State epidemic fund to aid in suppressing the disease. The Governor will decide to-day how much will be allowed for the next seven days. The cases are being concentrated at the hospital, and it is thought that not so much money will be needed.—*Indianapolis News*, Oct. 13, 1893.

A Professional Beautifier.—A certain Dr. Robert Fisher, a professional beautifier of Vienna, has been revealing the secrets of the trade. He declares that many mothers put their daughters through a whole course of beautification before marriage. The doctor divides his treatment into the negative and the positive. By means of the first method he removes blemishes that exist and by the latter he improves the good points that nature has already given the subject. He has even gone so far as to invent a "tear pump," designed to aid in the timely display of emotion.—*N. Y. Sunday Mercury*.

Looking for a Hospital Site.—Drs. William H. Ford, E. O. Shakespeare and William Welsh, who were appointed several months ago by the Mayor to select a site for a new municipal hospital, with that object in view, have visited several places in outlying districts. The present hospital location, it is said, retards the progress of building operations in the northern section of the city, while the proceeds to be obtained by a sale of the property with its large grounds would be ample to secure far better accommodations for the treatment of contagious and infectious diseases.—*Philadelphia Public Ledger*.

N. Y. Pasteur Institute.—The commodious new building of the New York Pasteur Institute, which is beautifully situated in Central Park, at the corner of 97th Street, was opened with appropriate ceremonies on October 9th. Addresses were delivered by Dr. Paul Gubier, the Director of the Institute, by Prof. K. Ogden Doremas, and by Vicomte d'Alzay, Consul General of France; after which a collation was served.

The Mayor did not Approve.—The authorities of the city of New Haven rejected the recommendation of the Board of Health for the establishment of a contagious disease hospital. The mayor is reported by the *New Haven News* of October 11, as saying he preferred to have the general hospital take care of these cases! Sapient Mayor!

Infant's Hospital.—An infants' hospital is to be established at Athol Springs, thirteen miles from Buffalo, by the "Fresh Air Mission" of that city. Dr. Eugene Smith of Detroit, has sold to the Mission the Athol Springs Hotel and the Spring House. The hospital is intended to be used in the summer only.

Punished for a Wrong Diagnosis.—The Chinese Way.—Four members of the Imperial College of Physicians at Peking, who failed to give a proper diagnosis of the Emperor's recent indisposition, were punished by having a year's salary taken away from them.

Legacy to Philadelphia Hospitals.—The Ingersoll estate was partially divided, October 11, by which the Episcopal Hospital, the Children's Hospital and the Consumptives Home, all of Philadelphia, each received one-third of \$476,574.67, the residue on hand at the date of the distribution.

Suffering at Brunswick.—Great suffering prevails at Brunswick, Me., on account of the yellow fever epidemic, and the

inhabitants have appealed for relief. Many supplies have been sent, but there is still greater need of supplies than ever. It is not likely that the situation will improve until after frost.

Dr. Harry B. Paville of Madison, Wis., has accepted the chair of general medicine in the Chicago Policlinic. He will still live in Madison as but one half his time will be needed in his college work.

Won his Case.—Dr. J. E. Reeves of Chattanooga, who was sued for damages by the "Amick Consumption Cure" Company, for denouncing the concern as fraudulent, won his case in court.

He Failed to Notify the Board of Health.—Dr. Leander A. Cliffe of Roxbury district, Boston, was arrested and found guilty of violation of law for failure to report a case of diphtheria.

Sanitarian Injured.—Dr. Lewis Balch, Secretary of the State Board of New York, received a painful injury by being thrown from a horse near Albany on the 7th instant.

Emergency Hospital.—An emergency hospital was dedicated with appropriate ceremonies, at Nashua, N. H., October 10.

A New Hospital was opened at Little Falls, N. Y., on October 16 by the Hospital Association of that city.

Dr. R. Harvey Keed of Mansfield, O., has been appointed consulting surgeon to the "Big Four" railroad.

The New Hospital Building at the Soldiers' Home, Milwaukee, has just been completed.

A Hospital for contagious diseases has just been completed at Spokane, Washington.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from October 7, 1893, to October 13, 1893.

First Lieut. GEORGE D. DESHON, Asst. Surgeon, is relieved from further duty pertaining to the medical section of the War Department Exhibit, World's Columbian Exposition, Chicago, Ill., and will return to his proper station, Ft. D. A. Russell, Wyo.

First Lieut. ALLEN M. SMITH, Asst. Surgeon, will proceed without delay to Ft. Missoula, Mont., and report to the commanding officer of that post for temporary duty, to enable Capt. WILLIAM D. CROSBY, Asst. Surgeon, to take advantage of the leave of absence granted him. Capt. GEORGE MCCLUREY, Asst. Surgeon, U. S. A. (Ft. Sidney, Neb.), is granted leave of absence for one month, to take effect about Oct. 15, 1893.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending October 14, 1893.

Medical Inspector GEORGE B. COOKE, from Navy Yard, League Island, Pa., and to special duty in Philadelphia, Pa.
Surgeon E. Z. BAKER, ordered to Navy Yard, League Island, Pa.
Surgeon R. S. MACKIE, detached from duty in Philadelphia, Pa., and wait orders.

LETTERS RECEIVED.

(A) Ashmun, G. C., Cleveland, Ohio; Atkinson, W. B., Philadelphia, Pa.; (B) Bird, Henry & Co., St. Louis, Mo.; Breedlove, J. W., (2) Fort Smith, Ark.; Bunsen, A. B., Chicago, Ill.; Battle & Co., St. Louis, Mo.; Bates & Morse, Adv. Agency, New York, N. Y.; Boulfeur, A. L., Chicago; (C) Cohen, S. Solis, (2) Philadelphia; Conneys, C. G., Cincinnati, Ohio; (D) Dues Chemical Co., (2) St. Louis, Mo.; Doherty, Goodale Co., Boston, Mass.; Dunches, J. K., Philadelphia, Pa.; DeVilliers, A., Toledo, Ohio; Doughty, C. H., Cincinnati, Ohio; Dalton, Robt. H., St. Louis, Mo.; (G) Grigsby, W. E., Blandville, Ill.; Galbraith, T. S., (2) Seymour, Ind.; (H) Harriman, J. W., Iowa City, Iowa; Hardy, H. T., Kaneville, Ill.; Heald, T. J., Galveston, Texas; Hillman, J. W., Philadelphia, Pa.; Holmes-Bayard, Chicago; Hewitt, C. N., Red Wing, Minn.; (I) Imperial Granum Co., New Haven, Conn.; (J) Johnson, H. L., E. Washington, D. C.; Johnson, C. F., San Francisco; Jones, A. M., Eaton, Ohio; (K) Kennedy, Robt. J., (2) New York, N. Y.; Kelly, Howard A., Baltimore, Md.; (L) Landrum, C. E., Jamestown, N. Y.; Lyndon, G. Frank, Chicago; Lauer, F. D., Fort Adams, R. I.; LeMond, R. F., Denver, Col.; (M) McLaughry, R. W., Portage, Ill.; Mellard, P. H., Minneapolis, Minn.; Marks, A. A., New York, N. Y.; Morant-Kissel, W., Detroit, Mich.; Mulholl, A. J., Michigan City, Ind.; (N) New York Post Graduate, New York, N. Y.; (O) Lowell, H. H., Cleveland, Ohio; Perk, Geo., Cooperstown, N. Y.; Parsons, The S. H. Sons Co., Cincinnati, Ohio; Parkinson, Jas. H., Sacramento; Piers, M. T., Colton, Cal.; (R) Riesley, S. P., Philadelphia, Pa.; (S) Stearns, F. C., Detroit, Mich.; Street, David, Baltimore, Md.; Smith, Prescott, Cincinnati, Ohio; Smith, Frank, Trester, Chattanooga, Tenn.; Smith, E. B., Detroit; Smith, D. C., Austin, Texas; Sutton, R. S., Pittsburg; (T) Tompkins, J. E., (2) New York; Tophill, C. L., New York, N. Y.; Tupper, Jas. M., (2) Washington, D. C.; (U) Unger, J. W., West Point, Miss.; (V) Vincent, D., LaPorte, Ind.; Vetter, J. C. & Co., New York, N. Y.; (Z) Zeigler, J. L., Mount Joy, Pa.

The Journal of the American Medical Association

Vol. XXI.

CHICAGO, OCTOBER 28, 1893.

No. 18.

ORIGINAL ARTICLES.

THE ORIGIN OF GLAUCOMA AND A SUGGESTION AS TO ITS EARLY MANAGEMENT.

Read in the Section on Ophthalmology, at the Forty-fourth Annual Meeting of the American Medical Association.

BY LOUIS F. LOVE, M.D.

OPHTHALMIC SURGEON TO St. MARY'S HOSPITAL, ET.
PHILADELPHIA, PA.

I do not desire to present any novel ideas with regard to the origin of glaucoma, or to recommend any special treatment of its earlier manifestations. My object is rather to direct attention to what I believe to be the principal cause of glaucoma—simplex and acute inflammatory glaucoma, and to suggest the use of well-known remedies for a condition which may prove the starting point of the disease. The nature of this obscure trouble has always been a subject for speculation, from the earliest days of medicine, but it is only comparatively recently that its pathological character was understood. The work of the anatomist, the physiologist, the pathologist and the clinician have shed much light upon what was obscure to the older physicians. Until the time of von Graefe the character of glaucoma was very obscure, his discovery of its general character was a very great step forward, but left unexplained how or why the increase in intra-ocular pressure was caused. The circulation in the eye, and the nature of the ciliary body were then not understood, but von Graefe was shrewd enough to refer the cause of the pressure to a disturbance of the circulation. When the anatomist and physiologist had made clear the wonderful method by which the nutrition of the structures of the globe is maintained and had proved the existence of a current from the ciliary body through Schlemm's canal and into the triangular space, it was seen how obstructions of these small channels might readily cause such a disturbance in secretion and excretion as might cause an increase of intra-ocular pressure and thus the symptoms of glaucoma and, if maintained, the disease itself. (Knies and Weber.)

Any cause which produces a rise in the intra-ocular pressure will give rise to some, at least, of the common symptoms of glaucoma. They may be produced temporarily in the normal eye by a simple practice that I have often adopted. If the head of a subject possessing normal eyes is held in a dependent position and at the same time pressure is made on the eyeball for a short time, the subjective symptoms produced will be similar to those of disease. The globe becomes tense to the trained touch, chromatic rings surround a bright point of light and these symptoms accompanied by severe pain, if the experiment is carried far enough, and occasionally ciliary neuralgias are produced. These symptoms are evidently due to a disturbed circulation, and the study

of the pathological conditions existing in glaucoma has confirmed the reasoning of the anatomist and physiologist. The cupped disc shows the effect of the intra-ocular pressure and where inflammatory processes have been set up their effects are found in the ciliary region. The cause of the increased intra-ocular pressure has therefore been justly assumed to be a disturbance in the fluid circulation of the eye. But what should cause a disturbance in a body so remote from external influence as the ciliary body? To this question no entirely satisfactory answer has yet been made, and I would therefore suggest that a further inquiry be made to determine the more remote causes of these changes in the circulation. It is very well known that the blood circulation is under the control of the sympathetic nervous system, and these nerves are well supplied to the various tissues of the eye; undoubtedly many, if not most of these are efferent, but undoubtedly also many are afferent, and control the circulation in the arteries of the eye. Remembering how frequently the blood vessels are acted upon by purely nervous influences of varied character, and how quickly purely normal and transitory changes may be rendered pathological, I could not but imagine that some, if not many, cases of glaucoma were caused by the result, either of repeated sympathetic shocks to the muscles controlling the blood vessel system of the eye with resultant venous stasis, or even as the result of a single severe shock which acted as a paralyzant to the sympathetic system of nerves. The idea is not new, as Donders long ago referred to this, but I believe that its therapeutic importance has not been enforced. Von Graefe thoroughly recognized the importance of a variation of the vascular pressure as causative of glaucoma whether inflammatory or not. He considered the origin of these variations to be intra-ocular, but with our present knowledge of reflex action this restriction is unnecessary.

That the pressure of fluid regulates the outflow so that when the afflux is increased a compensatory increase of the efflux occurs, (Stellen.) Can this hold good in an eye subjected to so frequent variations of pressure as occur in glaucoma? In regard to the effect of nervous shock as causative of glaucoma, I may quote Laqueur, who states that the symptoms of glaucoma often appear after sudden attacks of fright or anger, after sleeplessness, violent and exhausting labor, etc. Several cases which have occurred lately in my own practice have brought the same facts frequently before me.

Case 1.—Mary E. aged 41; four living children; two dead; no miscarriages. Says: "Enjoyed good health until ten years ago since when time has been exceedingly nervous, following an attack of typhoid fever." Case referred by Dr. John H. Locke. "Sight good until the sudden death of husband, at which time she fainted; on recovery from the faint found herself blind in the right eye, with partial loss of vision in the left. Ten days later acute inflammatory glaucoma in both eyes. Marked hysteria and melan-

cholia. The case progressed in the usual manner. Iridectomy on both eyes.

Case 2.—Mrs. K., aged 55; eight children; three living; no miscarriages. Says always enjoyed comparatively fair health. Dates the gradual loss of vision from the time of an unfortunate accident, causing the loss of several lives for which her son was in a measure responsible. Left eye absolute glaucoma, right eye glaucoma simplex. Iridectomy on right eye.

Case 3.—K. H., aged 39; married; no children; no miscarriages. Dittling from sudden death of father and subsequent family trouble her sight has been more or less bad; large, deep glaucomatous cup in right eye; shallow excavation with tapering of veins in the left eye. Arterial pulsation; increased tension; patient refused operation.

Case 4.—E. O., aged 55 years; cigar maker; patient profoundly neurasthenic and hysterical; similar history as to family trouble and great mental strain. Case of glaucomatous simplex.

In all of the above cases they were referred to their accustomed medical attendant; no organic trouble was reported with the exception of the second case, where albumen and casts were found in the urine.

I do not wish to be understood as insisting that every case of glaucoma simplex, or acute inflammatory glaucoma has necessarily a nervous origin, or that the disease is *always* caused by reflex action through the sympathetic nerves. I believe, however, that a majority of cases can be traced to a nervous starting point, and it is to the cases thus caused that I wish to direct your attention.

The prodromes of glaucoma are exceedingly obscure; occasionally they seem to be wanting altogether, but cases not rarely occur in which, while there is no definite indication of glaucoma nervous symptoms manifest themselves which indicate the possible development of the disease. Such cases if looked for will develop in every ophthalmologist's practice and while it is of all the difficult problems of medicine, most difficult to prove "what might have been," observation has convinced me that glaucoma can be ward off, so to speak, by the use of the best means known to the neurologist for strengthening the nervous tone. In this event the case passes from the care of the ophthalmologist to the expert in nervous diseases, but I have seen in my own practice most beneficial results from the use of strychnia in moderately heavy doses, and in one case especially a long sea voyage has resulted apparently at least, in the prevention of the threatened disease. I do not think that the ophthalmologist should be called upon to treat such cases but they should be given the best advice as to hygiene and medicine that the present status of medical progress affords. As to the effect of electricity either local or general in such cases, I am not in a position to speak, but I believe that it might be highly beneficial.

Of course after the disease has developed, there is nothing but the old routine to employ. Early iridectomy and the use of eserine comprehend the sum total of the treatment. It is in the earlier stages of the disease that the glaucoma offers the best prospect for useful therapeutic study, and it is to direct your attention to this study that I have engaged so much of your time.

I do not think our present knowledge of nervous irritation or sympathetic secretion is sufficient to enable us to make a very good defense of the theory that glaucoma is a nervous affection, but practically I think if we take careful histories of our glaucoma-

tous cases that we will find nervous symptoms predominate.

1. Early symptoms, doubtful name of term.
2. Poor accommodation effort.
3. *Neuratic conditions*, neuralgia, etc.

POSTERIOR SCLEROTOMY AS AN IMMEDIATE PRELIMINARY TO SOME OPERATIONS FOR GLAUCOMA.

Read in the Section on Ophthalmology, at the Forty-fourth Annual Meeting of the American Medical Association.

BY H. GIFFORD, M.D.

OMAHA, NEB.

The proposition which I wish to maintain is that when the intra-ocular tension is high, a small incision through the sclera into the anterior part of the vitreous, made immediately before the various operations for glaucoma in which the anterior chamber is opened, greatly lessens the dangers which ordinarily attend such operations. These dangers are in brief: 1, that the iris may be wounded or the incision into the anterior chamber be improperly made on account of the shallowness of the chamber; 2, rupture of the suspensory ligament with loss of vitreous or subluxation of the lens; 3, tardy healing of the wound; 4, failure of the anterior chamber to refill; 5, failure of the operation to immediately relieve the high tension; 6, rupture of retinal or choroidal vessels.

That a small incision into the vitreous, made two or three minutes before a glaucoma iridectomy, for instance, must greatly lessen these dangers is, I think, obvious from a moment's consideration of the conditions. With rare exceptions, glaucomatous eyes are hard because there is too much fluid in the vitreous; a scleral incision about one-eighth inch long, allows this excess of fluid to drain off without permitting the escape of any appreciable amount of the vitreous jelly. The contents of the vitreous chamber being thus lessened, its tension becomes, for an instant, less than that of the anterior chamber, and the latter immediately tends to become deeper, thus facilitating any incision into it, beside tending to break up any adhesions which may have formed at its filtration angle. With a low pressure in the vitreous, the danger of a rupture of the zonula must of course be less than when the pressure from behind is high. It is equally plain that the preliminary sclerotomy favors a prompt closure of the wound and decreases the chance that at the evacuation of the aqueous the iris may be so firmly pressed against the cornea as to retard the refilling of the anterior chamber, or perhaps prevent it entirely, as in the cases of so-called malignant glaucoma. Whether the danger of rupture of the retinal or choroidal vessels be lessened by a preliminary sclerotomy may be questioned; since when it is done, the two incisions probably remove more fluid from the eye than a simple iridectomy would, it might be held that the danger of internal hemorrhage would be increased; but where the sclerotomy is made slowly and the vessels are allowed a few minutes to accommodate themselves to this first reduction of pressure, I think the chances are at least even, that the total danger to the vessels is not increased.

I make the scleral puncture, sub-conjunctivally, with a sharp von Graefe knife, at a point near the outer border of the inferior rectus one-fourth inch from the limbus, enlarging the cut to a length of

about one-eighth inch. Made in this way the additional risk involved is practically zero, and by injecting a drop of two of cocaine solution under the conjunctiva, the scleral cut is rendered as painless as the corneal section.

Primary glaucoma is a rare disease in my region, so much so that in the last two years I have had but four cases in which the preliminary sclerotomy seemed to be called for, and I feel like apologizing for the small amount of clinical material which I have to illustrate my theoretical conclusions. In two of these cases it was made immediately before making an iridectomy, with an excellent result in each case. In the other two cases, an iridectomy had already been made and the scleral incision was used as a preliminary to extracting what remained of the lens. In one of these, the patient was Miss T., age 27, who came to me about Sept. 15, 1892, with the history of glaucoma of the left eye of several years' standing. Two years before, a broad iridectomy had been done elsewhere without permanently relieving the tension. The eye was sightless and painful at times, with tension ∓ 2 . A broad posterior sclerotomy was made with only temporary relief, and as the patient was much averse to enucleation, I extracted the cataractous shrunken lens. Before making the corneal incision, however, I made a posterior sclerotomy and had the satisfaction of extracting the lens with a sharp hook without the loss of a particle of vitreous from the corneal wound. The operation afforded relief for but a short time, however, and in the course of six weeks the eye was eviscerated. The case simply indicates the advantage of the preliminary scleral incision when the lens has to be extracted from a hard eye; for without it the extraction in this case would almost certainly have been followed by a gush of vitreous.

The fourth case illustrates the same principle, but as the history exhibits the unusual feature of glaucoma developing after a broad preliminary iridectomy for uncomplicated cataract, together with one of the so-called spontaneous cures of cataract. I give it in detail. A. F., age 56; German; came to me April 15, 1887, on account of blindness of the left eye. I found the eye to contain a nearly mature cataract, rather whiter than the average, with nothing else abnormal to be seen about the eye. Light sense and projection first rate. The other eye showed slight central opacities of lens, but was otherwise normal: $V. = 0.50 \mp$. A preliminary iridectomy was made on the left eye and contrary to my present custom it was made fully as broad and peripheral as the average glaucoma iridectomy. The healing was normal and the patient left the hospital in a few days. During the next five years the man was seen once or twice but showed no perceptible change in either eye. On Feb. 18, 1892, he returned, stating that the sight of the left eye still remained unchanged (he could count fingers) up to the end of December, 1891, when the eye began to pain him and the sight to get worse. To my surprise I found the eye blind except for uncertain light perception at the outer side of field, no projection, $T. \mp 1\frac{1}{2}$, eye injected and painful. The cataract had undergone spontaneous resorption with the exception of the greenish-yellow nucleus, which was dislocated downward and bobbed about with the movements of the eye. A red reflex could be obtained from the fundus but no details could be made out. No history of a trauma could be elicited. Right

eye as at first examination: $V. = 20/40 = \text{a. 20} \pm 1 D$. Without having much faith in the theory, I pressed on the supposition that the movements of the nucleus might keep up the glaucoma, and extracted it with a sharp hook after a preliminary posterior sclerotomy, without losing a particle of vitreous at the operation. After forty-eight hours a minute bit of vitreous was found between the lips of the corneal wound, but this soon disappeared and the healing was otherwise normal. Some weeks afterward the man had a slight attack of pain in the eye but with this exception the relief afforded by the operation has been permanent. The occurrence of primary glaucoma after a broad iridectomy is rare, if not unique. The advantage of glaucoma with spontaneous resorption of the cataractous lens has recently been noted by Witwitsky; and in my case, as in his, the onset of the glaucoma probably preceded the beginning of the resorption of the lens.

The case which led me to make posterior sclerotomy as a preliminary to glaucoma operations was that of a boy, aged about 11, who for years, and probably from birth, had had tremulous irides. As the result of a blow on the left eye, the lens was dislocated into the anterior chamber, with the immediate development of glaucomatous symptoms, which had persisted for several days when I was called. I found the eye very hard and painful ($V.$ about 0, but no record made of it.) with the transparent lens pressed against the cornea doubling up the iris at its periphery. As I knew from an examination made two years before, that the eye had a fluid vitreous and a ruptured zonula, I hesitated about extracting the lens with so high a tension. I therefore made a scleral puncture below, which at once relieved the tension and after some hours, the lens was found to be in its normal position with the eye perfectly quiet. The boy remained in the hospital for three days with no return of the glaucoma. He avowed that the sight of the eye was as good as ever, (this had always been the better of his two poor eyes) but disappeared before any accurate tests were made.

It was not until recently that I learned that Weber (Arch. f. Ophthalmologie, xxiii, 1, 86) had proposed posterior sclerotomy to relieve the partial dislocation of the lens which occurs in the cases where, after a glaucoma iridectomy, the anterior chamber fails to refill. The proposition is a good one so far as it goes, only I feel confident that if the sclerotomy were done before the iridectomy, such cases of malignant glaucoma would rarely, if ever, be met with.

In employing posterior sclerotomy as an immediate preliminary to glaucoma operations, I supposed, until recently, that I was doing something entirely new. All the handbooks at my disposal, including the large treatises of Graefe-Saemisch and De Wecker-Landolt, are silent on the subject; but on obtaining the valuable monograph of Priestly Smith on glaucoma, I found (p. 161) the following passage: "A scleral puncture is easy to make, nearly or quite painless and apparently safe, and it fulfills a definite purpose; namely, that of withdrawing fluid from the vitreous chamber so as to lessen for a time the pressure behind the lens. I have many times employed it, and I think with advantage, as an auxiliary to iridectomy in cases of special risk, making the puncture, in most instances, immediately before the iridectomy, in order to relieve the very high vitreous pressure before allowing the aqueous to escape; in

others immediately after the iridectomy, because there was very little escape of aqueous and the eye remained unduly hard. Further experiments may lead us to employ it methodically in conditions of this kind." I hope that my own slight contribution, if it does nothing more, will attract to this opinion of so good an authority, some of the attention which it deserves. I should add that when the preliminary sclerotomy is made, the corneal incision is best made with the narrow cataract knife.

COMMENTARIES ON DISEASES OF THE LACHRYMAL PASSAGES.

Read in the section on Ophthalmology, at the Forty-fourth Annual Meeting of the American Medical Association

BY H. GRADLE, M.D.
CHICAGO.

The objective sign of disease of the tear passages, viz: the overflow of tears, varies in degree in different patients. From the history and by the personal examination, it can be learned that while the eyes of some patients water continuously as long as they are awake, others notice the watering only when exposed to wind, smoke or dust, or on using their eyes under the condition of eye strain. In this class of patients the tears accumulate only while some stimulus excites the tear gland; but in the first mentioned class the activity of the tear gland is a continuous one. As far as we know, the secretion of the lachrymal gland is, however, not a continuous one under normal circumstances. Thus it has been noticed in congenital, absolute impermeability of the tear passage and after surgical obliteration of the tear sac, that the tears appear only when some external stimulus calls them forth. If hence an eye waters when no such external cause accounts for it, there must be some morbid irritation which maintains the continual activity of the glands. It can be proven therapeutically that in some instances the source of this reflex secretion is an intra-nasal anomaly, but in others the origin of the reflex appears to be the disease in the tear passage itself.

Observation has taught me that it is of some importance to distinguish between these two classes of lachrymal disease, viz: the cases with occasional and the cases with continuous lachrymation, although in some exceptional instances it may be difficult to decide to what class the patient belongs.

In those cases in which lachrymation is not continuous it is sometimes so slight that the patient does not speak of it. Hence if an operator is not on his guard he may overlook the presence of a purulent dacryocystitis in operations on the eyeball. In other instances, relief may be sought for some secondary condition caused by the lachrymal disease, without the existence of the latter being known to the patient. I have seen two instances of chronic purulent conjunctivitis in which the patients did not at all mention watering of the eye, but where pressure showed pus in the tear sac. In both patients the conjunctivitis, hitherto rebellious to treatment yielded readily on attending to the lachrymal disease. I have also seen some instances of blepharitis and asthenopic complaints in which the prime cause, viz: an obstruction of the tear duct could be proven objectively, but could not be inferred with certainty from the patient's statements, an observation previously spoken of by Becker (*Am. O.* xix 3, p. 353).

On the other hand, lachrymation by itself is not necessarily indicative of obstruction in the passages. Whenever the tears are secreted too fast, they can not be carried off by the healthy canal as is shown by physiological crying. Weeping hence occurs with normal passages in acute inflammation of the eye and sometimes also in consequence of eye strain. Nasal irritation, too, causes in some instances a flow of tears too copious for the capacity of the normal tear duct.

Since diseases of the tear passages are most frequently caused by nasal anomalies we find at times lachrymal obstruction associated with irritative lesions in the nose which determine a continuous flow of tears. The cure of the nasal anomalies may in such instances change the continuous to a periodic lachrymation, even though the lachrymal obstruction persists. In other instances, however, no intra nasal source of reflex lachrymation can be found, and the cause of the steady activity of the lachrymal gland must be sought in the disease of the tear passage itself.

According to my experience the prognosis of disease of the lachrymal passages is largely determined by the occasional or the continuous character of the lachrymation. When the eye waters only on exposure to wind and dust or on severe exertion the disease is, as a rule, easily removed, while in those patients whose eyes water continuously therapeutic results have either been difficult to obtain, or were entirely unsatisfactory in my experience. It has seemed to me that the choice of the therapeutic method may determine the rapidity of the cure, but that the completeness and permanency of the results depend on the nature of the disease rather than on the mode of treatment. It may of course be suggested that these statements are self-evident; that mild cases are more easily cured than pronounced disease. But this would only be a play of words. For in some of the instances in which the watering is not continuous I have found a most decided obstruction or firm closure of the passage, while again in some cases of very rebellious dacryocystitis with unremitting flow of tears, the patency of the sac is scarcely interfered with or easily maintained. Moreover in considering a case cured or not cured, I do not depend alone on the symptomatic indication of the epiphora, but judge by the patency to the probe in cases of stricture or the presence of pus in dacryocystitis.

In the discussion of therapeutic methods and results it seems to me important to insist more on the distinction between stricture of the passages on the one hand, and dacryocystitis on the other, than is commonly done in literature. The two disorders are of a different pathological character and require different plans of treatment. It is common, however, to read of the same treatment used without discrimination in both affections. But what I have said of the influence of the lachrymation on the prognosis applies equally to both forms.

In obstructive disease of the passages I have largely employed the electrolytic treatment described by Jessop and Stevenson. The lachrymal probe is made the cathode of a current of four to six milliamperes lasting one to three minutes, shocks being avoided by creeping into and out of the circuit. A convenient way of doing this is to vary the pressure of the sponge or leather-covered positive electrode upon the well

wetted skin of the face. Where possible without much resistance I have entered the intact punctum dilated by a conical probe with a Bowman No. 1 or even a fine platinum wire. Where the punctum was narrow I have, however, nicked it. After the current has passed a sufficient time but never more than three minutes, the probe which may have been grasped tightly by the walls while entering is felt to fit loosely. It is hence possible to introduce a probe more easily while the current is closed than while it is open, provided there is no absolute closure of the passage.

As the ultimate result of electrolysis I can present the following data: while it is not frequent that permanent benefit is obtained from a single sitting, three to five electrolytic dilatations will restore the patency in most instances of lachrymal obstruction in which lachrymation is not continuous. It is thus a quicker mode of relief than ordinary probing. Its greater efficacy I have likewise observed in comparative trials on the two eyes of the same patient, and in some of the more tedious cases by using the same probe at alternate times with and without the current. But when no probe can be made to enter without undue force, it is less painful to the patient and as far as I can tell more useful in the long run to make at once a thorough Stilling's incision. If after this the patency does not persist I have sometimes found it advantageous to use probe No. 6 with electrolysis. But there are instances with much continuous weeping in which it is not possible to keep the passage open by any therapeutic means. The prognosis, however, is better if the continuous lachrymation is of nasal origin. If in such cases the causative nasal anomaly can be removed, the weeping changes into the intermittent type and the tendency to reestablishment of the stricture ceases.

In purulent dacryocystitis the results obtained by a free internal incision depend on the condition of the sac membrane. My experience leads me to think that this is indicated by the degree of lachrymation. In any instance in which the eye was ordinarily dry except when irritated by the usual stimuli of lachrymal action, the purulent secretion diminished progressively from the time of the operation. It is in this class of cases that Stilling's assertion so ably defended by Thomas last year, applies literally, viz: that a single incision is sufficient for a cure without subsequent probing. The result has been the same, both where the knife met with considerable resistance and where the operation showed no real stricture. But I have learned to lay stress on the regular evacuation of the sac by pressure. In fact in very young children dacryocystitis will often heal by this procedure alone, without any incision whatsoever. When the lachrymation due to an inflamed tear sac is a continuous process the incision is not so likely to lead to a permanent cure. In some instances in which the caliber could not be maintained by the incision alone, electrolytic dilatation with large probes has been of service. But there are cases, presumably those with polypoid degeneration of the sac wall in which the passage stays clear, but the purulent secretion and overflow of tears do not cease entirely. Some of these I have been able to benefit by nitrate of silver injection (2 to 4 per cent.) and others by nasal treatment. But still there remains a minority of patients in whom the continual weeping and purulent secretion can only be cured by obliteration or extirpation of the sac.

THE TREATMENT OF NASAL DUCT OBSTRUCTION.

Read in the Section on Ophthalmology, at the Forty-fourth Annual Meeting of the American Medical Association.

BY CASEY A. WOOD, M.D.

PROFESSOR OF OPHTHALMOLOGY IN THE POSTGRADUATE SCHOOL OF MEDICINE, COLLEGE AND ATHERTON COUNTY HOSPITAL, CHICAGO, ILL., AND ATTENDING OPHTHALMIC SURGEON OF THE CHICAGO EYE, EAR AND THROAT HOSPITAL.

I find that some writers treat the whole subject of nasal duct obstruction in a sort of light and airy fashion, as if they were dealing with tarsal cysts or the removal of a foreign body from the conjunctival sac. Others run along in a most gloomy vein, entirely discouraging to the seeker after surgical consolation in the hour of doubt.

These facts have impelled me to bring before you some conclusions I have arrived at, regarding the treatment of this condition, both to introduce the subject and in the hope of hearing your criticisms.

First of all, how shall we distinguish between true organic stricture of the duct, and obstructions due to swelling of the mucous membrane? I have come to regard the answer to that question as a necessary preliminary to treatment and I have mostly applied this test: when the sac is enlarged and pus can be squeezed out of one of the puncta, an organic obstruction (at least stricture of the soft parts) is present, and I have rarely seen a case where even the most extended and carefully pursued treatment by syringing, irrigation or other procedure, preserving the integrity of the punctum and canaliculus, do more than palliate the discomforts of the case. On the other hand, if there be little or no cystic swelling and the secretion be entirely mucous and not overabundant, the obstruction is a swollen or otherwise diseased mucous membrane and is, in a fair majority of cases, amenable to the milder kinds of treatment.

Assuming that one must ferret out the first cause of the trouble in these cases where one has to deal with obstruction not of the organic kind, I feel certain that nasal diseases are the most important, an argument by the way, in favor of the oculist knowing something about the diagnosis of nasal troubles. Further than that, there appears some reason for thinking that the mucous membrane lining the nasal canal is liable to atrophic obstruction (from inspissated mucus and mucus-pus) in atrophic rhinitis, quite as much as from the swelling that goes along with the hypertrophic form. Not enough is said about these matters. The entrance of the duct into the lower nasal meatus bears, I think, much the same relation to duct and sac and eye, that the neighborhood of the Eustachian entrance in the posterior nares holds to the tube, tympanum and internal ear. We should know as much about it in treating nasal duct obstruction—especially in those conditions not the result of organic disease—as we try to discover of the Eustachian entrance in middle ear disease.

It is often possible, particularly in the atrophic forms of nasal disease and in some other cases where cocaine can be used, to see, if not the opening itself, at least the vicinity of that opening. For this purpose I would suggest, when simple anterior rhinoscopy fails, a very small post-nasal mirror.

Dr. Emile Berger in his very instructive monograph (*Les maladies des yeux dans leurs Rapports avec la pathologie générale*, p. 165) pictures a mirror of this

kind 4 mm. in diameter but I think the larger sizes can often be used with better results. If the neighborhood of the opening require special treatment, it should receive it quite apart from that administered to the nose as a whole.

Having first proven by means of a small Bowman's probe—without the use of cocaine which is likely to lead one astray—the patency of the canaliculus as far as the sac, the amount of obstruction within the duct (I do not mean its mere permeability) may be judged by the ease or difficulty with which one can inject watery fluid into the nose. In my experience this procedure furnishes us with a fair indication as to whether in a given case the treatment is—other things being equal—likely to be prolonged or not.

Coming to local treatment of the duct proper, I can not understand how, whether in cases of true stricture or not, the passage of the smaller probes, say Bowman No. 1 or 2, through the intact punctum and along the intact canaliculus, into the nasal duct can possibly do any good. I have often seen it do harm. If introduced under cocaine in sufficient strength to anesthetize the sensitive mucous membrane, abrasion of some part of the passage is sooner or later pretty certain to be produced. Because it is not an easy maneuver, that of passing a probe of this kind so that its small, sharp end will strike the superior opening of the duct without injuring the membrane that covers it. But if one does manage it upon every occasion—*oui bono?* It is not large enough in the first place, to exert a healthy action upon any form of obstruction I know of and does not, when once in, give us any information not more easily and more safely obtained by other means.

Most cases of nasal duct obstruction—aside from stricture—can be cured by the local application of appropriate remedies, and it seems to me rational that the *sort* of local remedy is of importance. Most observers speak in a vague way about the nature of these, but why should we not treat the swollen or otherwise diseased mucous lining *here* according to the local condition, so far as we know it, or are capable of guessing at it? Anel's or Meyer's syringe, and those patterned after them, as usually sold, have too large a point. It is usually necessary in using them to first introduce the punctum dilator. Again, the barrel is usually too small, requiring repeated removal and introduction of the point when much fluid is needed. To remedy these defects I would suggest that a fine hypodermic needle, whose end has been cut off and rounded by a careful workman, should be attached to a good large barrel. It is then less distressing to the patient and makes on the whole a more useful instrument. With it one may flush the whole tract painlessly, easily and effectively.

Far better than any of these, when the duct is moderately patent, is the lachrymal irrigator which anybody can have made at a small cost. It is nothing but a reservoir, best placed ten feet above the patient's head, a piece of rubber tubing, a stopcock and the altered hypodermic needle aforesaid. All the operator has to do is to introduce it (and it is much easier of introduction than the point of a lachrymal syringe) and irrigate as much as he pleases.

Whatever I have done in these cases I rarely find that my patients present themselves often enough for treatment. One must have some kind of supplementary procedure, and I know of none more sim-

ple and effective than that which Gould speaks of in a paper published last year in the *New York Medical Journal*. After a somewhat similar fashion I have been instructing my patients to help cure themselves for several years past. They soon learn to keep the sac emptied—by pressing upon it and forcing its contents into the nose—and afterwards allowing it to refill with the curative fluid applied at the inner canthus.

When stricture of the soft parts is present there is nothing for it but the knife and the use of the larger probes. But with a proviso—it seems to me to be a very weak and ineffectual kind of surgical procedure, that of doing the one without some guarantee that the other will be persevered in for several months afterwards, if need be.

Not many ophthalmic surgeons appear to entertain anything like that high respect for the intermediate lachrymal apparatus which its important functions seem to demand. So far as I know, the slitting of a canaliculus is never followed by a restoration of punctum and small canal, so that the peculiar suction force, exerted mainly by Horner's muscle, is once more possible. The ineffectual slit canaliculi that roam this and other countries will surely rise up in judgment upon us. At any rate they serve to discourage the neighbors of their possessors from being operated upon in cases where an operation is loudly called for.

How to introduce the probe and keep open the passage after the stricturotome has done its work—that is the rub. I teach my patient to introduce his or her own probe. It can easily be done within ten days after the use of the knife and is a real solution of the question. I feel sure that the majority of patients will not come week after week and month after month to have probes introduced. For one reason or another their attendance ceases, there is a relapse and one's reputation suffers in consequence. I have and have had all sorts of people, children, delicate nervous women, busy men and others keep up their probing in a way which I am certain I could never myself have done. Moreover the patient, in this way, shares directly the responsibility of the case. It is his or her diseased duct, and a failure to comply with the contract lays the blame at the proper door.

Finally, there is a class of cases in which in spite of long continued, patient, diligent and in my judgment, judicious treatment, there still remains a troublesome amount of epiphora. I do not know how to classify such cases nor am I very sure that I know why the lachrymation persists. It seems to me the lachrymal gland is made to act in some peculiar reflex manner, by the abnormal conditions existing in or along the lachrymal passages and, as we can not entirely remove the cause—can not restore these passages in some cases to the status *ante quo*, the incitement to lachrymation remains.

Dr. Gould. I am sorry I arrived too late to hear Dr. Grable's paper in full, but I wish to say a word in regard to the plan of treatment which I have found successful in these obstructions of the lachrymal duct. The patient being in a recumbent position, I flood the eye with a simple astringent and antiseptic solution. Then emptying the sac by pressure, I again allow the solution to pass into the sac and duct, again pressing it out, and so on for several minutes twice or three times a day. I have been carrying on this plan of

treatment during the last year and have found only two cases where it was not successful. It has certainly been satisfactory so far as my own practice is concerned, and I have received word from two or three others who have found it equally successful. I find it often impossible to tell at a glance just what sort of stricture we have, and this at least is a ready means of differential diagnosis. I believe it will effect a cure in all cases where the stenosis is functional, due to congestion, etc., but not of course when there is organic stricture.

Dr. BETTMAN—It seems to me that the division referred to by Dr. Gradle is a very wise one indeed. There are a great number of cases of epiphora where there is no stricture, but a hypersecretion of tears due simply to reflex action from membranes of the nose. In these cases I have been content to wash out the lachrymal passages, and if I find water passes through easily into the nose I am sure the duct is opened. To the remark made by Dr. Wood in reference to the introduction of probes by Becker, I would say that Dr. Becker would not have been satisfied to use the 1 and 2 only, but he used 4, 5, 6 and 7. He passed them in rapid succession one after another, after having dilated the lachrymal duct with a No. 5 Bowman, tapering to a fine point.

THE CURVILINEAR REFLECTION OF WEISS AS A PRODROMAL SIGN OF MYOPIC DISTENSION.

Read in the Section on Ophthalmology at the Forty-ninth Annual Meeting of the American Medical Association.

BY B. A. ALEXANDER RANDALL, M.A., M.D.,
PHILADELPHIA.

In a paper in the *Medical News* of Feb. 9, 1889, the writer called attention to a phenomenon first described by Weiss at the Baden-Baden meeting of German scientists and physicians ten years before, and asserted to be a prodromal sign of myopia. Another report on the subject was made by Weiss to the Heidelberg Society in 1885, and his elaborate paper was published in Volume XXXI of *Gräfe's Archives*. The matter has since received little attention; and Dimmer's note in his *Retinal Reflexes* (*Die Ophthalmoskopischen Lichtreflexe der Netzhaut*), and my paper in English, (also in *Kl. Monatsbl.* May, 1889) are about the only further references to it. The careful study of Dimmer corrects the one minor point in which my view of the causation of the appearance seems in error, and gives full scientific corroboration of the facts; so the phenomenon may be regarded as real and noteworthy in a number of cases, and the questions of its frequency and prognostic significance come more distinctly and urgently forward.

Except to ophthalmologists of extreme "revolution" proclivities, the questions of the causation and progression of myopia constitute most important subjects of study, and concern closely all who practice eye surgery, whether they have many or few actual myopes to deal with. Myopia is a condition of refraction; and any statement that it is in itself a disease, meets at once a refutation and a recoil on the part of some to the view that it is a beneficial adaptation of the eye to its requirements. The excessive outcry about the "school-myopia" has done harm to the cause of school reform and impugned the honesty, as well as the judgment and observation of the reformers. The vast bulk of good, bad and

indifferent studies and writings on the subject leave only a sense of bewildered disgust in the mind of any but the careful critic; for to the same investigator must sometimes be credited the worst as well as the best of the observations. The requisite critical analysis has not always been given to the divergent data and statements bearing upon the subject; and any and every view can obtain apparent confirmation among the host of contributions to the matter.

A general collection and analysis of the material available was made by the writer in the *American Journal of the Medical Sciences* of July, 1885, and extended in papers before the International Ophthalmological Congress of 1888, the American Ophthalmological Society in 1890 and the Ophthalmic Section of the AMERICAN MEDICAL ASSOCIATION in 1890, in the endeavor to sift the truth out of the numerous hampering or contradictory details which surround it. As a result of these studies it has seemed to me unquestionable that hypermetropia is the natural primary condition of the eye of the child and suffers little change with growth toward adult life through any normal increase of the dimensions of the globe. It does, on the other hand, constantly tend to diminish, as the result of pathological distension due to inflammatory swelling of the tissues, as evidenced by changes in the eye-ground, most commonly about the optic nerve entrance. These changes have been variously explained, and their inflammatory nature combated by Stilling and others; but the minute observation of careful ophthalmologists demonstrates the reality of their inflammatory character. The study, therefore, of these conditions of cones, distortion and excavation of the pupil, the "starg" (Thomas), *American Journal of the Medical Sciences*, October, 1875) of the vessels and every other phenomenon which can give warning of the advancing process is abundantly worthy of attention. Among these phenomena this curvilinear reflex of Weiss certainly demands consideration; and it is a subject for regret that it has not received wider and closer study.

The appearance consists in a curved line of brilliant reflex, generally at the nasal side of the optic nerve and nearly concentric with its margin, shimmering and shifting like the other retinal reflexes, but marked by a certain constancy of form and position. Its conspicuousness is increased by the employment of an overcorrecting convex, or an undercorrecting concave glass, which has led Weiss to assign it to a position in the vitreous and to ascribe it to a collection of fluid interposed between this humor and the underlying eye-ground. Like all the retinal reflexes, it is best seen in this way; yet it can be traced to the retinal level and recognized as proceeding from its limiting layer. It is evidently due to the curve of the retinal surface, caused by the prominence of this margin of the nerve; and Dimmer has shown that it is an inverted image and must, therefore, proceed, not from the convexity of the prominence, but from the concavity where this passes downward into the general retinal level. Thus formed, the "reflex-bogenschiff" of Weiss indicates a real prominence at the corresponding margin of the nerve and not a hypothetical detachment of the vitreous. It is met most commonly in distending myopic eyes, although also seen in those which are hypermetropic; and my impression that Weiss is correct in regarding it as prognostic of increasing

distension has been strongly, if not precisely, confirmed by extended observation. While as yet unprepared, however, to fully substantiate this view of its significance, I desire to bring forward here some facts with regard to it and again to ask for it the careful study of ophthalmic colleagues.

The question of the frequency of the observation of this phenomenon must receive a slightly different answer since my more frequent employment of a strongly concave mirror in studying and seeking it; for like the other retinal reflexes, it is made much more conspicuous by this means. Examining in the autumn of 1891, 365 boys in a Philadelphia school, I noted it in but 40 eyes, and found it the next year in 124 eyes or 16 per cent. It was doubtless overlooked or unrecorded in some cases on each occasion, as the conditions of a hasty examination in which it constituted but a side issue were not favorable to an exhaustive search for it, but it was found in 11 per cent. of H and 26 per cent. of M; yet it seems certain that the eyes in that school will show no such percentage as the 38 per cent. of Weiss' average finding in a Manheim gymnasium, with 69 per cent. among the myopic.

As to its significance, no positive statement can yet be made. It has certainly been conspicuous in a group of cases of progressive distension of the eyeballs and consequent increase in refraction; and I have regarded it as so probably of unfavorable prognosis that I have employed redoubled precaution in all patients presenting it, in the effort to obviate or minimize such a change. Hence I could report a number of instances where there has not yet been any change in the refraction. On the other hand, one or two cases of progression have been met where it was absent—first and last. It may be hardly necessary to say again what I have previously stated in this section, that in my experience the tendency of myopia to progress is not the rule, as sometimes stated, but is the great exception. Hence my opportunities for observing these cases are not very large, and it seems better to try to enlist others in the study; for I think those who have sought this phenomenon have found it with rather increasing frequency and have reason to regard it as a warning that deserves consideration.

The primary claim of Weiss, that the curvilinear reflex is frequently quite difficult to see and is hardly, if at all, discoverable even in some cases where it is to be expected, has been abundantly corroborated. At the focus of the retinal level it is often inconspicuous in the most marked cases; and as the macular region generally shows a deeper level than the nasal border where it is formed, overlooking of its presence is most natural. The narrow pupil interferes somewhat with its ready investigation, but the flood of light admitted through a wide pupil tends to make less conspicuous all reflexes. The numerous shifting reflexes along the vessels, especially in young eyes, can confuse the picture, since the Weiss reflex, unless marked and typical, may seem but one of them. Indeed, until a striking case is encountered, even the ophthalmoscopist who has looked for the curvilinear reflex may remain skeptical as to its occurrence. Once well seen, it can hardly fail to interest the observer and raise questions as to how often he has failed to recognize it in the past.

We never the precise causes, efficient and sec-

ondary, of myopic distension, (and under this head I include all increases in the axial refraction), visible changes about the optic nerve entrance are the rule, and the posterior pole of the globe generally shows a measurable depression. Concomitant with this there is apt to be a prominence of the nasal margin of the nerve, giving rise to the curved surface from which the reflection proceeds. The view of Hasner, which Weiss advocates, that distortion is caused by the pull of a too short nerve, has certainly some show of probability and should lead us to seek carefully for evidence of this prominence of the nerve margin in all cases. The result of such a study will certainly be that many instances of it are noted, that changes in it will be observed in certain cases followed sufficiently long, and that an additional series of interesting and probably important studies will be contributed toward the advancement of our specialty.

The number of instances of this phenomenon which I have thus far observed, and the short periods of their study, do not permit of my drawing any sweeping conclusions. I can only say that I have seen more tendency to increase of refraction in these than in any other group of cases, and am forced to regard the presence of Weiss' reflex as calling for special precaution and guarded prognosis, with regular periodical examination of the vision and refraction.

A CASE OF PERSISTENT SPASM OF THE ACCOMMODATION, RELIEVED TEMPORARILY BY TENOTOMY OF THE EXTERNAL RECTI.

Read in the Section on Ophthalmology, at the Forty-fourth Annual Meeting of the American Medical Association.

BY ALBERT RUFUS BAKER, M.D.

(CLEVELAND, OHIO.)

Miss P., aged 39, at the age of 33 began to suffer from headache, pain in eyes when reading. In a few months was obliged to give up reading and using the eyes altogether. Was treated by various physicians for nervous prostration, neuralgia, etc. Finally advised to seek a change of climate. A residence of several years in the West proving of no benefit she returned East for treatment.

In May, 1892, she came under my care. Family history good and her own health had always been good until the present trouble. She is fairly well nourished, appetite good, bowels regular, sleeps well and no menstrual trouble or other difficulty. Says she would be well if she could get relief from constant headache and pain in eyes when using them. Headaches mostly occipital but much pain referred to temples and vertex.

Upon examination, I found vision right eye 20-20, not improved with lenses or cylinders; left eye 20-70 improved to 20-50 with -1 D C axis 75, and an insufficiency of the internal recti of about four degrees for distance. I ordered a pair of prisms 2 degrees each eye combined with cylinder for left eye, confidently expecting marked relief from headache. Was much disappointed in finding that they were of no service. I then resorted to the use of atropia and found a rather high degree of latent hypermetropia, and a slight astigmatism in right eye, vision under atropia uncorrected. Right eye 20-70 with +1.25 D S. \times 25 C axis 90, increased to 20-20. Left eye 20-100 with +1.75 \times 1.25 axis 75, increased to 20-50. I prescribed right eye +1.25 axis 90 \times prisms base 2 in., and left eye +1.25 S \times 1.25 C axis 75 \times prism 2 base in, and congratulated myself that I had made a very important discovery under the atropia and that all the difficulties would be at an end, but I was doomed to disappointment, and my patient with the expensively ground lenses was only able to see 20-100 with right eye, and 20-200 with left, and notwithstanding a long, painful trial on the part of my patient the vision would not improve.

I will not weary you in detailing all the changes

I made in these lenses, discarding the prisms, reducing the strength of the spherical lenses, bandaging one eye, systematically exercising the muscles with prisms, the persistent use of atropia at one time for three months without at any time relaxing the persistent spasm of the ciliary muscles. Duboisin, homatropin and the whole list of constitutional remedies including iron, arsenic, strychnia, zinc, phosphorus, anodynes, anti-spasmodics, coal tar preparations, etc., were used without benefit. It is not often that an intelligent patient will endure all the local and constitutional treatment I heaped upon her and being no better at the end of a year's treatment be willing to continue.

Although I have been performing tenotomy graduated and otherwise during the past nine or ten years, I still remain skeptical as to its relieving a case like the one under consideration, but after consulting with my friend Dr. Millikin, I determined to give it a trial. So I made a tenotomy of the left external rectus on April 1, and was greatly delighted on the following day to note that the patient could read 20-20 with right eye with $+5 \text{ D} \pm 25$ axis 90 and 20-50 with $+1 \text{ D} \pm 1$, axis 75 with left eye; the first time there was any relaxing of the ciliary spasm since the case came under my care, excepting when under the influence of mydriatics. This continued for four or five days; patient was almost free from headaches. She was happy and so was I, and it was during this period of mutual congratulations that I sent the title of this paper to our secretary.

But our happy frame of mind was of short duration; the headaches gradually returned, the vision for distant objects became blurred with the spectacles. For a time she could see clearly in the mornings through the lenses, but later in the day everything became hazy and the old-fashioned headache returned and at the end of two or three weeks was nearly as bad as ever. In the meantime a slight insufficiency of the internal recti of about two degrees again developed. A tenotomy of the right external rectus was made with no apparent benefit either to headache or vision. At present, the muscles are perfectly balanced for distance, a slight tendency to deviate outward for near vision. The headaches are as severe as ever. Mydriatics give slight relief from headaches as before the operation. It is altogether probable that in a few years with increasing presbyopia the patient will be relieved of her distressing symptoms of asthenopia, but I should not be surprised if she should suffer from some other reflex neuroses fully as painful.

I believe that nearly all the troubles we have with the muscles of the eyeball are due to, and are the direct outgrowth of the errors of refraction. This is generally recognized in cases of hypermetropia as a cause of strabismus. In most cases of muscular asthenopia we have the same excessive nervous stimuli sent to one pair of muscles that we do in strabismus, and those patients who have not sacrificed binocular vision, consequently suffer from pain and other nervous disturbances, due to the conflicting efforts at accommodation on the one hand; and those of convergence on the other. It has been my experience not infrequently in cases of errors of refraction, after correcting the ametropia to find that while I had relieved the pain due to the efforts at accommodation, I had disturbed the equilibrium that had become established between the efforts of

accommodation and those necessary for perfect binocular vision, and thus set up a train of symptoms almost, if not quite as annoying as those from which the patient suffered before. And on the other hand, after performing a tenotomy of one or more of the recti muscles, I have relieved those patients of one kind of distressing symptoms, only to be followed by others fully as bad, so that I am skeptical as to the possibility of benefiting any case of asthenopia by a tenotomy in which prisms or the closing of one eye does not give temporary relief.

A pertinent question might be raised as to the frequency of persistent spasm of the accommodation. We oculists so frequently use atropia, prescribe spectacles, and if the patient returns complaining of a blurring of sight for distance tell him to continue the use of his glasses and the sight will clear up in time. Are we sure it does always clear up? Do not many of our patients discard our spectacles and return to their family physician or to the use of some popular headache cure to get relief? Or in these later days seek the advice of some of the specialists—oculists who make graduated tenotomies on every case in which there is a slight deviation of the eyes revealed by one of the many equilibrium tests. I think it was our genial ex-president Dr. Connor, who reported a patient upon whom thirty-two graduated tenotomies had been performed, without any marked relief of the asthenopia. I have seen several cases in which nearly as many have been done. I have a deviation outward revealed by this test of about four degrees in my own eyes, yet it causes me no inconvenience, and I should not allow any one to divide my external recti even, partially.

These cases are all susceptible to mental impressions. They prove a fruitful field for quacks and charlatans in and out of the profession. They present the most brilliant cures effected by the faith healers and Christian scientists. The mental impressions of having had an operation performed will effect a temporary cure at least. Especially if the surgeon has enough of that peculiar attribute that inspires implicit confidence in the mind of his patient that the operation will cure.

A good illustration of this mania for operations is that presented by the "ornamental" surgeons. Several of our Cleveland hospitals are filled with these patients so that it is difficult to find room for a patient needing a legitimate operation. It is the fashion now among certain classes of the community to have their rectum, the liver, gall, their urethra, and I am even informed in some cases, their ovaries stretched by the "ornamental" surgeons.

It has been my practice in these cases of asthenopia to first correct the error of refraction. If the asthenopia is not cured then, resort to the use of prisms and the systematic exercise of the muscles. If the prisms, muscular exercise or the suppression of the image in one eye gives even partial relief I then propose a tenotomy, with considerable assurance that it will be of permanent benefit. But in all cases in which no perceptible improvement can be obtained by the use of prisms, muscular exercise or closing one eye, I give a very amputated prognosis as to the result of a tenotomy, because many experience the operative treatment of these cases has usually proved unsatisfactory. The disease, as I believe, frequently being the expression of a general neurosis and not amenable to ocular treatment.

SOME PRACTICAL EXPERIENCES WITH MUSCULAR ANOMALIES.

Read in the Section on Ophthalmology at the Forty fourth Annual Meeting of the American Medical Association.

BY T. E. MURRELL, M.D.

LITTLE ROCK, ARK.

I consider the Maddox rod the most valuable and reliable test for heterophoria that we possess. Until I became acquainted with it I often had much trouble in arriving at any satisfactory conclusion as to the muscular tendencies. Since its introduction diagnosis is in most instances made easy.

The Graefe test is perplexing and unreliable in determining small errors in the lateral, and especially, in the vertical plane, the latter being extremely important even to so small an amount as half of a degree, which amount, and even less, the rod test will quickly recognize. The phorometer of Prince is a most convenient and ready application of the rod test, and is extremely satisfactory in detecting any error less than four degrees. While far more accurate than any methods heretofore possessed for measuring the muscular balance, the rod test is not absolutely reliable owing to certain physiological laws resident in the visual act as will be shown further on.

Since the very valuable contributions on the subject of heterophoria by Dr. Stevens, with his comprehensive nomenclature for designating them, a new era has been opened up in ophthalmic practice. Now that light has been thrown on this very important subject we can look back and recognize many cases in our experience that, for better knowledge we called retinal asthenopia, or some equally ambiguous title, and which after much vexation we relegated to the limbo of the incorrigible.

No eye that is subject to tiresome vision is completely examined until the muscles are carefully tested for any tendency to deviate from a perfect balance. This is now a rule with all accurate observers and we are astonished at the percentage of asthenopias who show some muscular anomaly. In how far heterophoria depends on refractive errors, just as we know heterotropia does, is not yet clearly made out; but it is more than probable that some refractive fault, with or without an existing amblyopia, is at the bottom of nearly every such condition.

I can hardly call to mind a heterophoric subject who was emmetropic, or had perfect vision in both eyes. In view of this fact, some very competent men only correct the error of refraction and claim thereby to restore any want of muscular balance. The most of us can not accept any such rule, although relief now and then comes under our personal observation, as in the following illustrative case:

Mrs. B., age 28, consulted me on account of inability to read or sew more than a few minutes consecutively without bringing on a severe headache and great distress. Her general health had been greatly impaired by a confinement with severe lacerations some five months previous. V. 20/45 partly with either eye. Ophthalmoscopic examination was made especially to settle a point of dispute as to the existence of a central lesion. A normal fundus was found. Under paralysis of the accommodation: O. D. V. 20/40, 75 Dsph. \pm 25 Deyl. 90° 20/20, O. S. V. 20/30, 75 Dsph. 25 Deyl. 90° 20/20. Rod test reveals an esophoria at twenty feet 10 degrees. Ordered for her the cylinders or prisms or sewing. She wrote me a week later that the glasses gave her comfort. A month later I heard that she

could use her eyes more than she had done for months. Not having the opportunity to see her and test her, I could not say positively the esophoria had disappeared, but certainly the asthenopia had; and this would lead one to infer also the esophoria. According to a rule given further on, this case, with an esophoria of 10 degrees, called for an operation.

If one will carefully test all his refraction cases with the phorometer, he will find a large percentage of them show lateral deviations of a few degrees which, within a certain limit, say two or three degrees, I regard as physiological. Repeated tests will show these deviations, however, to be variable. The association between convergence and accommodation is so intimate that in many cases of either astigmatism or hyperopia uncorrected, we find an esophoria of two or four, or even more, degrees that calls for no special attention further than correcting the refraction. By putting the accommodation in abeyance we may convert an esophoria, apparent or an orthophoria real, into an exophoria, as the following history will show:

Mrs. S., age 27, general health bad for a year, is very nervous at times and is subject to severe headaches. Her physician sent her to me to see if her headaches and nervous phenomena could be induced by some ocular anomaly. O. D. V=20/40, O. S. V=20/30. H=1.25 D each eye. Orthophoria. Ordered for her +.75 D. sph. for each eye for constant wear. They seemed to relieve her for awhile, but she returned after two months complaining that the glasses did not relieve her any longer, although she could see better with them. Rod test now shows exophoria=2 degrees at twenty feet and 8 degrees at twelve inches. With prisms 1 degree each base in, combined with the spherical glasses, she has easy vision.

In the two cases just cited, we note the ill health and the nervous symptoms. Heterophorias in my experience are most frequently found in the neurotic and, like refractive and other troubles in this class of people, are more difficult to relieve. I have had under my observation at different times several members of one family, all of them of high nervous organizations, for refractive and muscular errors, in whom the most exact correction failed to give satisfactory results. Hence they have gone the rounds of specialists, consulting the most eminent, with like unsatisfactory results in every instance.

An eso- or exo-phoria of a few degrees does not call for correction, unless there is well-defined asthenopia after the correction of any refractive error that may exist. In these cases the addition of a prism or, when the result can be so attained, decentering the lenses will often give complete relief. Those anomalous cases of esophoria for distance and exophoria for near, or sometimes the reverse, often do not admit of easy solution.

Dr. Stevens claims that in those cases of unstable balance of the lateral muscles, being at one time an esophoria and at another an exophoria, there is invariably a hyperphoria present. This is a very wise and practical observation, and we should be careful in such conditions to carefully note the vertical balance. There are exceptions to this rule, as will be seen from the following case that came under my observation:

S. K., age 8 years, complains of his eyes at school. Says while reading the letters sometimes become mingled so that he can not distinguish one from another, but by looking off for a moment he again sees distinctly. O. D. V=20/70; O. S. V. 20/50. Paralysis by hematropin and cocaine: O. D. V. 20/60; 75 Dsph. \pm 25 Deyl. 90° 20/30, O. S. V. 20/60; 75 Dsph. \pm 25 Deyl. 90° 20/30.

While watching him, I noticed one eye diverge fifteen or twenty degrees and instantly return to parallelism on my

calling his attention. On covering one eye while fixed on an object at 12 minutes it would diverge decidedly. His mother now informed me that his eyes had always been doing this and were much worse when he was younger. She said she had often noticed when he sat nursing, that both eyes would seem to turn far apart, and that it used to be far more excessive and frequent than now. He had binocular vision for all distances. His convergence was about twelve meter angles, which he could hold for some time. In fact, he had a habit of looking excessively cross-eyed for amusement. On making the rod test I found no hyperphoria, but there was a variable lateral deviation. There would sometimes be orthophoria and then exo- or esophoria, the latter sometimes registering as high as eighteen or twenty degrees. These wonderful acrobatic performances with his eyes astonished me. The very strong tendency to deviate outward, as his mother had so often observed, and as was easily demonstrated by placing a screen over one eye, would look like warranting an operation on the external rectus, but his very great power of convergence was a danger signal to any operative procedures. So, desiring to watch the case longer, I determined for the present only to correct the small error of refraction. He chose the minus rather than the plus cylinders, and expressed much satisfaction at the comfort they gave him. A month later his parents went abroad and have not yet returned, but just before leaving I saw him and he said his glasses pleased him very much, and he had no complaints to make about his eyes. In this case you will observe there was no hyperphoria; but it will be seen that after the most perfect correction of the refraction possible, vision was still barely two-thirds of normal; in other words, there is amblyopia, a chief factor, as has been already pointed out, in these heterophoric cases.

We know that the vertical deviations are the most distressing, and can readily understand how they may so destroy the equilibrium of the eyes as to give rise to variable eso- or exo-phoria, but they are not the only factors in these conditions. In fact the hyperphoria seems sometimes to be an after-product of the eso- or exo-phoria, and correcting the latter by an operation will very largely remedy the former. The following case is interesting because of two features: one, the persistence of troublesome diplopia in a case of long standing concomitant squint, and the other, the presence of a hyperphoria which gave no trouble after the correction of the squint.

Miss L., age 17 years; at 11 years of age began to have periodic squint, which became permanent at 14 years old. She has been troubled with diplopia ever since the squint came on, varying with the squint when periodic and continuous since the squint has become permanent. When I first saw Miss L. I found the following conditions: strabismus convergens of about 35 degrees with homonymous diplopia. The squint is alternating but fixation is preferably with the left eye. When the right eye fixes she has diplopia, seeing the false image with the left eye some thirty-five degrees to the left side. She has no diplopia when the left eye fixes. V=O. D. 20/40; O. S. V=20/20.

Jan. 16. Made a free tenotomy on right internal rectus, giving binocular vision immediately after the operation, and there was no longer diplopia in any direction.

Jan. 20. Under atropin O. D. = 4. Dsph. V=20/25; O. S. + 2.50 Dsph. V=20/20. Rod test now shows esophoria = 16 degrees and right hyperphoria = 6 degrees, although she expresses much relief since the operation. A prism of 6 degrees base down to right eye, correcting the hyperphoria, half corrects the esophoria. The following glasses were ordered for her: O. D. = 3. Dsph. \ominus prism 3° base down; O. S. + 2. Dsph. \ominus prism 3° base up. With these she had easy and comfortable vision for some months. April 25. She returns for further treatment as she is beginning to have diplopia again at times. There is now a convergent strabismus of about fifteen degrees. The hyperphoria is unchanged. April 28. Made a careful tenotomy of the left internal rectus, over correcting about four degrees. Put in a suture correcting the excess. May 2. Exophoria 8 degrees, although she has ten meter angles of convergence. Right hyperphoria = 5 degrees. May 13. At twelve inches there is esophoria of three or four degrees and at twenty feet exophoria of same amount. With the following glasses she has binocular vision at all distances: O. D. = 3. Dsph. \ominus prism 3° base down; O. S. = 2. Dsph.

She returned home, wearing these glasses constantly, and a few months later she wrote me she was going to school and had no trouble with her eyes. In this case, after correcting the esotropia the hyperphoria was corrected by a prism and the relief was complete, notwithstanding an exophoria for a distance and an esophoria for near.

In adapting prisms for the correction of heterophoria there can be no fixed rule, and in any given case it is very largely a matter of experiment. The rule given with Prince's photometer, to correct one-half of a hyperphoria and from one-fourth to one-half of an eso- or exo-phoria, I have found that we should correct almost, if not quite, the total hyperphoria where prisms are accepted at all, and a majority of the exophoria, while the proportion of an esophoria that will bear correction is usually one-half or less. To avoid the constant use of prisms, which are so often unsatisfactory, the weak muscle is sometimes developed by a system of gymnastic training brought about by so placing prisms before the eyes as to increase the error already existing, and for the time forcing the muscle to do more work than ordinary. While some surgeons claim satisfactory results from this system of treatment of insufficiencies, I must say I have found it tedious, laborious to the patient and in the end unsatisfactory in the majority of instances. Perhaps the fault may be in the method and not in the principle, which is certainly philosophical to say the least.

As commonly advised, prisms so adjusted as to put extra work on the weak muscles are to be worn a few minutes at a time, and the length of time increased daily. If we but think a moment of the manner in which we go about developing the other muscles of the body we will see how very unnatural this is. If, for instance, we want to develop the biceps we do not lift a weight, draw it near the shoulder and hold it there several minutes, and then lay it down until the next day, when we repeat the exercise in the same way, only holding it a little longer each day. No; we alternately flex and extend the arm holding the weight, so as to contract and relax the muscles at short intervals. This is the law that governs in all physical exercises where the development of a voluntary muscle is the end sought. Why should not this same principle apply to the voluntary muscles of the eyes? I am indebted to my friend, Dr. G. C. Savage of Nashville, Tenn., for the above suggestions. He applies the principle to training the weak eye-muscles in the following manner: having adapted the prism of the required strength to give appropriate exercise to the weak muscle, the eyes are fixed binocularly on an object, say the printed letters of a page, for a few seconds (Dr. Savage suggests ten); then the eyes are closed for a like period, when they are opened and again fixed on the printed page for a like period, thus alternately fixing and relaxing the eyes for several minutes at each time of exercise. We in this manner imitate the ordinary methods used in developing the voluntary muscles in other parts of the body. I have not had opportunity of testing this method, but it appeals to reason.

There are cases, however, that will not yield to prisms or to orthoptic training and we then have to resort to surgery. It is not always easy to draw the line between operable and non-operable cases but a very practical rule, already adopted by most of us,

doubtless, has been published by the editor in the *Ophthalmic Record* which is: whenever the red glass over one eye shows diplopia, or there is a hyperphoria of 3 degrees or an esophoria of 10 degrees we should operate. To essay an operation on a muscle to correct an insufficiency of only a few degrees, requires of the surgeon much confidence in his ability to cope with the subject in hand. The methods of operating differ somewhat with different surgeons, as do also their opinions and experiences as to the results from any given method or amount. Some prefer very limited and repeated division of the tendon. Others prefer to gauge the operation by the result desired beforehand, and to divide just so much tendon and no more and await the result; while still others, and this is my preference, carefully divide the tendon, stopping and testing frequently until the necessary amount of correction is obtained. This seems to me the only practical method, and I seriously question the claims of those who say they can produce the result of a certain amount of division of the tendon. Sometimes a total tenotomy will give no more result than a very limited division of the tendon will in other cases. We are all aware of this in the operation for strabismus where such varied results are obtained from a clean tenotomy. Another troublesome feature in these tenotomies is, that they do not always remain just where we leave them; what shows by the phorometer perfect correction on the completion of the operation will, in the course of some days or weeks, show either an over correction or an under correction.

When the tenotomy, partial or total, gives an insufficient result the opposing muscle may be advanced; but in the heterophorias we generally have little trouble in getting enough result by tenotomy with almost no risk of proptosis. Some cases of heterophoria are particularly obstinate to correction. Whether there be such a thing as antipathy to single vision as taught by von Graefe, or whether the hyperphoria, as Dr. Stevens declares, is always the cause of the difficult fusion, is a matter yet open to discussion. The following case, which came under my observation, fully tested all my ability, patience and perseverance as well as that of the unfortunate sufferer himself.

Mr. J. M., age 33, first consulted me June 27, 1892, for diplopia and great confusion of mind, inability to think connectedly and strange, heavy sensations about his head which he ascribes entirely to the condition of his eyes. He stated that in January preceding he went to St. Louis to consult a prominent specialist, and recognizing an esophoria he procured prisms for him. They gave him no relief. The surgeon then made an operation on the left internal rectus muscle. For awhile the operation gave relief, but after some days he had exophoria. The left external rectus was now submitted to an operation, and not correcting the exophoria, the right was operated. These are the statements of Mr. M., on which I have to rely for the history of the case up to this time, as the surgeon in question failed to answer my request for a copy of his record of the case.

To dispel all error and confusion, I continued until I saw him five months later. At that time I found the following condition: Looking at twenty-five or thirty degrees to the left he had crossed diplopia. With a red glass over the right eye I took a candle twenty feet directly in front, he saw the red flame at two degrees to the left and 2 degrees below the candle flame. The red test showed exophoria = 6 degrees. At 20 feet hyperphoria = 2 degrees taken at twenty feet. There was no showing of the lines to indicate involvement of the muscles. Correcting the hyperphoria with a prism did not cure the exophoria. On covering one eye while looking at such an object, near or far, the covered eye saw the flame decidedly. O. D. V. 25-70; O. S. V. 20-20.

Correction under suspension of accommodation: O. D. = 50 D sph, \square = 50 D cyl, 135° V = 20-03; O. S. = 1 D sph, V. = 20-30.

I made a careful tenotomy of the right external rectus, testing several times until the images were brought together.

June 28. Exophoria 3 degrees and right hyperphoria = 1 degree or less. June 29. No change. Divided the tendon of the left external rectus, stopping and testing frequently, and got no result until the last fibers were divided when there occurred an over correction of 4 degrees. A suture was put in, drawing the muscle back sufficiently to leave an under correction of 1 degree. June 30. There is now less than one-half degree exophoria for twenty feet, practically parallelism. July 2. Lateral balance good for twenty feet, the vertical band of light running directly through the candle flame. There is a right hyperphoria = 1 degree. He expressed himself as greatly relieved; his head feeling clear, the mental confusion gone, and no diplopia. He went home instructed to wear glasses and return in two weeks for further examination. He wrote me occasionally and expressed himself in such glowing terms of the relief he had obtained that I, as well as he, thought it unnecessary for him to again visit me. In about two months his old troubles began to return and he was again annoyed with diplopia and mental confusion.

October 29. Examination of Mr. M. showed the following condition: at twenty feet esophoria = 4 degrees, right hyperphoria = 3 degrees, at twelve inches exophoria = 8 degrees. I now added a prism to his glasses to correct the hyperphoria, but it gave no perceptible relief. November 28. Right hyperphoria 3 degrees; esophoria at twenty feet = 1 degree. Exophoria at twelve inches = 14 degrees. As he complained now chiefly of inability to converge comfortably to the reading point, I decided to reduce the exophoria at the risk of causing diplopia for distance. Having apprised him of this, and obtained his consent to the operation, I divided the tendon of the left external rectus, giving orthophoria at twelve inches and esophoria at twenty feet = 24 degrees. He now had more or less constant diplopia, when looking off from him, but had easy fusion at twelve inches. There was now manifested a right hyperphoria of 5 degrees, and so I made a partial tenotomy of the right superior rectus, bringing the images to the same level. The following morning the hyperphoria had returned and measured 3 degrees. I divided very carefully a small lateral strand of the tendon, getting complete correction. I sutured back the left external rectus, dividing the eso- and exo-phoria for a distance and near about equally, giving 12 degrees of each. With a prism of 12 degrees base out before one eye he had ready fusion at twenty feet December 28. Still fuses readily at twenty feet with 12 degrees prism, but the rod test shows a right hyperphoria $\frac{1}{2}$ degree. There was annoying homonymous diplopia for distance, and so I made a partial tenotomy of the left external rectus, bringing about easy and perfect fusion at twenty feet, December 30. The lateral balance is still preserved but there is a left hyperphoria of 2 degrees. Put a suture in the right superior rectus and drew it forward slightly. December 31. There is now the most perfect balance he has ever had, there being orthophoria for all distances. January 13. Writes that his diplopia and confusion are returning. February 16. Esophoria 14 degrees at twenty feet, and left hyperphoria = $\frac{1}{2}$ degrees.

Made a careful partial tenotomy of the left superior rectus, frequently testing until sufficient correction was obtained. The esophoria now measured only 7 degrees or a reduction of one-half. February 17. There is no diplopia and the rod test shows a left hyperphoria of less than $\frac{1}{2}$ degree. March 18. Esophoria 10 degrees at twenty feet, and right hyperphoria = 3 degrees, the eyes having traveled through a circle and come back to about where they were in the beginning. Prisms gave him no relief. He was now very little annoyed by diplopia and expressed himself as feeling much better than formerly. Nothing daunted I again operated, this time dividing the tendon of the right internal rectus, getting no result whatever until the entire tendon was divided and the look swept widely. This overcame the esophoria and brought the eyes to a very nice balance, the hyperphoria almost entirely disappearing after the tenotomy.

May 14. Mr. M. has gotten along very well since the last operation, two months ago, but there is still some confusion of vision, especially for reading. He has diplopia when looking to the extreme right or left, due to loss of motility, but this gives him no trouble as it does not come in the way of ordinary vision. Examination with the phorometer now reveals a right hyperphoria = 1 $\frac{1}{2}$ degrees, and an exophoria

at twelve inches—12 degrees, but at twenty feet there is orthophoria in the horizontal plane. Correcting the hyperphoria with a prism does not influence the exophoria. With the following: O. D. prism 1, 1 degree base down; prism 2 base in, O. S. prism 2 degrees base in, he has easy and comfortable vision for reading distance. As he is only now troubled with the want of converging power in addition to the vertical deviation, these glasses correcting these two faults give quite comfortable vision for reading. After all the numerous tenotomies on Mr. M. there is no proptosis and the motility of his eyes is not perceptibly diminished.

What the final result is going to be one can not say, judging from the record of the cases here given with all its mutations. This case also very aptly illustrates those strange nervous phenomena pointed out by Stevens and others, due to want of balance in the ocular muscles. In his worst condition he could not trust his memory, and was afraid to change money in business transactions lest he should make a mistake. He seriously considered having one eye destroyed as he had been led to believe, and had so reasoned with himself, that this would put an end to all his annoyance.

The case was pronounced hysterical by the gentleman whom he visited in St. Louis, but I am disposed to credit his ailment to the muscular anomalies, solely for the reason that whenever he made most complaint of mental confusion I always found the most troublesome heterophoria. I have selected the foregoing cases to illustrate certain anomalies to the rules, as we understand them, at this stage of advancement in this comparatively new field of surgery and which, I trust, will in some small way help on to the perfecting of our methods of dealing with these very important as well as very annoying conditions.

Dr. SAVAGE—I always like to give a reason for the faith that is within me, but not being able to do so in so short a time as five minutes, I must refer you to the last issue of my journal, to the two papers, one on "Rhythmic Exercise, the Proper Method for Developing the Ocular Muscles," and the other on "The Relationship Between the Centers of Accommodation and Convergence." In one or the other of these papers you will find a reason for every statement that I shall make. In the first place we have two forms of esophoria; true esophoria, dependent on the natural structure of the muscle or its attachment, and pseudo-esophoria, dependent on the relationship between the centers of accommodation and convergence. Likewise we have two forms of exophoria, a true and a pseudo.

In reference to Dr. Baker's case, I will say that spasm in the true sense of accommodation is always associated with, and dependent on, exophoria, and therefore can be cured by correcting the exophoric condition. If the patient is myopic a part of his exophoria—in some cases the whole of it—may be relieved by prescribing a full correction of his myopia; but if the patient is hypermetropic a full correction, or even a partial correction of the focal error will make the patient worse by adding a pseudo-exophoria to his true exophoria. When the exophoria is as great as in Dr. Baker's case, a part of this condition must be relieved by operation. In operating on a case of this kind only the exophoria for distance should be corrected, leaving the remaining exophoria in the near to be corrected by rhythmic exercise. It is always better to divide the operative effect between the two corresponding muscles. It is my practice to operate on one muscle one time only; but I never divide a tendon completely in any form of heterophoria, always leaving a few fibers above and below to prevent the muscle retracting too far. Exophoria in emmetropic and in hypermetropic eyes grows worse with advancing years, while an esophoria in such eyes decreases as the patient grows old.

Dr. LEMMON—I have had some experience with the anomalies of refraction, in connection with asthenopia, and a want of muscular equilibrium and in trying to establish the same by tenotomies of ocular muscles. And I have come to the same conclusion as the old negro who undertook to eat the largest potato in the country, when he said: "The more he ate the larger the potato got." So it is with me in regard to muscular anomalies, combined with errors of refraction; the more we cut them and the more attention we pay to the muscles alone, the greater the subject gets on our hands.

I think the digestive symptom often plays a very important part in these affections. In other parts of the body we might ascertain what existed that was assisting, in a reflex way, in augmenting the ocular anomalies. I think the more attention we pay to the whole body, but at the same time not neglecting the eye in our investigation, the more successful we will be. I think a great many of these troubles are augmented, very largely, in people suffering from nervous depression and poor digestion in connection with bad hygienic surroundings and the want of proper kind and amount of food.

In females, my experience teaches me that these troubles are often associated with uterine troubles of various kinds, which are always ready to act in conjunction in pulling down the system, and so with these complicated ocular troubles, a *vade-mecum* is formed. I have quit looking for emmetropic eyes, for I believe that on a close and careful examination that we would not find one eye in one hundred to be in a state of absolute muscular equilibrium.

If decided spasm is absent, by no means tenotomize the muscles. Exercise them with prisms, in a gymnastic sense, say ten or twenty minutes once a day, but do not prescribe prisms for constant use. Correct the manifest hyperopia or myopia and the astigmatism, which, I think, you will find in nineteen cases out of twenty. If the patient is under thirty years of age I give them 75 per cent. of a full correction with glasses, and I think I can safely say that nineteen cases out of twenty, which have come into my hands, have been relieved.

Dr. J. I. THOMPSON—My experience is somewhat like that last given. We are indebted to Dr. Merrill for the interesting paper and classification. I believe there is a very large class of these patients who can be cured, or relieved almost entirely, by the correction of refraction. This will include 90 per cent. or more of the muscular conditions. A number of years ago when I first began practicing I corrected, as far as possible, the muscle errors by means of prisms and would get almost entire relief; and almost invariably on correcting the refractive error the astigmatism particularly would get entire relief. In correcting astigmatism alone, I believe relief often comes to the patient. There will be a small per cent. of these patients who will have to have the muscular anomalies corrected by operation, but the majority yield to correction of refractive errors. It is a bad thing to be picking at one muscle so many times. I have had patients who wore two prisms for some months and not a particle of insidiousness of the recti muscles existed after two years. I do not believe that a partial tenotomy ever benefited a case on this earth, but that all such reported cases would have done just as well without the operation.

Dr. GRAY—In the heat of discussion on the importance of muscular anomalies it is often overlooked that patients complaining of asthenopia were relieved on the whole about as satisfactorily and perhaps in as large a proportion of cases before the subject of heterophoria was ever brought out. It is true that heterophoria is a very common occurrence, but if we examine persons who do not complain of their eyes we find it as well, and often in as high a degree,

as in the patients who suffer from asthenopia. Such, at least, was my experience as related at the last International Medical Congress. Hence before we should admit any causative relation of an observed muscular want of balance, to the complaints of the patient, we should first determine whether the latter are not due to other well recognized causes, and test whether their removal will not obviate the asthenopia. On analyzing the conditions which accounted for the asthenopic complaints of 500 consecutive cases in private practice, I found that in 76 per cent hypermetropia, astigmatism, or presbyopia were the only and sufficient cause, as proven by the results of their correction; 5.8 per cent. were clearly of nasal origin; 4.8 per cent. were cured by attending to an existing slight blepharitis; 2.2 per cent. depended on slight choroiditis; and in 1.2 per cent. the conditions in the eye were connected with progressive myopia. There remain 10 per cent. not due to these causes, but depending generally on neurasthenia, as manifested as well in other functions. In nine-tenths of these, the usual tests showed the muscles practically balanced. Only 1 per cent. of the total number showed a sufficient muscular anomaly without the apparent causes for the asthenopia, to raise in my mind the question whether the muscular strain were the cause of the subjective symptoms. As I could not get any benefit in these patients from temporary exclusion of one eye which necessarily obviates all muscular strain, I did not perform any muscular operations. From my own experience I have hence come to the conclusion, that asthenopia dependent upon anomalies of the recti muscles is certainly not a common condition. I can refer moreover to a common observation, which in my mind throws much doubt on the correctness of the prevalent belief in muscular asthenopia. The highest degree of heterophoria is that which is not continuously overcome by the muscular effort, but in which at times of fatigue the eye actually deviates. These are the cases formerly called latent squint. Such patients, however, do not complain of asthenopia, or if they do it is relieved by attention to their refractive condition. According to my experience these patients suffer from temporary diplopia, but not from asthenopia or other nervous symptoms.

At the request of the Society, Prof. Zehender stated, that as far as he is informed, partial tenotomies are not at present performed in Germany. At the time when von Graefe first recommended this operation for insufficiency of the interni—as it was then called—it was performed very often by him and other oculists. But it was soon learned that a partial tenotomy does not permanently alter the muscular relations, even when the primary effect seemed satisfactory, and that a permanent change could be better secured by a total tenotomy controlled by proper sutures.

DR. KISLEY—I wish to express my gratitude over the conservative tone which has characterized the discussion of these papers. In the management of the anomalies of muscular balance it is possible that in some instances too great enthusiasm and inadequate study of the case in hand has led some operators beyond the bounds of prudence. Indeed I have already seen the consequences of mistakes in this direction. I have under observation a gentleman suffering from incipient tabes, with impaired reflexes, lightning pains, etc., who had nevertheless had his external rectus cut for a supposed exophoria. I had another patient with impaired innervation from obscure nuclear disease, which had been overlooked and the externi cut by an enthusiastic surgeon; this, too, when a careful study of the relative strength of the muscles had shown but 6 degrees of abduction and 2 degrees of adduction. Fortunately no great harm could result under such conditions, but such instances demonstrate the necessity for great caution, lest the early symptoms of

a nuclear palsy, or the incipient stage of tabes, which so frequently declares itself in transient ocular symptoms, should be mistaken for so-called heterophoria.

When attention was first called to this subject in its most modern phase, I could but wonder how I had succeeded in relieving so many people of their asthenopia, being unmindful of the reputed frequency of these anomalies of the vertical muscles and in a measure also of the external rectus. A more careful study of those persons who had not experienced entire relief from correcting glasses and careful attention to general health, soon convinced me that in a certain number of cases the trouble was due to some form of muscular anomaly. Within a few years I have succeeded, either by carefully adjusted prisms or by tenotomy, in greatly relieving a large number of my former patients and others. Therefore while mistakes may have occurred, and inordinate claims for the efficacy of tenotomy in curing diseases of the general nervous system may have been made, still I am sure there is too much of truth in these claims, and too much of real value in the careful study and treatment of heterophoria to relegate the whole subject to the realm of charlatanism.

DR. BAKER—I do not wish to convey the idea that there is nothing to be gained in the operations for heterophoria; in fact I make them, and possibly as often as any one here, (but not as often as some of my neighbors whom a friend of mine calls "post-graduate friends") and get good results in most cases. The point I wish to make is this: which are the operative cases? Not such a case as this: a patient came to my office some time ago in whom a so-called oculist had proposed an operation for heterophoria, and yet the patient had one and one-half D. of hypermetropia which had not been corrected. I gave him a pair of spectacles and his muscular insufficiency disappeared together with all asthenopic symptoms.

The muscular insufficiency in this case was caused by the error of refraction, as I believe it to be in ninety-nine cases out of a hundred. In nineteen cases out of twenty, if we correct the refractive error we will give comfort to our patients. In all, I prescribe lenses that fully correct the error of refraction and tell the patient to wear them a certain length of time, and if the symptoms of asthenopia do not disappear I then correct with prisms, muscular exercise or by an operation.

DR. MURRELL—I believe that this subject of muscle errors is very imperfectly understood by the majority of men in our profession. I confess I knew nothing of muscle errors until within the last year. I am just beginning to see light; that there is something in it there is no doubt. I take a very conservative view of this subject of operation. I have had patients bring their glasses back and object to taking them because they did not give entire satisfaction. Until I began to search for these muscle errors I could not find what the cause of complaint was. I have prescribed prisms in a number of cases lately, giving complete relief in a large portion. When a patient comes to me I first correct the refractive error, and then correct the muscle error by prisms, and if this fails to give relief I perform a tenotomy. Dr. Savage has devised means by which we can exercise the ocular muscles, and thereby develop them. The character of exercise set forth by him in a recent publication is rhythmic and must, in all cases, stop short of fatigue.

THE FIRST WOMAN M.D.—Mrs. Elizabeth Blackwell was the first woman in the Republic to receive the degree of M.D., a fact which is once more brought into notice by the accounts of the death of her sister-in-law, Mrs. Lucy Stone.

SOME REMARKS ON SQUINT AND ITS TREATMENT.

Read in the Section on Ophthalmology, at the Forty-fourth Annual Meeting of the American Medical Association.

BY J. H. THOMPSON, M.D.

KANSAS CITY, MO.

To all observing ophthalmic surgeons it is evident that the common operation for converging squint is by no means perfected, and I am inclined to think that many of my hearers are willing to join me in the belief, that, of all the operations on the eye, excepting perhaps iridectomy in acute inflammatory glaucoma, that for squint is the most difficult, and yet, there is scarcely a traveling quack or recent post-graduate enthusiast who will not tenotomize a rectus muscle, at any time, on any patient, and for any fee. Some years ago I was regretting the difficulties in this operation in the company of some of the members of this section, when I was astonished to learn that, for some ophthalmic surgeons the correction of strabismus was child's play and almost beneath the dignity of an eye clinic. Why is this? Because in childhood it is very easy to straighten an eye, and the immediate effect is brilliant; but in a very large majority of cases the more satisfactory the primary operation, the more disastrous the remote consequences; at least, that has been my experience, not only in my own cases, but also in the cases of other operators, many of them excellent men. Therefore, I take it, a short paper on this subject will not be out of place.

I am much inclined to think that many people never acquire binocular vision, the visual apparatus being defective either in a want of commissural fibers between the two visual centers, or an abnormal relationship between these centers and the psychical areas in the cerebral cortex. It requires no greater stretch of the imagination to believe this, than to say that Daltonism depends upon a deficiency of certain color fibers in the optic nerve or brain. I do not mean that there is an antipathy to single vision, but that single vision is impossible, because of the inability of the individual to join the two cerebral pictures. Thus if binocular vision is not acquired, diplopia is a natural condition and does not lead to any embarrassment of sight, because the condition can not possibly be compared to binocular sight, of which the subject has no conception.

Not many days ago I examined a man 30 years old. He had alternating converging strabismus; in each eye tested separately, his vision was 20-18; he would use either eye; if he looked at an object to the left of the vertical plane, he would use the left eye and squint the right; if to the right of that plane, he would use the right eye and turn the left. No combination of prisms or colored glasses could excite diplopia. The man was hyperopic 2.5 D. In this case the individual suppressed the visual field of the eye not in use at the time, as is evidently the case in birds and fishes. I have seen the same in young children with beginning squint.

Although there are reasonable doubts of the truth of this idea, it can not be denied that some children are born with defective vision in one eye. This congenital amblyopia will be discovered, if sought for, in very many. I may say the majority of children with beginning squint at a time of life when it can not be reasonably supposed that the partial blindness

is the result of disuse. I have found this defect even in periodic squint, and in my experience it is so common that I consider it the rule rather than the exception, and that it is the predisposing cause of squint in many cases. That hyperopia is an exciting cause is evidently true; but we all know that young hypermetropes can overcome a high degree of refractive error without fatigue of the ciliary muscle, and are seldom called upon to assist accommodation by convergence. Hypermetropia even when combined with monocular amblyopia is hardly sufficient in itself to cause strabismus, because if we render the eye emmetropic with glasses, even at the time of periodic squint, there is no certainty that the deformity will disappear; and although some writers insist on such conservative treatment, the results are not satisfactory. I have tried it and I have not yet found the method successful. It is for this reason that there are some doubts of the correctness of Donders' teaching.

What relation the angle Y has to strabismus convergens and the influence the superior and inferior recti muscles have over squint is not fully determined, but it does seem to me that often the external recti muscles are not able to hold the optic axes parallel, especially since we know that the center of rotation lies outside of the vertical muscular plane, or the plane of the superior and inferior recti muscles.

This may in some persons be overcome, as in adults we find a high degree of prism can be borne in time, while in the beginning small angles excite diplopia. If from a high angle Y, or increased accommodative tension of the interni, the externi are fatigued, the eye tends to turn in, the child preferring monocular vision in comfort to binocular sight with pain. Again, there is another tendency to latent convergence, and that is that the center of rotation lies on the outside of the plane of the superior and inferior recti muscles. In health the tendency to rotate inwards is balanced by the action of the oblique; so if from any cause, nuclear perhaps, these muscles fail in their duty, the external recti fatigue, give way, and squint results.

At an early date in my professional career, I felt convinced that it was not alone the tension of the internal recti muscles which held the eyes turned inwards in confirmed squint. I thought then, as I do now, that all the muscles which rotated the eye inwards played an important part, for it does not seem reasonable that a secondary contracture should alone attack the interni and leave the superior and inferior recti muscles intact. It is safe to consider that these two muscles are involved also in the pathological changes which go so far to hold the eyes crossed. It is only another step in advance to affirm that all the structures in the orbit, immediately surrounding the eye have altered their relationship to correspond to the false position of the eyeball, and of all such structures the capsule plays the most important part.

From the above, it is evident that the operation for squint is by no means such a simple procedure as many would wish us to believe, and that when a surgeon undertakes to correct the optic axes, he has a case before him which may require for its successful issue a most critical examination into its cause, a careful study of its condition and a most minute dosage in any operation that may be undertaken. As I have said before, it is not difficult to straighten

the eyes, but it is difficult to guard against failure, since the eyes may turn in again, or in time go out the other way. The conservative treatment advanced by our confrère, Dr. Ayres, has many supporters throughout the United States. It can not be denied that the continued wearing of glasses may cure some cases; but if I am not mistaken, the method is less satisfactory than the surgical means at our command. It has this advantage, however; it can be tried at a time of life when all operative procedures are to be condemned. I am not in favor of prescribing glasses for very young children, and I always feel when I see a baby in spectacles that theory has run off with common sense.

In squint depending upon simple hyperopia, when the vision of both eyes is good, binocular vision may be secured by a simple tenotomy and the wearing of correcting glasses, providing the patient is less than thirteen years old and more than seven. For reasons well understood, in making a simple tenotomy the operation should be divided between the two eyes, and the cutting of the capsule should be in proportion to the degree of convergence. Stevens' method of modified tenotomy has immensely simplified this operation and makes it possible to accurately gauge the effect. Some of us are in favor of rotating the eye outward with a stitch, but I am afraid that this stitch has done more harm than good, for between the eighth and thirteenth year the stitch is rarely necessary, and if the operation is made on one eye at a time for full correction, it is positively harmful. I think it is better to under correct than over correct, for I see no objection to a second operation, or indeed a third; while insufficiency of convergence is to be deplored, downright divergence is shameful.

In cases where there is no hope that binocular vision can be attained, either because of well marked monocular amblyopia, or other causes, I believe it is best to combine tenotomy with advancement, which should be always capsular with or without division of the external tendon. This operation should not be undertaken on a patient under thirteen or fourteen years old. Why I favor advancement of the capsule is for the following reasons: in long confirmed squint we usually have contracture of the internal recti and other adductor muscles, together with stretching of the externi. This muscle is therefore relatively weak and may not be able, unsupported, to overcome the tendency of the eye to roll inwards, even after the tense structures are cut. So, there is danger that the muscle is advanced too much and that the capsule on the inner side of the eye is too extensively divided. Therefore to divert the eye with a limited tendo-capsulotomy requires too much pulling on the part of the advanced muscle, and after the stitches are removed, the new formed adhesive tissue may give way. To advance a muscle requires considerable dissecting, pulling with forceps and tearing with hooks, which add greatly to the possibility of infection, and since it is advisable to do this work without a general anesthetic, using cocaine alone, the operation may be unduly painful.

In old cases of squint after the thirteenth year, I advance the muscle with the capsule, either operating on one eye and dividing the internal recti of the other, or tenotomizing and advancing on both eyes. This operation has always been successful in my hands, and I have not been compelled to try any one

of the many methods suggested by authors or extolled by pamphleteers.

The reason why I like this operation, whether the tendon be cut or doubled up as suggested by De Wecker, is that the relation of the tendon to the capsule is not disturbed, and the adhesive inflammation consequent to a rather extensive wound of the capsule and conjunctiva binds the parts so tightly to their new position, that there is no danger of their giving way, even when the stitches are removed on the third day. Some may fear that the tension on the threads in this operation may tear them away, but since I make my stitches above and below the cornea passing a flat needle through the episcleral tissue and perhaps the superficial layers of the sclera itself I have not known that to happen. I endeavor to place the stitches so that the converging superficial threads when tied make tangents with the cornea and do not touch its epithelial surface, avoiding irritation if not ulceration. I prefer a waxed thread, and when about to tie the muscle forward, I twist the corneal threads so that the point of convergence marks the position of the knot; thus accurately dosing the degree of advancement and foretelling any injury to the cornea after the knot is tied.

Dr. SAVAGE—In order not to kill time I will make a few statements, and for the reasons on which these statements are founded I must again refer you to the last issue of my journal. One of two things must always be at the bottom of internal squint, viz: intrinsic esophoria and pseudo-esophoria. In most cases the two coexist. Other conditions, such as a corneal scar or an amblyopia are often associated with these causes. Hypermetropia, the cause of pseudo-exophoria, nearly always is found in cases of internal squint. True esophoria is rarely so great that the guiding sensation can not restrain it, but when a pseudo-esophoria is grafted into it, the two combined throw off the mastery of the guiding sensation and there results a *turning* where before there was only a *tendency*. The two forms of esophoria may be restrained by the guiding sensation for a long while in most cases for a lifetime when something disturbs the nerve centers and the esotropia occurs, the guiding sensation having lost its control. In all cases of internal squint the first thing to be thought of is the destruction of the pseudo-esophoria. This is readily effected by a mydriatic, the first effect of which, however, is to increase the squint by increasing the pseudo-esophoria. The pseudo-esophoria having been cured in this way, the true esophoria may be again brought under the control of the guiding sensation, the eye swinging itself suddenly or by degrees into line. In very young children the mydriatic is often enough to effect the straightening of the eyes. In older children the hyper-notropia should always be corrected to the fullest.

The correcting lenses unaided by the mydriatic, in some cases will cure the squint by removing the pseudo-esophoria, but in many cases the mydriatic must be made to aid the lenses because of a disposition, continued for a longer or shorter time, on the part of the eyes to cross when an attempt is made to fix on the near point. When squint is thus cured there always remains the true esophoria which at some time may have to be treated either by rhythmic exercise or partial tenotomies. But the great majority of these cases of internal squint are brought for treatment at a time when mydriatics and lenses can not effect a cure. The balance must be done by tenotomies, complete when necessary, partial when possible. In all these cases the fully correcting convex lenses should first be determined, and an estimate be made as to how much of the condition

they will relieve. Then a little cutting of tendon in a capsule should be done as possible.

Dr. J. L. THOMPSON—I had a patient, a little child only three months old, who had strabismus in one eye only. By using the atropin I straightened her eyes. I have had patients where the eyes turned in a good deal, in which I have used the mydriatic and glasses as early as the eighteenth month, who were very much benefited. In other patients I have operated on the muscle and have had success. In a certain number of cases we will never be successful by all the operative measures that have ever been devised. The only thing to do in these cases is to watch them. You will operate on a patient, getting beautiful results and ten years later you will have something that will not suit you at all—the eye turns the other way. These patients we feel like sliding on some one more sanguine as to results. We had better never have had anything to do with them. Concerning the question of amblyopia, I will say that I am satisfied that there are numerous cases where there is more than heterophoria that causes strabismus.

Dr. HÖRZ—I agree with the main statements of the author, and wish to make only a few remarks on the subject of advancing the muscle, inasmuch as I prefer the resection to the advancement of the weak muscle. I divide the tendon of the muscle, leaving a short stump at the line of insertion, then cut off a piece of the tendon, in proportion to the degree of convergence, and attach the muscle to its original place by stitching it to the stump. We gain several points by this method: in the first place we can gauge the effect to a certain extent by the size of the resection; we are sure we have a firm hold for our stitches, and they will not slip as they are so apt to do when they are run under the conjunctiva only; we furthermore know that the muscle will be held to the eyeball in exactly the same line that it was originally attached. But whether we do advancement or resection the operation should always be accompanied by the tenotomy of the contracted internal rectus muscle.

Dr. LE MOXD—If we were all of one mind in this department and never differing with each other, it is quite likely that ophthalmology would never have reached the stage of perfection and exactness that it enjoys to-day, but I must say that atropia in my hands has not been satisfactory; in fact, I rarely ever use atropia in connection with these kind of cases. In 98 per cent. of the cases of squint I have operated on in the last year (about fifty cases) I have had a decidedly unsatisfactory result in one case. I invariably find in these cases a vast amount of hypermetropia, and I really believe that in nearly all of these cases of squinting eye, hypermetropia is at the bottom of it. After the operation I correct the error of refraction and tell these patients that they will have to wear glasses from six to twelve months perhaps, but likely by that time they will be able to go and see comfortably without them. This course of treatment, with me, has been very satisfactory. In two cases I had to use the stitch to hold the eye in situ. I only do this where a complete tenotomy of the muscle has failed to put the eye on the same visual axes with its fellow. I prefer using the stitch to doing repeated tenotomies. I think the amblyopic condition is due largely to a great amount of hypermetropia. In my experience I have found the amblyopia confined to the squinting eye. I believe whenever we look more carefully to the eyes of school children the less squinting we will have, simply by applying the needed remedy, that of prescribing glasses. Statistics show that the Germans double and treble us in the number of glasses worn, according to the same given number of population. I think this proves to us, very conclusively, that they are just that much ahead of us in finding the early errors in refraction and correcting them.

Dr. GRACE—I wish to make one remark only, in favor of the advancement that has been spoken of. It does away with that protrusion of the eyeball which we have as a result of a simple tenotomy. That I think a very essential thing to take into consideration. I have seen this protrusion quite marked in some simple tenotomy operations. Combined tenotomy and advancement certainly gives better results.

Dr. KISTNER—Do you measure the adduction by the image of light on the cornea?

Dr. THOMPSON—Yes, sir.

Dr. THOMPSON—I am much pleased with the interesting debate on my paper regarding the amblyopia of squint. I have been surprised to find in children two or three years old, the bad vision in the deviating eye, when that eye had only squinted a few days, certainly not long enough for the sight to fail from disuse. From such experience and from the tone of some ophthalmic writers I am inclined to think there is a great deal of doubt about the truth of amblyopia exanopsia. Children born with cataract and successfully operated upon some years afterwards do not as a rule show up blindness. If the effect of disuse be true in one class of cases, why not true in the other? The use of atropia in children for the correction of squint is not so far as I have been able to observe satisfactory. I have tried it for months and do not know that I ever succeeded. If the squint is entirely due to hypermetropia I think it may be overcome by glasses. Indeed all such methods should be tried before resorting to an operation. I have relieved squint in boys of 15 and 16 years of age by correcting the hypermetropia, for when the glasses were taken off the squint would return. I have never seen a case of strabismus corrected in a young child by operation but that when the subject grew to be 15 or 16 years old there was loss of convergence or direct divergence. I have operated on children and got the most magnificent results, but when they grew up to adult age I was ashamed of them and myself too.

EXOSTOSIS OF THE ORBIT.

Read before the Section of Ophthalmology, at the Forty-fourth Annual Meeting of the American Medical Association at Milwaukee.

BY ROBERT FIELDS LE MOXD, A.M., M.D.

PROFESSOR OF DISEASES OF THE EYE AND EAR IN GROSS MEDICAL COLLEGE, DENVER, COLORADO.

When I received a letter last fall from the president of the ophthalmic section of this distinguished body, requesting me to contribute a paper on this occasion, I immediately began to cast about for a subject upon which to write. In the selection of a subject I had three objects in view, viz:

1. One in which great need existed for its further development to a more successful and satisfactory termination, both to the physician and patient.
2. One in which there was sufficient gravity to claim the attention, interest and hearty cooperation of every ophthalmic surgeon present.
3. One in which I very much needed to be enlightened upon, myself, for I believe it was Archimedes who said: "If you desire wisdom, acknowledge your ignorance that your teachers may know where to begin."

I therefore present to you, the great godhead of ophthalmology, the subject, "Exostosis of the Orbit," a morbid condition which has successfully baffled the best skill that is known either in medicine or surgery to-day, because statistics show that over 60 per cent. of the cases which have been reported have succumbed, either to septic meningitis or pressure

upon the brain following the operation; and it is our duty, as benefactors of the human race, to make a great and united effort to overcome any evil which is claiming victims among our kind at the rate of from sixty to seventy out of every one hundred it attacks.

I think it is generally accepted as a fact by most writers upon the subject that three forms of exostosis exist: 1, the cellular; 2, the craggy or semi-cartilaginous; 3, the ivory.

The cellular exostosis is characterized by its being composed of an osseous crust, which surrounds a rather soft substance that is thoroughly supplied with a bony framework resembling the honey-comb somewhat, and it is thought originates from the periosteum. This form of exostosis rarely ever attains any great size and is disagreeable only on account of its cosmetic effects, as it never gives pain unless interrupted by a blow or pressed unnecessarily.

The semi-cartilaginous, or craggy form of exostosis, is composed of layers of craggy bone often interlaced with cartilaginous particles, as well as surrounded entirely by cartilage, and particles of periosteum may be traced about the tumor; but it does not make a complete covering and is found in patches only. This form of exostosis is more apt to attain a greater size than the cellular; it offers but little resistance to the surgeon and usually makes a good recovery. Many cases have, however, been reported which proved fatal, but it does not compare in point of mortality with the third class of exostosis, which I will now describe:

The third class is the ivory exostosis, which is by far the most formidable of all the osteomata yet described by any writer upon the subject. It is excessively hard and consists of perfectly developed, and very fine bone tissues. According to McKenzie, it originates in the diploë, presses the compact tissue of the bone before it, and forms a round, smooth and somewhat nodulated tumor. There appears to be one general characteristic of this growth, and that is, it seems to have an affinity for extending into the brain. Most cases which I have seen reported, in which an autopsy was held, show that the intracranial division was developed more rapidly than the outside portion.

Regarding the etiology of exostosis of the orbit, comparatively little is definitely known. It often supervenes upon periostitis or osteitis, and is thought by a number of writers to be of syphilitic diathesis, as a positive knowledge of syphilitic complications has been shown in a number of cases reported. Other cases have been known to have received blows about the eyes which have been given the credit of the exostosis, while still other cases have received falls of various kinds, ranging from early childhood up to 25 or 30 years of age, and a number of cases have been found to have fractures of the bones of the orbit. As, however, this disease appears about equally divided between the sexes, I think the theory of falls and blows plays but a small part; for what boy has not fallen times beyond mention and narrowly escaped death, time after time, from blows of various kinds and intensities? They would not be boys were not this the case; so I think this practically excludes one of the prominent causes referred to by most writers. Again, it is thought by others, that the osteoma is due to a diseased condition of the frontal or ethmoid bone, or of the frontal sinus,

and that the parts mentioned are possibly wanting in some of their elements. Others, again, advance the idea that it is possibly due to digestive disturbance or a want of proper assimilation and appropriation of the elements of food matter; that the superabundance of alkaline reaction being present, the system is filled with bony material and thereby develops the osteoma in seeking an outlet.

These osseous tumors are usually very hard to the touch, showing, even at an early stage, a remarkable amount of resistance. They are usually slow in their development and it is something unusual for any pain or inflammatory action to be present, though in a few exceptional cases much pain has been experienced.

The degree of exophthalmus, impairment of vision, rotation, and general movement of the eyeball will, of course, be entirely dependent upon the extent and situation of the exostosis.

According to the best authorities, in the early stages of this trouble the treatment should be the promotion of all means of absorption by the internal administration of pot. iodid, and a thorough saturation of the tumor locally with mercurial ointments. The patients' general health should be looked after closely and not allowed to become depleted or run down; they should be supported by good, generous diet, and encouraged to travel or reside in the country. If the tumor is small and giving no special inconvenience and appears to be merely existing without any apparent activity, it should not be disturbed but quietly let alone. But when we find by watching the case for a time that the osteoma is gaining on us, I think the surgeon should not hesitate to advise an operation at once.

A very large per cent. of exostosis occurs in persons under twenty-four years of age. In some cases it has been discovered in babes as young as one or two months old, and in one case was found to exist at birth. But a large majority occurs between the ages of ten and twenty years, and attacks about one out of every thirty thousand cases of eye trouble. Bornhaupt collected eleven cases of exostosis of the orbit which were operated upon, and out of that number, seven died of septic meningitis (63 per cent.); two cases recovered, and two were lost sight of and the final results of these operations were never obtained. Berger and Tryman collected nine cases which were operated upon, six of whom died (66 per cent.).

The mortality does not appear to vary to any great extent in all the collected reports I have been able to examine; from the recorded experience of some one hundred authors in this department of surgery, the average mortality will be some 65 per cent. I thought it best to be brief and not weary you with tabulated reports, and will now go on to describe a very unique case which was referred to me recently by Prof. W. H. Davis of Denver:

Mr. R., aged 24, a very large and well-proportioned man weighing 190 pounds, complained of double vision and a blurring of the right eye; in addition to the above symptoms there was also quite an enlargement on the lower orbital bone of the same eye; it was continuous with the lower orbital bone throughout its whole extent. It also extended upward nearly three-quarters of an inch; and backward continuous with the floor of the orbit to near the optic foramen; the enlargement at this time was about the size of a pullet egg. He had quite an exophthalmus which pointed upward and outward. The line of vision in the right eye was at an angle of about 35 degrees from that of

the left eye. There was little or no inflammatory action present, nor had there been at any time since the beginning of the enlargement, which the patient said was about twelve months before. He said it had never given him pain, or troubled him in any way, except by causing the defect in vision and a continuous diplopia. His vision in the right eye, at this time was 7-20. He was raised on a Missouri farm, and gave an excellent family history, having never had any serious sickness in his life. His parents were both living, as well as several brothers and sisters.

The ophthalmoscopic examination showed no organic change, but there was a slight tortuosity of the blood vessels of the retina. There was positively no tuberculous or syphilitic diathesis in this patient's family history. I had him visit my office continuously for several days until I was thoroughly satisfied that my diagnosis was correct. I told him that I was sure that, at the past rate of the development of the tumor, we would very soon be forced to do one of two things: chisel off this bony mass which was encroaching so rapidly upon the eyeball, or perform enucleation. After advising with some of the members of his family who had accompanied him to Denver, he decided upon the former, and on the 17th of December, 1892, I performed the operation with the assistance of Dr. Coover.

The patient being completely anesthetized, I made a horizontal incision, commencing about six lines below the internal canthus and extended it to a little beyond the external canthus, cutting entirely through the integument down to the periosteum. I then dissected the flap up, until it could be laid back upon the superior orbital bone, which was held by my assistant. I then dissected up the periosteum and began chiseling into this bony mass, and I very soon concluded that I was pretty much in the same condition as the old pioneer, who wished for some one to help him turn the wildest loose, as I could see by the way it completely annihilated the edges of all my chisels that I had a hard job on my hands. I took a very small chisel and succeeded in drilling several small holes into this bony mass; then, by means of bone pliers connected these holes, which gave me a leverage, by which I was enabled to pry off a number of pieces, thereby reducing this bony mass about two-thirds of its size. I then attempted to pry another piece out of the floor of the orbit, knowing that it would add very much to the utility of the eye, but in this effort I was completely foiled, as it was so unyielding that I felt if I brought to bear any more weight on my pliers I should certainly burst through, and possibly put my patient in a condition to need an undertaker instead of a physician. So we decided that it was wisest to proceed no further, as we felt that the operation so far would be in a measure successful, having reduced the tumor at least two-thirds of its size. I then dressed the wound antiseptically, using a bichlorid of mercury solution, 1-5000, about as hot as it was comfortable to bear, giving the wound a thorough drenching. I then drew the flap down and bound it in its former position with about half a dozen stitches; then bandaged his eye, ordering the nurse under no circumstances to disturb the bandage until I saw the patient the next day. The patient rested very well that night, and felt fairly comfortable the next day. There was quite an inflammatory reaction of course, but this soon subsided and the healing process went steadily on to complete recovery, leaving scarcely any scar. After seeing him every day for about one week, I dismissed

him, telling him, however, to call occasionally and let me see how he got along. He visited me occasionally for about one month. By this time there was comparatively slight variance in the eye from its fellow; the diplopia was completely gone and his vision measured 20-30 in his right eye; and believing that I could render him no further assistance, I dismissed him finally, feeling that I had every occasion to be thoroughly satisfied with the result obtained.

Dr. KNAPP.—This is certainly a disease which is extremely important. The majority of these tumors are in the upper inner part of the orbit, and spring from the frontal sinus. A goodly number are on the nasal side of the orbit and originate in the ethmoid. I had a patient on whom I operated for a tumor of this kind four hours, and got out only a small portion of the tumor itself. That man had attacks of meningitis and died eleven weeks after the operation. The tumor formed in the frontal sinus and penetrated into the skull. Such cases you see in large pathological museums, especially those in London. Hence the former advice: leave these tumors alone. I operated on a gentleman, age 44, about thirteen years ago. The tumor was larger than a walnut. I got it out by the method which Maisonneuve followed in removing a large intranasal osteoma, viz: by subperiosteal enucleation. It took me a whole hour. The patient made a rapid recovery without suppuration. He is living, healthy, and no one now could discover from which orbit the tumor had been removed. The method is essentially followed in the removal of all growths, not by attacking and removing them piecemeal, but by shelling them out from the neighboring sound tissue. It has done me good service, particularly in cases of ivory exostosis of the orbit and the external ear canal.

Dr. JACKSON.—The case I reported last year has continued well, so far as I know. In that case I think it was a necessity, in order to remove it without enucleating the eye, to divide the tumor before trying to take it out. It was of excessive hardness, but after breaking several instruments I found that it could be pierced by a hand drill.

Dr. ALLPORT.—In this connection, I would say that I had a case of exostosis of the meatus some time ago that I successfully removed with the dental engine; not with the drill, however, but with some sharp burrs. The burrs became dulled occasionally during the operation, and had to be replaced by others that were new and sharp. I simply commenced burring at the apex of the tumor, and continued smoothing away the growth until the level of the meatus was reached. I have also used the dental engine in the same way, in some mastoid operations, and consider it an excellent method of operating when the burr is used and the bone substance gradually thinned away until a generous opening is produced. It is much safer than either the mastoid drill or chisel for obvious reasons.

Dr. LEMMONS.—We are very much pleased to have Prof. Knapp present with us, and I feel complimented to have him discuss my paper. As I went over carefully his recorded experience I found it more extensive than any surgeon's in the United States on exostosis of the orbit. I am very much pleased to have heard what he had to say. In the last few months I have done two operations for exostosis of the external auditory canal. I had begun to think that perhaps I had better change my title and set up altogether for diseases of this character. I did both of these operations by means of a dental engine and a small chisel. One of these cases, a gentleman 36 years old, told me this exostosis had been forming for about five years. It had completely occluded the external auditory canal and rendered

it almost impossible for the ceruminous discharge to be removed. I took pieces of this bone to a professor of pathology and had it examined, but it was found to be nothing but the ivory character of the exostosis.

I beg pardon, Mr. President, for having digressed in mentioning the exostosis of the external auditory canal, and would not have done so had not one of the gentlemen, in discussing my paper, introduced the subject. I was glad, however, the gentleman referred to it because it is a subject in which I am very much interested; and more especially at this meeting was I anxious to hear it discussed, from the fact of its being such a rare affection that it is a hard matter to get information regarding its characteristics. I have enjoyed the discussions of this hour, and was anxious to be enlightened upon this rare field of surgery.

I desire to thank Prof. Knapp, especially, for the kindly manner in which he handled my paper.

OPTIC NERVE TROUBLES ACCOMPANYING OR FOLLOWING FEVERS, ESPECIALLY TYPHOID FEVER.

Read in the Section on Ophthalmology, at the Forty-fourth Annual Meeting of the American Medical Association.

BY JOSEPH A. WHITE, A.M., M.D.

RICHMOND, VA.

I must apologize in advance for the paper I here present to this section, but I do so because I want to awaken a discussion on a subject in which I am deeply interested, and may thus be a poor means of obtaining a good result, on the somewhat equivocal ground that "the end justifies the means." In my experience I have met with many cases of optic nerve atrophy that followed so closely on typhoid and other fevers, that there is every probability they were the result of the pathological conditions attending these diseases. Whether they commenced as optic neuritis, which could be ophthalmoscopically demonstrated, or whether they followed on post-ocular alterations in the optic nerve without ophthalmoscopic symptoms could not be determined. But in all probability there was neuritis, or compression with or without papillitis, followed by atrophy.

We all know how difficult it is to settle a question of this kind, without regular systematic investigation, by examining a series of such cases during the attack of fever. Post-febrile amblyopia or optic nerve atrophy might be due to brain complications, or to general systematic exhaustion following the disease, or more rarely to excessive use of quinin in treating some fevers. But may they not also be the result of neuritis, or of compression of the nerve due to the pathological alterations brought about by the specific virus of such diseases as measles, scarlet, typhus, typhoid, malarial and other fevers? If this should be true, would not an early recognition of the eye trouble save, by prompt treatment, many an eye that would otherwise be lost? It has not been very long back, that so little attention was given to the ear trouble accompanying scarlet fever that many a person lost hearing or life or both as the result of this oversight. Has not the investigation and teaching of the aurist on this subject been productive of great good—saving many a person's hearing, and life as well?

That text-books say little or nothing about optic nerve troubles accompanying or following fevers,

that the literature on the subject is very meager, proves nothing, except that no one has investigated it systematically or scientifically. It only shows that this is one of many open fields for research that may repay the labor. More eyes are lost from atrophy after febrile affections than one would suppose from reading the available literature about this matter. There are few of us who have not seen such cases.

In looking up the subject, I wrote a few lines to about thirty ophthalmic surgeons scattered over the country east of the Rocky Mountains, asking their experience and enclosing an addressed envelope for a reply. Twenty-two of them sent in a prompt and courteous answer: six (Drs. Knapp, Burnett, Noyes, H. W. Williams, Gradle and Savage) said they had little or no experience in optic nerve troubles in cases of fever; one (Dr. Calhoun), that he could not recall his cases of this nature, but was satisfied his record book would show he had met with them; Another (Dr. Hotz), that his record would show cases of neuritis and atrophy, supposed to have been due to typhoid fever, although he did not consider such cases valuable for statistics; Dr. Risley wrote that he had seen cases of atrophy following spells of continued fever diagnosed as typhoid, and also one case of neuritis after measles; Dr. J. L. Thompson has observed atrophy of the optic nerve following typhoid fever; Dr. Ed. Jackson wrote that he had seen cases of post-neuritic atrophy ascribed to typhoid fever, but careful questioning as to symptoms gave him the impression that the cases were either cerebro-spinal meningitis, or typhoid fever complicated with meningitis; Dr. L. Kipp has met with cases of atrophy after typhoid.

Dr. Michel said the cases of optic neuritis seen following so-called typhoid fever were more probably due to meningitis; Dr. Charles Stedman Bull wrote that he had observed many cases of optic nerve trouble in fevers, but had not time to go over his cases in detail; Dr. Oliver wrote me nearly the same thing as Dr. Bull, but said he would send me notes of his cases; Dr. L. Connor has never seen neuritis, but has seen atrophy ascribed to typhoid fever, and which was probably the result of the pathological conditions that obtain in the fever; Dr. Eugene Smith has had several cases of atrophy after fever, but never had a chance to examine a case during the attack; Dr. de Schweinitz has seen one case of slight superficial optic neuritis in connection with malarial fever. In another case with double optic neuritis in a colored girl supposed to have typhoid fever, the autopsy revealed tubercles in the meningitis, and the meningitis was probably responsible for the neuritis. In two other cases he has seen choroiditis and secondary atrophy of the optic nerve after typhoid fever; Dr. P. D. Keyser has seen very few cases of optic nerve trouble after typhoid fevers, but has met with atrophy after typhus. Dr. Alt has never seen real and lasting atrophy following fever alone; Dr. Samuel Theobald has never seen pure optic neuritis following typhoid fever or malarial fever, but has notes of a case of choroido-retinitis (and probably neuritis but the media were too cloudy to determine this point) which developed on the seventh day of a severe case of typhoid fever in a child who died three days after the eye symptoms were manifested; Dr. Wüdenan has seen cases of optic neuritis as a result of typhoid, scarlet and other

fevers where there has been meningeal complications, and they were followed by more or less atrophic degeneration. A remarkable exception to this experience was a case of cerebro-spinal meningitis, which became perfectly blind and showed symptoms of optic atrophy in November, 1892, yet in January 1893, began to recover vision and by the end of March it was entirely restored.

Now this consensus of opinion goes to show that optic nerve troubles accompanying or following fevers are commoner than supposed. Foerster (in Graefe-Saemisch) speaks of atrophy of one or both nerves following typhoid fever; Gowers (Medical Ophthalmos, p. 279) says: "Loss of sight has been many times observed during convalescence from typhus or typhoid fever, and subsequently atrophy of one or both nerves. In some cases when the eye affection was early observed optic neuritis was found. Commencing atrophy may be observed without preceding inflammation, or double neuritis may be present;" Hutchinson (Ophthalm. Hosp. Rep. ix, p. 125) recorded the case of a boy whose sight failed after a fever with typhoid symptoms, and of a sister with a similar condition. Symmetrical neuritis was found in both; Dr. Stephenson recorded (Transact. Ophthalm. Soc. Vol. viii, 1888, p. 250) a case of double optic neuritis after measles, when there had been no sign of meningitis; Dr. Wadsworth (Trans. Ophthalm. Soc. 1880, p. 125) has recorded some interesting cases after measles; Betke, Phlüger and others have observed neuro-retinitis in scarlet fever.

Loring (Textbook of Ophthalm. Vol. ii, p. 203) speaks of neuritis in connection with typhus, typhoid and other febrile disturbances. But adds that when it occurs in cases of fever, especially where there is delirium, that there is reason to believe there is meningitis with the fever. This statement, however, does not accord with the known pathology of typhus, typhoid and most other febrile affections. Meningitis is a very rare complication. Sir Wm. Jenner never saw it in typhoid fever. According to Osler in the 2,000 Munich cases it was only observed eleven times. Head symptoms are not always a sign of it. We can have delirium without meningitis. Arteritis with embolism is oftener found, and thrombosis still more frequently.

On account of the rarity of meningeal complications in typhoid fever, and still seeking to make meningitis responsible for the neuritis, both Leber and Stellwag Von Carion suggest that when neuritis is present, cases of meningitis have been confounded with typhoid. There is no necessity to look for meningitis to explain the presence of optic neuritis or optic nerve compression with or without papillitis, because in nearly all cases of typhoid there is more or less cerebral congestion with serous effusion into the arachnoid cavity, lateral ventricles and subarachnoid space; sufficient explanation, on Schmidt's or Parinaud's theory, of optic nerve changes. Moreover it is well known that neuritis may occur as an idiopathic affection, with great obscurity as to causation, unless we can refer it to some vasomotor disturbance.

In this connection, allow me to present three cases from my record book, all of which may be of interest:

1. A case of optic neuritis after typhoid fever that recovered.

2. A case of atrophy after typhoid that has steadily improved under treatment.

3. A case of perfect blindness after malarial fever which recovered perfect vision.

Case 1. Miss L. W. called to see me in September, 1885, complaining of absolute inability to use her eyes. She was just recovering from an attack of typhoid fever which was of short duration, was not very severe in type and not attended by any marked head symptoms. Accompanying the difficulty of vision there was considerable photophobia. Examination showed marked neuritis. The swelling of the nerve measured one dioptric. I attributed neuritis to the effect of the pathological alterations in typhoid fever. I put her on iodid and bromid of potash, used dry cups to the temples because her health had not been entirely restored. I saw her occasionally during October, November and December. Her treatment during this time was directed to building up her general health and getting rid of any inflammatory changes about the optic nerve and the papilla. At first she made such little headway towards recovery that I feared optic nerve trouble might be followed by atrophy, but she began to improve, although she had not recovered entirely when she left me in December.

In October, or a month or so after she came under my treatment, her family were so much worried about her condition that I proposed a consultation, and their family physician selected an oculist in another city, who was a well-known member of the Ophthalmological Society, and without any suggestions on my part, or without being aware of my diagnosis, he came to exactly the same conclusion; that it was a case of neuritis with considerable swelling about the papilla. She left Richmond in the early part of 1886, and in March of that year called to see me, and stated that she had been entirely relieved, simply by the adaptation of glasses fitted by an oculist whom she consulted and who told her that she not only had no neuritis then, but that she never had had any. That the trouble was entirely due to the astigmatism, and would disappear, and there would be no return of it if she wore her glasses. I examined her and found that she had no trace of neuritis remaining; it had entirely disappeared and the nerve was normal.

Now, in this case I might have accepted the dictum of the gentleman who put the glasses on her, had it not been for two facts: one was, that it was not a simple congestion and blurring of the disc, but a swelling from three-quarters to one dioptric. Her condition when I first saw her was such that it might be denominated "woolly disc." The second fact was, that on March 24, 1882, three years and a half before she had the typhoid fever, the same lady had been a patient of mine, and on turning to my record book I found this diagnosis: "Nerve congestion, asthenopia, astigmatism against the rule. R. E., 0.50 Dc ax, 90 deg., L. E., 0.50 Dc ax, 60 deg." At that time the cloudiness about the optic nerve and the asthenopia disappeared after the glasses were adjusted. I was therefore in a position to recognize in this case the difference between an apparent optic nerve congestion accompanying astigmatism, and a true neuritis which developed after typhoid fever. Had the gentleman above referred to been aware of these facts he might have been more charitable in his remarks. In this connection it may be of interest to note the fact that her brother had also neuritis following typhoid fever eleven years previously. He was taken sick on June 6, 1874, at 17 years of age. The fever continued eighty days. The attack was very violent characterized by delirium, coma, etc., when at its height. The diagnostic symptoms were the regular rise and fall of temperature, pain and tenderness in the right iliac region, rose spots, typical tongue and diarrhea with yellow ocher stools. When convalescing, had trouble with his eyes, which were examined by Dr. Howell Thomas an oculist of Richmond, who stated he found neuritis, shown by "woolly discs." This report I received from Dr. John N. Upshur, a prominent physician of Richmond who attended both cases, and from this report I

should not consider he has confounded meningitis with typhoid fever.

Case 2.—R. H. S., age 28, of Clifton Forge, Va., was sent to me by his physician on April 24, 1893, for treatment of his eyes which had become defective during an attack of typhoid fever, commencing July 4, 1892, and from which he did not fully recover until October, 1892, nearly four months. His sight continued to grow worse in spite of his steady improvement in general health. When I first saw him, both optic nerves showed decided atrophy of the discs. His vision was right 5-200, left $\frac{1}{2}$ 200. I put him on strychnia sulph. and dil. phosphoric acid, grains two to the ounce. He commenced with 10 drops of this mixture after meals, and increased one drop each dose without showing any toxic symptoms until he was taking 52 drops, or one-fifth of a grain of sulphate of strychnia at a dose. On May 4 vision was, right, 12-200, left 5-200; May 10, right 14-200, left 12-200; May 13, right 16-200, left 14-200; May 18, right 20-200, left 17-200, which indicated a steady improvement, as the right eye had four times as much vision and the left thirty-four times as much as at the first examination three weeks previously. The type was changed at each examination so that he could not bring his memory to aid his sight and give false results. When he reached the dose of one-fifth of a grain three times daily he showed decided toxic symptoms, when it was reduced to one-seventh of a grain, and he still continues the treatment.

The case is interesting, both as one of white atrophy following typhoid fever (originating probably as neuritis or papillitis), and as a case of atrophy that made steady improvement under treatment, although he had been nearly blind several months.

Case 3.—Nellie Kilmartin, age three and a half years, was sent to me October 11 by Dr. John Herbert Claiborne, Petersburg, Va. She was perfectly blind in both eyes, could not distinguish a bright electric light in a dark room. The right optic nerve was slightly blurred in outline and decidedly pale; the left gave a perfect picture of neuritis descendens. She had been sick two or three weeks with fever closely resembling remittent, supposed to be of malarial origin. She was given 2 to 3 grains of quinin daily for three or four days until she had taken 40 grains in all. She complained of some headache and said her eyes hurt her, but had no signs of meningitis. I put her on iodid of potash in gradually increasing doses until she showed its physiological effects and then added strychnia and dil. phosphoric acid to the treatment. She was brought to me regularly about once a week until the end of December. After the first week she began to see light and from that time steadily improved. I saw her the latter part of February, 1893, and her sight was perfectly restored, both optic nerves being normal.

This case of neuritis I attributed to malarial poisoning, as I thought the others due to the pathological alterations attendant upon typhoid fever, on the grounds above given. I have no comments to make and simply submit them for discussion.

NOTE.—Dr. Oliver has since written referring me to his articles in Vol. IV. of Keating's Cyclopaedia, and Vol. II. of Burnett's System of Diseases of the Ear, Throat and Nose, for his views on this subject.

DR. DE SCHWEINITZ.—When I wrote to Dr. White concerning his experience with optic nerve atrophy in fever, I was under the impression that he wished data only in so far as typhoid fever was concerned. I was not aware that the Doctor intended to cover a more extensive ground; otherwise I might have added other cases to those which I had reported. I endorse thoroughly Dr. White's use of strychnia in optic nerve atrophy, especially its use in full physiological doses, believing that by these alone good results are produced, while practically no effect is achieved by the ordinary doses which are administered. In discussing blindness after fevers it was very essential to eliminate the possible influence of quinin, which I have no doubt Dr. White has done in his case, and which, indeed, was practically excluded by the exceeding smallness of the dose.

Nevertheless, small doses of quinin in patients exhibiting idiosyncrasies are quite capable of producing blindness. I have seen temporary amaurosis follow the administration of 15 grains of quinin in divided doses during twenty-four hours, and Dr. Horatio Wood of Philadelphia, has reported a like result after the exhibition of 12 grains.

DR. WHITE.—Dr. de Schweinitz seems to think that there was a possibility of this case being blind from the use of quinin, a thing which I carefully considered before attributing the blindness to optic nerve trouble caused by the fever. I have never seen as little as 2 grains of quinin at a dose produce blindness. Two or three grains daily until she had taken 10 grains would hardly have been sufficient to produce an effect like this. I have seen cases where blindness was apparently produced by malarial influence before quinin was given. These cases usually recover.

ECCENTRIC POSES OF THE HEAD.

Read in the Section on Ophthalmology at the Forty-fourth Annual Meeting of the American Medical Association.

BY J. ELLIOTT COLBURN, M.D.

PROFESSOR OF OPHTHALMOLOGY, CHICAGO POLICLINIC.

In the following paper I wish to call attention to a few cases illustrating a large class of malpositions and eccentric poses of the head, due to lack of equilibrium between the motor muscles of the eyes. These malpositions are assumed by the patients, either to prevent diplopia in paralysis, or to relieve the strain put upon weak or illy balanced muscles. Such cases are frequently referred to the orthopedic or general surgeon as wry-neck or spinal curvature, and in a case now under my care, an operation upon the neck muscles was seriously considered for the relief of an eccentric pose, due to insufficiency of the right exterior and superior recti.

Case No. 1.—Patrick K., strong, well built, and despite his defective eyes, well educated, applied to me in July, 1887, for a correction which I found to be $O. C. + 3. G. S. + 1.25$ cyl. ax. 90. V. = 20-30. He carried his head thrown back, mouth partially open and nostrils dilated, thus presenting a most ungainly and unprepossessing appearance. In this, the habitual pose of the head, he had binocular vision and had experienced no inconvenience except that attributable to ametropia. With head erect and in the normal position he suffered annoying diplopia, vertigo, and after a brief enforcement of this pose a severe headache with nausea. The muscle test with prisms, head in normal position, gave a constant right cataphoria 15 degrees, exophoria 10 degrees. There was no evidence of ptosis. Repeated examinations giving about the same result, I made an advancement of the superior rectus of the right eye and a tenotomy of the opposing muscle. Two months later we found that he carried his head in almost the normal position, and when reduced to the normal manifested 2 degrees of hyperphoria. This was corrected by a tenotomy of the superior rectus of the right eye, leaving an exophoria = 2° with abduction = 10° = adduction = 20° .

As the patient now maintained his head in the normal position and complained of no asthenopia, I advised him to return in a year, or sooner if he experienced annoyance. Almost two years elapsed, however, before his return, and upon re-examination I found no exophoria, asthenopia or any symptoms that could be attributed to his eyes, both pose and movement of the head being normal.

Still another case involves about the same muscle condition, but in addition to the pose of the head the patient was subject to epileptiform attacks, occurring one in two or three days. History as follows:

Case No. 2.—Mary R., age 15 years, strong, well developed, and in good health but — the fits to which she was subject.

The patient rarely attempted to pose the head in a normal position, always complaining of vertigo when attempting to do so. The only way in which it could be avoided was to throw the head far backward. In this position she could see objects on the horizon line without other annoyance than that due to the position of the head. When the head was firmly held in the normal position, and the eyes were directed to the horizon line, there was found to be right-hypo-exophoria, i. e., the right eye was directed down and outward. Underatropia vision = 20-80, which was corrected by : I. D. In order to correct the muscle error, the right superior rectus was advanced and a guarded tenotomy made upon the inferior rectus. Later, the right externus was cut and the internus advanced. In about two months after the first operation the head could be carried constantly in the normal position, and the eyes soon gained the normal freedom of movement. There still remained a tendency outward of 3 degrees which was not corrected. About a year later, and following the first menstruation the epileptiform attacks ceased.

Another type of malposition sometimes obtains in patients afflicted with esophoria or exophoria. A case evincing this occurred in a lad of 11, in good general health, and who presented no nervous or other symptoms of disease; the left side of the face, however, was illy developed. He habitually inclined his head to the right with a disposition to open the mouth unsymmetrically, the left angle being more obtuse. The eyes were directed strongly to the left; in this position vision was 20-20 and binocular. The head placed in the normal pose gave an exophoria = 15° to $= 20^{\circ}$, adduction = 0, abduction = 25° test with prisms in appropriate position. The image was inconstant.

I made double tenotomies of the externi and advanced the internal rectus of the left eye. Five days after the operation the exophoria = 5° remained constant and two months later I again tenotomized the left external rectus obtaining 1 degree of esophoria. The patient was discharged with directions to return in three months at least, and sooner if further annoyance was experienced. Subsequent examination, head held in normal position, gave no evidence of heterophoria.

Still another form of malposition gives its unfortunate possessor a decidedly repulsive aspect. The head is bent forward, the chin is markedly retracted and the features often mold themselves into an uncanny grimace. These patients have binocular vision with the head in the above described position, but directly the head is adjusted to the normal pose a heterophoria is manifested. Young patients frequently correct violently to resume the malposition.

Case No. 12.—G. K., age 17 years, maintained his head in this distressing posture, displayed an awkward staggering gait, nervous and illy coordinated movements of the head and body. V. = 20-60, hyperopia = -2.50 D. O. S. hyperphoria = 3 degrees, esophoria = 10 degrees, adduction 40 degrees, abduction 0 degrees. He was given a full correction. There was no improvement in position or coordination, therefore I concluded to correct the left hyperopia. This was done by graduated tenotomy and advancement respectively of the superior and inferior recti in the right eye. Two weeks later as there still remained 10 degrees of esophoria I made a double guarded tenotomy of both internal recti resulting in an esophoria of 1 degree.

Much difficulty was experienced in compelling patient to maintain the normal pose of the head, but in an exceedingly brief space of time his gait, appearance and manner of speech were much improved. Four months later as some esophoria still persisted, I again tenotomized and fully corrected the error. This patient was particularly unfortunate in his infirmity, as from early childhood he had been exceedingly sensitive regarding his appearance,

and greatly mortified that even under the instruction of the best masters, he had been unable to amend for any appreciable length of time his noticeably eccentric attitude. The correction operations effected such a surprising transformation, that after an absence of some months from his family they were enabled to recognize him only by his voice. I have never seen so complete a metamorphosis in one's appearance as he underwent. I regret that I am not allowed to present photographs. In order to give an idea of the full extent of the affliction, these patients must be seen while moving about and not aware that they are observed.

In these cases there may never be a history of strabismus; the patient from early childhood adjusts the head to the position best calculated to avoid diplopia, and frequently there is no history of asthenopia or any symptom that could be classed as neurasthenic.

Still another modification of this form may obtain where it is not a question of double vision, but of muscle deviation involving both superior recti and not uncommonly the levator palpebrarum, and more or less stenosis of the aperture. Such cases demand tenotomy of the inferior and advancement of the superior recti and levator palpebrarum, and a free canthoplasty to correct the malposition. Canthoplasty, advancement of the levator palpebrarum, tenotomy and advancement of recti muscles all can be accomplished in the above mentioned routine at a sitting; still I consider a more preferable method includes the canthoplasty and advancement of the levator in a first operation, and some weeks later, the operation upon the ocular muscles proper, as the correction of the ptosis and aperture may, in a degree, modify the operation for the recti muscles.

These are typical cases and subject to many modifications; in none of them did I find a history of nervous disturbance occurring at any time. The only symptoms simulating the latter condition were the tendency to incoordination, grimacing and awkward posing of the body. It requires great patience, some tact and a thorough study of the conditions governing these cases to properly correct such errors. From these causes of malposition must be eliminated maladjustments of the neck muscles, deformities of, and injuries to the neck.

A Case of Malposition following an unguarded complete tenotomy.—Chas. T., 15 years of age had been operated on for strabismus four years previously, and judging from my knowledge of the operator's work, there had been performed a complete unguarded tenotomy and no examination made to correct an existing hyperopia. The left eye was directed out with slight tendency downward, the right followed, and binocular vision was secured by posing the head backward and to the right. The movement of the left eye was limited toward the nasal side allowing but two milliamperes, from median line in that direction. When the head was forced into the normal position the right eye was five milliamperes above its fellow. An examination of the cicatrix showed broad and extensive adhesions. After staining with India ink the sclero-corneal junction to mark the normal position of the muscle, I made an incision and found the muscle attached below the equator of the eye and quite far back. Advancing and raising the muscle to its normal position, I secured it by a double armed suture. After recovery from the operation the patient was ordered to use his full correction under atropia, and to return in six weeks. Upon his return 4 degrees exophoria persisted; we tenotomized the external rectus; this fully corrected the error and head and eyes resumed their normal position. These cases are not so infrequent following the old operation for strabismus.

Malposition due to partial paralysis of the recti mus-

cles allowing the eye to move only to the median line and fixed for a definite distance.—This form of anomaly is one of the most annoying with which we have to deal. There is no position in which the head can be placed to secure uncomplicated proximal vision. This is especially distressing if the patient be so unfortunate as to be unable to suppress the image of error.

Case No. 4.—Mrs. H., age 23, had homonymous strabismus with fusion at 2 mm. pose of the head to the left or right, head in normal position, at 20 feet, esophoria = 15°, adduction = 40°, abduction = 0°; movement of the eyes limited to median line; left eye no power of abduction; vision 20-30, under atropin = 75 O. D. and O. S. gave 20-20.

At the request of our patient we tried everything adapted to correct such errors; galvanism, faradism, massage, stretching, etc., of the external muscle, in the endeavor to tone and stimulate the internus preparatory to tenotomy and advancement. Three months of unremitting effort secured an abduction of +30°; a guarded tenotomy and advancement gave adduction 30° abduction 25° with normal position of the head, and freedom from a constant vision of the nose. Abduction continued below normal, but for central and proximal vision there was no annoyance. In this case I advanced the external rectus of the left eye and made two tenotomies on each of the internal recti at different times before I secured central remote fusion.

This patient has lately called upon me again, complaining of severe pain in the right eye, following every attempt to move the eye even to the median line. Muscle tests showed that there was an esophoria, or tendency of the visual lines inward equal to 8 degrees; but the total displacement inward (Landolt perimeter test) was, right eye fixing, left eye tended in 12 degrees, showing a tendency to pose the head slightly to the right in attempting to look at objects either at a proximal or remote point. As the patient would not adjust herself to the abnormal relation existing between the eyes, and I could not persuade her to wear prisms, I corrected by making a guarded tenotomy upon the right internus, resulting ten days later in a remote and proximal fixation in the normal position without painful effort. I presume it may be best, somewhat later, to correct the displacement in the left eye, making a guarded tenotomy, however; this I should not suggest to the patient unless she complains of further pain.

The method which I adopt in all cases of asthenopia has been strictly followed in the management of these cases. I first attend to the correction of errors of refraction; then after a sufficient time has elapsed the correction of the muscle condition is carefully considered. I prefer the Stevens phorometer for low degrees of heterophoria, using the Maddox rod, and divide prism, etc., as aids in measuring the error and educating the muscles. As to the technique of operations for tenotomy and advancement, I have but little to offer that is new, and nothing purely original.

In the guarded tenotomy which I now make for the relief of very low degrees of heterophoria, I follow the plan suggested by Dr. Stevens or Noyes, also Stevens advancement in errors of low degree, with the exception that I use a broader divulsor to separate more thoroughly the numerous bands of attachment between the tendon and the ocular walls, as this latter condition may prevent the lengthening of the muscle and render imperative the tenotomy. To attain the maximum effect of a complete tenotomy without danger of displacing the tendon, and to regulate the position of the future attachment I proceed as follows:

Enter the conjunctiva just above the lower border

of the muscle to be receded, separate the capsule and tendon from the conjunctiva, grasp the center of the tendon with the forceps and proceed as in graduated tenotomy; grasp the center of the cut tendon with broad fixation forceps and introduce the needles of a double armed suture; draw them through, transfix the conjunctiva as far back as you wish to displace the tendon, then bring them out through the conjunctiva; now complete the tenotomy, again using the divulsor to separate the tendon from ocular walls; the suture is now drawn up and tied, but not too tightly. Should the conjunctiva wound gape, close it with a light suture. This operation secures both maximum effect and proper attachment.

I have found it necessary, preliminary to operating for heterophoria, to make a thorough study of both pose and movements of the patient before measuring the muscle error or in any way embarrassing them. The best plan is to draw their attention to books, curios, people, to distant buildings, meanwhile observing closely and making notes of all interesting deductions, remembering the general rule that, "the head moves in the opposite direction to the projection of the visual lines." A careful chart should be prepared and notes made of every operation and its results, for usually several cuttings must be made before a perfect orthophoric condition in the normal pose can be obtained. I have found it expedient to apprise my patients of this before commencing the operations. As we are able to do all of the surgical work under cocaine anesthesia, much of the terror and all of the danger of tenotomy has been removed.

DR. GOULD—I have had two or three cases that somewhat resembled those reported by Dr. Colburn. One patient carried his head back in order to avoid double vision due to heterophoria. By carefully adjusting glasses, his muscles were strengthened so that he held his head in a normal position. One other patient had quite a distortion of his features, his forehead being wrinkled in concentric curves clear from his eye to the roots of his hair. It was very noticeable. After three months he was holding his head straight with the skin of his forehead nearly straightened out. I had still another case somewhat similar to this one.

DR. JACKSON—I think that the class of cases to which Dr. Colburn has called attention is a very important one; and one to which the attention of the profession needs to be more generally directed. I feel like taking exception, however, to his classing them as cases of heterophoria, if I heard some of them correctly. They are rather cases of paralytic squint in which it is impossible to obtain binocular vision in the central portion of the field of vision. I have seen quite a number of these cases; and have also seen the other cases, which could be classed as heterophoria because binocular vision could be obtained in all portions of the field of vision though only with undue effort. When Dr. Stevens gave us the new terms, the "phorias," I hoped that they would be applied only to cases of muscular error which correspond to concomitant squint; and that for these cases of special weakness in one muscle or group of muscles we might still use the very significant term, insufficiencies.

WHEN THE MERCURY WENT DOWN.—The *Chemist and Druggist* offers us the following: Mrs. Muleahay: "Shure, dother, and is it true that little Jimmy O'Toole bit yooze termonomy in two and swallowed the mercury?" Doctor: "Yes, my dear madam, it is, and the boy is dead." Mrs. M.: "Shure, dother, an' it were a cold day for Jimmy, poor by, when the mercury went down." Doctor: "Yes, madam, he died *by degrees*."

TWO MORE CASES OF ORBITAL AND OCULAR GROWTHS, WITH SUBSEQUENT HISTORY OF CASES PRESENTED LAST YEAR.

Read in the Section on Ophthalmology at the Forty-seventh Annual Meeting of the American Medical Association.

BY JOSEPH A. WHITE, A.M., M.D.

PHILADELPHIA.

I here present for your consideration two cases of ocular growths which have come under my observation since our last meeting, thinking they might be of interest:

Case 1. Orbital Growth, Fibro-sarcoma of Periosteum.—Betty Lytle, colored, age 24 of Blackstone, Va., came to me Sept. 27, 1892. In May, 1892, she had consulted her physician, Dr. Harris, about a severe pain across the forehead and through both temples. He could find nothing abnormal about the eyes, except a slight redness of the conjunctiva of the left eye. He treated her for neuralgia, but the pain still persisted and gradually grew worse. He could get no history of syphilis, but thinking the pain might be due to a gumma he put her on iodid of potash, but with no relief. The left eye soon began to show prominence without local signs of inflammation. He then concluded to send her to an oculist and gave her a letter to me. On the way she stopped with friends in Petersburg who advised her to consult a physician there. He advised her to have the eye punctured and the fluid drawn off as he expressed it. She returned to Dr. Harris with this advice, which he did not follow, as he could find no signs of a collection of fluid. He then sent her to me again. I found the eye very prominent, so much so that the lids could hardly be closed, although she could still see fairly well. I attempted to remove the orbital growth, and save the eye, but it was so large this was not practicable and I removed eye and tumor, which nearly filled the orbit.

I have had a letter from Dr. Harris the past month saying she was annoyed at times, especially at night, with pain in the orbit, but he could find no signs of recurrence. The woman looked well and was doing her usual work. I sent the growth to Dr. William M. Gray of the Army Medical Museum, who promised me a full report on its nature, as well as a section of the growth for this meeting, but have not received it. He stated, however, that it was a fibro-sarcoma of the orbit.

Case 2. Malignant Sarcoma of the Eye.—Miss E. of Milton, N. C., a lady of about forty years of age was sent to me Feb. 22, 1893, by Dr. Dodson her physician, to have her left eye enucleated, because it was blind, disfigured by a large black spot and was giving her constant pain. I found the eye to be totally disorganized, anterior chamber obliterated, lens cataractous, and a large black patch of the sclerotic about a half inch long and a quarter inch wide above and to the outer side of the cornea. I diagnosed melanoma of the eye and feared it had already penetrated the sclera posteriorly. As the tension was not increased at all and the eye was less painful than it had been it was enucleated Feb. 28, 1893, under cocaine. The optic nerve was drawn out and put as far back as possible. As far as a microscopic observation went, the growth had not penetrated the sclerotic, which was seemingly intact.

I sent the eye to Dr. Gray who reported it to be a melanotic sarcoma originating in the ciliary bodies or choroid, that it was of a mixed variety, composed of large and small, round and spindle cells; that it had infiltrated through the sclerotic, forming small pigmented nodes on its outer surface. He sent slides of this tumor, which you can examine. These two cases will each probably have recurrence of the growth, although it is not certain.

Last year I presented four cases of orbital and ocular growths operated on at the clinic of the Richmond Eye, Ear, Throat and Nose Infirmary, within four months—two by Dr. Dunn and two by myself. I also exhibited very handsome micro-photographs of these growths which were most abominably repro-

duced in the *Journal*, giving no idea of the original plates. Two of the so-called malignant fibroids of the orbit (Cases 2 and 3). One (Case 1) was a melanotic sarcoma of the choroid, similar to the one I have just presented. The fourth one was an orbital sarcoma of the choroid which Dr. Gray called a tuberculous growth, because of the peculiar macroscopic appearances resembling tubercle more than anything else. Thinking the further history of them might be of some interest, I have taken the liberty of appending it to the above report. Case 1 (melanotic sarcoma of the choroid), has had no recurrence in the orbit. I wrote recently inquiring about his condition and was informed that he was ill with some obscure liver trouble, but that his eye was pretty much as when I saw him last. From this information I concluded he was suffering from a metastatic malignant growth of the liver.

About eighteen years ago I had a similar experience. I enucleated a large growth of the orbit (the eye had been previously removed) which on examination proved to be a melanotic sarcoma. It was half as big as my fist and projected considerably beyond the orbit. It was so firmly attached to the orbital walls that I had great difficulty in freeing it from its attachments, and was compelled to remove almost entirely the superior orbital plate. I applied Vienna paste to the remainder of the orbit, and the man made a rapid recovery. I expected a speedy recurrence, but during the three years he lived there was no return of the growth. A post-mortem, however, showed that his death was due to a malignant growth of the liver, exemplifying the metastatic nature of these growths.

Further history of the case of malignant fibroid of the orbit (Case 2 reported last year). Patient reappeared at the clinic July 25, 1893. Tumor had grown again. It had chosen as points of origin all the areas of the bone from which the periosteum had been stripped in the former endeavor to eradicate the growth. This was found out during the operation for the removal of the growth. The bleeding was excessive. The tumor was found to have passed backwards into the sphenoid fossa and had sent its prolongations through the ethmoid plate. Negro returned to the clinic only two or three times to have the wound dressed. Reappeared Dec. 5, 1893. Tumor was quiet for three months, when it began to grow again. It now became a large fungus which protruded from the orbit, infiltrating the adjacent skin. Attempts were made to clean out the orbit as far as possible, but operation was unsatisfactory and bleeding was excessive. Operation did not check the growth of the tumor, which had gone into the antrum, nasal cavity, etc. Patient died of exhaustion in February when the tumor had attained a size almost beyond belief.

Further history of case of tuberculosis of orbit (Case 4 reported last year). Appearance of a growth between the eye and the upper part of the orbit in the autumn of 1892. As it gave the patient little inconvenience no operation was done until March, 1893, when attempt was again made to remove the tumor without enucleation of the eye. Operation apparently successful. No return up to May 21, 1893. Microscopic examination of tumor removed showed it to be a small-celled sarcoma which had infiltrated the lachrymal gland. Tumor will probably return. This second examination was made by another

pathologist who did not find the peculiar tuberculous appearances, "the nests," described by Dr. Gray when he examined the growth. Case 3 was one of fibroma of the orbit and I expected it to recur and speedily, too, because fibromas of the orbit while not regarded as malignant in structure, are practically so from their tendency to recurrence and because, apparently, I had not succeeded in totally enucleating the growth, but rather to have amputated it at the spheroidal fissure through which it seemed to pass. Up to one month ago, however, nearly eighteen months after the operation she has shown no signs of recurrence. What the future may develop I can not say, but trust I may be mistaken in my unfavorable prognosis.

NOTES ON BIFOCAL SPECTACLES IN APHAKIA.

Read in the Section on Ophthalmology, at the Forty-fourth Annual Meeting of the American Medical Association.

BY H. V. WÜRDEMAN, M.D.
MILWAUKEE, WIS.

The satisfaction expressed with bifocal glasses by hyperopes, whose presbyopia necessitated stronger convex lenses for reading, led me about a year and a half ago to advise this form of spectacles for aphakic patients. The conclusion reached seemed so natural to my mind that I believed, until I examined the literature of the subject, that the same idea must have occurred to many of my colleagues, and that such glasses must have been used for cataract patients, practically since the introduction of the cement bifocal. Due and strict search having been made nothing was found in the literature, and but little new was gathered from the manufacturing opticians concerning the trial of such glasses by other ophthalmists.

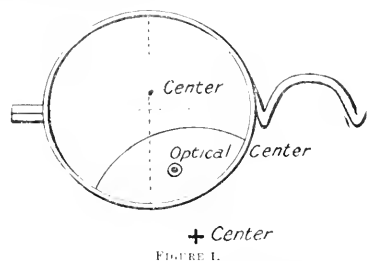


FIGURE 1.

The most appropriate form seems to be that in which the refractive value is made greater by cementing a semilunar shell to the lower part of the larger lens. On account of the thickness of the strong convex lens (from 8D. to 12D.) the "split or Franklin bifocal" is not applicable. The cost of grinding the reading on top of the distance lens militates against the combination being made in one piece. The cement bifocal is comparatively cheap and has given satisfaction. It has been found advantageous to modify the ordinary form by making the spectacle eye of a high oval, nearly round, as this gives a larger field for distant vision; also to make the reading shell small and placed diagonally a little to the nasal side, as was advocated some years ago by Klein in his form of bifocal lens. (See Fig. 1.) This gives a better field for near vision and like-

wise diminishes the prismatic effect of the larger lens. There is an average difference between the visual lines for the near and far distance of 2 mm., which amount of decentering in a 10 D. lens would make an effect equal to Pr. 1.25 D., an amount of artificial exophoria which may prove troublesome. In some instances I have found it advantageous to decenter the larger lenses upwards 1 to 2 mm., varying with the case, as the unpleasant upward projection of the ground is thereby relieved. It is advisable to place the strongest convex surface away from the eye in all instances, and to grind the cylinder on the posterior aspect of the glass, as has been advocated by Gould.

When the formula is for simple convex lenses only, the lens may be made concavo-convex, and the reading shell is best cemented on the posterior surface of the larger lens; but when a cylinder is involved on account of the difficulty in grinding it on so thin a shell, it must be placed in front. In compound formulas the periscopic form is out of the question and the cylinder should be ground on the plane side of a plano-convex lens. Nearly all eyes, aphakic ex operations, are sufficiently astigmatic to warrant the cylindrical correction, and thus it is but rarely that we may give our patients the periscopic form of lens.

The advantages of bifocals in aphakia are those which presby-hyperopic patients acquire by the use of one pair of glasses for all vision. They may be properly given to nine out of ten cataract patients whose resulting vision after operation allows them to read ordinary print with their correction.

805 Grand Avenue.

DR. MURRELL—I have been using bifocal lenses after cataract extraction for a number of years. I have several patients wearing them now. My next door neighbor has worn a pair for several years; has good vision and can read fine print all day long. I advise the use of them.

DR. ZIEGLER—I have been ordering these bifocal cataract lenses for several years; in fact ever since bifocals came into general use. They are undoubtedly the most convenient lens for aphakic eyes. Even where only one eye has been operated upon, bifocals are superior to the more clumsy "reversibles." I think Dr. Würdemann has overlooked the very important "toric" or "ellipse" lens, which was presented before the American Ophthalmological Society by Dr. Harlan in 1885, and subsequently discussed in a paper by Dr. Green. This is especially advantageous where we have a cylinder in combination with very high sphericals. It is composed of two cylinders ground on the same side of the lens, and at right angles to each other. As one cylinder is stronger than the other we secure the effect of a spherocylinder; the balance of the spherical is then ground on the other lenticular surface. We thus practically divide the spherical on each surface of the lens, and then grind the cylinder on one of these spherical surfaces. This makes a much thinner lens than the old form, where the cylinder alone is on one side and the large spherical bulge is on the other. But aside from being a thin lens, its chief advantage lies in the fact that it furnishes a greater clearness of visual field, which will be promptly appreciated by the patient. This lens may also be ground periscopic. The bifocal slip can easily be added to either form.

Where the two eyes have been operated upon, I have sometimes prescribed a distance correction for one eye, and a reading correction for the other. This arrangement is particularly applicable in those cases where

there is considerable muscular insufficiency. It allows one eye to enjoy clear vision for distance, and the other clear vision for reading. I ordered such an adjustment recently for a physician whose left eye I had operated upon for zonal cataract, while the right one still retained good peripheral reading vision. As there was considerable muscular deviation in the vertical, a prism was added to the glass. He was ordered H. O. D. S. 24, for reading; O. S. S. 30 D. P. C. 4° base down, for distance.

It may be well to bear in mind the fact, that discomfort from the use of cataract lenses may be entirely due to muscular deviations, and we should order the proper prismatic correction wherever needed.

PERNICIOUS HYPERTROPHIC CONJUNCTIVITIS AND ITS TREATMENT.

Read in the Section of Ophthalmology at the Forty-fourth Annual Meeting of the American Medical Association.

BY CORNELIUS WILLIAMS, M.D.

ST. PAUL, MINN.

I shall not occupy the time of this section by a definition of the pathology of this affection. Under the generic name of trachoma, the disease is well known to all of you. Since, however, a name should be definitive of as many pathological features of an affection as may well be, to my mind the name which I have chosen is more appropriate than any that I have seen applied to this morbid condition.

Pernicious hypertrophic conjunctivitis, as usually presenting itself to the surgeon, is chronic and complicated. The disease will have involved the cornea and there may be, or have been iritic implication, as even the deeper tissues of the eye do not escape. In a case which I had an opportunity of intimately observing, I was able to fix the time of incubation at five days from the time of inoculation to the time of declaration of the disease, though I can well understand that the term may vary. The emphasis of the primary declaration, I fancy, will depend very much more upon the quality of the seed implanted in that particular case, than upon any peculiarity of the culture medium. I have seen cases in which the entire conjunctiva had increased more than twenty-fold in thickness, in as many days, and others in which the hypertrophy was not considerable, even though the disease had existed many months.

The invasion of the cornea does not always take place through an abrasion of the epithelium, but may, I believe, be accomplished through the lymph channels. When once the cornea becomes affected, the ciliary spasm brings a largely increased blood supply to the conjunctiva, and the vicious circle is established. The later phases of the disease are of great interest. The form of degeneration marked by the development of trachoma bodies may be absent entirely in some cases, and abundantly present in others. Those cases that have been the subjects of irregular and severe treatment of different kinds are rather more apt to present that peculiar manifestation, conjoined with atrophic spots, while such as have not been treated at all, save by simply cleansing, although long in existence are on the whole better off than those in which the treatment has been harsh.

That the disease, as we now find it, ever originates in any other way than by direct contagion, I think few will maintain. That there are a great number who, in all probability, receive the contagium on the

conjunctival surface, and escape the development of the disease, is due to the fact that an actual loss of continuity is necessary to infection. I have seen cases that make me believe that pernicious hypertrophic endorhinitis may result from the conjunctival infection, by auto-inoculation. In the case of a Russian girl of 6, the turbinated bones had undergone complete atrophy from this cause. It is the exceptional case in which an eye is lost through this disease, though many are damaged beyond repair.

The disease is very frequently confined to one eye, or may affect the second eye only in a limited degree. It is not unusual to see a virulent type of this inflammation in one eye, while the other member presents the appearance of slight hypertrophic changes; but little secretion with absence of corneal invasion. With appropriate excitation, however, the morbid process in the seemingly favored eye will kindle and attain a dangerous exaltation; all within a very few days. Once this pernicious hypertrophy has actively involved the entire conjunctiva, it never again recedes to its former line of behavior.

This affection may last an average lifetime. It is curable, but at an expense of a certain loss of the conjunctival substance, the degree of loss in direct proportion to the hypertrophy. It goes without saying that in addition to the tissue loss, as the result of the disease, injury inflicted by way of treatment is responsible for much of the deformity of the tarsal envelopes, and consequent damage to the eye so frequently seen.

Treatment.—There is no disease of the eye so often ill treated as pernicious conjunctivitis. In the primary affection, ice should be used with much caution. While a valuable remedy, it may actually aggravate the affection by inducing a vasomotor paralysis of the conjunctival vessels. Ice cloths should be thin—bits of absorbent cotton are better—and should not be used longer than an hour at a time, with an interval of an hour. Mild astringents should be used from the very first. Nitrate of silver, 1-5000, or bichlorid of mercury, 1-20000 or 40000; the conjunctival sac should be very gently and thoroughly flooded with one of these solutions, alternating with a warm solution of boric acid, ten or twelve times a day, or oftener; how often must be left to the discretion of the surgeon. Of one thing, however, be can be assured, i. e., in very many, if not in all cases, any application followed by reaction apparent to the eye of the surgeon, will be resented by the eye of the patient. This reaction is the surgeon's guide. He may use the astringent applications as strong and as often as the eye will bear, without apparent reaction. If he transgress this rule he will be ground. I have used the bichlorid solution 1-400, with only a little smarting and increase of redness, lasting for five minutes, while on the other hand, a 1-3000 solution, is sometimes highly irritating. An application which causes pain for longer than five minutes, while it may do good is almost sure to do harm. This, I believe to hold good for any stage of the disease, but it is, of course, less true in the later stages. It may be well to bear in mind that the condition of great hypertrophy is a condition of great tolerance and insensibility which, however, may only last a few days after active treatment begins.

The hypertrophy will begin to diminish, and does diminish, *pari passu*, with the diminution of the

secretion. The retrograde metamorphosis is marked by lessened secretion. Whatever the treatment adopted, I have never observed lessening of the hypertrophy until the secretion had very much diminished. I am convinced that, in any stage of the disease, the frequent application in the course of the day of a solution of sulphate of copper, or the mercury bichlorid 1-30000 or 1-500000, will accomplish more than can be attained by a single application of either remedy of sufficient strength to produce visible reaction. In fact, that the successful treatment of pernicious conjunctivitis, whatever the agent employed, must depend upon the frequent use of that agent, and in such strength only, that no apparent reaction shall occur. When trachoma bodies appear, the application of jequirity, or better, the expression process, certainly much hastens the matter of involution, but it is questionable if the conjunctival surface will have been left in so good a condition after either jequirity or expression, as it would have been had the method of very frequent treatment with the bichlorid, or some similar acting drug, been adopted. Now, as to the choice of the medicament, I think mercury bichlorid perhaps the best, but I doubt not that there are many substances which might be successfully used instead, just as in urethritis, which this disease so much resembles, there are many remedies. Many surgeons are agreed that the most proper way of treating the urethral disease is by means of mild and frequent medication.

It would seem like a work of supererogation to thus dwell upon the minutiae of treatment before this section, but my personal experience, costly enough, has taught me that able surgeons in high places do not always address themselves with that conscience to the treatment of this affection that its importance demands, and which the patient has a right to expect from his physician. Atropin is absolutely indispensable as an adjunct in the treatment of pernicious conjunctivitis. It should be used early, even before any implication of the cornea has declared itself, for by allaying ciliary spasm the first part of the process of the vicious circle establishment is rendered impossible. It ought to be incredible that the imperative indication for the use of a mydriatic could be overlooked by the surgeon in the treatment of the disease in question, yet I, myself, am the possessor of a ruined eye, and due to this very oversight on the part of a surgeon generally as competent as any in the country.

The detail of the toilet of the eye, after whatever application, is of importance. In treating the eye, instead of a camel's hair pencil or a dropper, I use a small probe, so wound about the end with absorbent cotton that an expanded portion projects. This is dipped in the solution to be used and the turned lid is flooded with the solution which readily flows from it. The lower cul-de-sac is similarly treated, after which the ciliary margins are gently freed from every adhering bit of secretion and then carefully dried. If this is not done, the edges of the lids are constantly itching and it requires unusual control on the part of the patient to avoid rubbing the eye, and consequent aggravation of the disease process.

When I first saw pernicious conjunctival disease treated, it was done entirely with sulphate of copper in solution, and I speak of that method of treatment to condemn it as brutal, painful, unskill-

ful and unsuccessful. I have seen children with hypertrophic conjunctiva, with and without trachoma, actually become men and women, the while constantly treated with blue stone, and after seven years they were no better than at the beginning. Surely this is an opprobrium and should suffice to damn that method of treating the disease. I wish particularly to condemn any irritating application, and especially peroxid of hydrogen, in the acute corneal ulcers of pernicious conjunctivitis. I well remember the pain which the peroxid produced in my own eye, and from the use of which started an iritis that, untreated, resulted in complete closure of the pupil with its inevitable consequences, and it is only by such malpractice that an eye can be lost in this affection.

It is needless to say that abstinence from use of the eyes is of prime importance. The disease, difficult enough to cure at best, is aggravated by every considerable effort of accommodation and convergence.

CORRESPONDENCE.

Diphtheria at St. Paul.

MINNESOTA STATE BOARD OF HEALTH AND VITAL STATISTICS,
OFFICE OF THE SECRETARY AND EXECUTIVE OFFICER,
RED WING, OCT. 19, 1893.

To the Editor:—The following is the reply of the Commissioner of Health to your inquiry:

"In reply, I would state that there was very little in connection with the whole matter. A number of families having children at the Neill School wished to get them transferred to other schools—the Neill School, as I understand it, being rather overcrowded, and to get a good excuse for so doing, got up this diphtheria scare. The records show three cases of diphtheria as having occurred within the radius of the Neill School within a period of nearly a month, which is very much unlike the statements made by the people in that vicinity, both publicly and privately. I refused to close the school, but Supt. Gilbert, under the pressure that was brought to bear upon him by these people, ordered the school to be closed over Friday, Saturday and Sunday, if I remember right, on his own responsibility and during that time had it disinfected, etc. That is all there was to it. You know the value of newspaper reports, and I am glad you propose to verify by reference to headquarters of each State.

Yours, C. N. HEWITT.

Secretary.

Ethics Again—The Milk in the Cocoa Nut.

RICHMOND, VA., OCT. 21, 1893.

To the Editor:—At the annual meeting of the Medical Society of this State, held at Charlottesville October 3, the resolution offered by Dr. Upshur of Richmond, affirming our loyalty to the present code of ethics, was passed with only two dissenting votes—the move to "lay on the table" and his second, Dr. Hunter McGuire, made a strong speech in favor of the resolution, affirming that the medical men in New York who desired to "let down the bars" were influenced solely by the selfish purpose of getting consultation fees from homeopaths.

Very respectfully,

W. W. PARKER.

Blank applications for membership in the Association, at the JOURNAL Office.

III.

Journal of the American Medical Association

PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, \$5.00 PER ANNUM IN ADVANCE.
SINGLE COPIES, 15 CENTS.

Subscriptions may be sent to
THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
535 N. WABASH AVE., CHICAGO, ILL., U.S.A.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is attainable at any time by a member of any State or National Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Executive Committee, Dr. Richard J. DUNGLISON, Lock Box 1274, Philadelphia, Pa., sending him a certificate of statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, and five dollars for annual dues and subscription for THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. The Secretary of the Association will send him the necessary JOHNSON of the Association, which will be forwarded regularly.

All members of the Association should send their Annual Dues to the Treasurer, RICHARD J. DUNGLISON, M.D., Lock Box 1274, Philadelphia, Pa.

SATURDAY, OCTOBER 28, 1893.

TURKISH BATH IN MEDICINE.

The Turkish bath as a therapeutic agent is coming into greater prominence every year, especially in asylums and sanitariums. Private baths in cities are in many instances largely supported by patients sent from physicians. In Europe many of the large hospitals and all the sanitariums are equipped with these baths, as essentials in the treatment of disease. The thirtieth anniversary of the first public bath opened in this country, at Brooklyn, N. Y., was celebrated last week by Dr. C. H. SHEPARD, the founder. In an after-dinner address on this occasion, Dr. SHEPARD reviewed the early history of the baths in the Roman empire. Three thousand years ago the Greeks used the hot water and hot air bath, which was the same as our Turkish baths. Its use was originally a religious rite to prevent evil spirits from taking up their abode in the body. In Roman civilization it attained a perfection that seems wonderful even to-day. The largest bath ever constructed was by DIACLETIAN, and could accommodate eighteen thousand bathers at one time and was over a mile in circumference. The Pantheon of Rome, now used as a church, was built as a vestibule to the baths of AGRIPPA. At one time there were nine hundred baths in Rome, and every person was obliged by custom and law to use them every week or oftener. At Alexandria in the seventh century, the number of baths reached over four thousand. It is a curious fact only recently recognized, that during the ages when the baths were so common and popular, no epidemic diseases prevailed. Rome, Alexandria and Constantinople, and also the earlier Grecian cities, were singularly free from plagues and contagious diseases during these times. As soon as these nations were overrun by barbarians, baths were abandoned, and plagues and epidemic diseases began. These baths were lost to civilization, except in a small way at Constantinople, until 1840, when

the first bath was opened in England. It is said, however, that the bath at Buda-Pest has remained in operation from the date of its original construction by the Romans. Now there are about fifty hundred baths in Great Britain, and are one hundred in this country. Starting at first as luxuries, they have grown to be therapeutic measures of great and increasing value. In this address, Dr. SHEPARD reviewed the opinions of eminent physicians in Europe, of the nature and value of the bath, pointed out the possibilities of its influence on disease in the future, and concluded that the present remedial measures gave greater promise in the treatment of disease.

In this day of anniversaries it is pleasant to note this event, and to realize that the bath, which has occupied so prominent a place in the highest civilizations of the world and which is so closely allied to sanitary science, is coming into prominence again. To Dr. SHEPARD the founder (and member of our Association), is due great credit for establishing the first bath, and so persistently urging its merits and claims on the medical public.

THE FIRST POSTMORTEM RECORDED IN THIS COUNTRY.

The centennial of the Connecticut Medical Society last year, was marked by several historical addresses concerning medical matters a century ago. Old papers and records, physicians' account books and diaries, and old letters and legends, were all examined, and many very interesting stories have been gleaned from them. One of these old records, dated March 11, 1662, makes note of a vote in the General Court of Connecticut, granting unto Mr. ROSSITER twenty pounds for opening the belly of KIRBY's child, and his pains to visit the deputy governor, MAJOR MASON, and Mr. TAYLOR, and other ministrations. It appears from the long and minute written account, that JOHN KIRBY of Hartford, had a daughter eight years old, who was taken ill of some form of bronchitis pneumonia attended with delirium March 23, 1661, and died five days later. During this illness she complained that GOODY AYRES, who was a general household nurse, was smothering her, and kneeling on her belly, also smothering her. She urged that her father should chop off the head of this nurse who was not willing to take care of her. After short periods of sleep she would start up and cry out against this woman. This delirious persecution continued until death, in which she constantly asserted that GOODY AYRES was the cause of all her pains and torments. The case was considered so unnatural and untimely that a jury of six persons were called to make an inquest.

GOODY AYRES was requested to come up and handle the body in the presence of others. Among other

signs was a reddish spot on the cheek nearest to Goody Ayres, and certain purging from the mouth, with stiffness of the arms, and black spots over the body, were regarded as suspicious. Accordingly Mr. Rossiter, who lived in Guilford twenty miles away, was sent for to examine the body. Several days later he arrived, and with the assistance of the school master, WILLIAM PITKIN, made the necropsy. The following is the record made in the handwriting of Mr. Rossiter. He condensed his account into six particulars which he said in his judgment were preternatural:

1. The whole body, the muscular parts, nerves and joints were all pliable, without any stiffness or contraction, the gullet only excepted. Experience of dead bodies renders such symptoms unusual.

2. From the costal ribs to the bottom of the belly in the whole latitude of the womb, both the scarf skin and the whole skin with the enveloping or covering flesh had a deep blue tincture, when the inward part thereof was fresh, and the bowels under it in true order, without any discoverable pecanety to cause such an effort or symptom.

3. No quantity or appearance of blood was in either venter or cavity as belly or breast, but in the throat only at the very swallow where was a large quantity as that part could well contain, both fresh and fluid, no way congealed or clotted as it comes from a vein opened, that I stroked it out with my finger as water.

4. There was the appearance of pure fresh blood in the backside of the arm, affecting the skin as blood itself, without bruising or congealing.

5. The bladder of gall was all broken and curdled, without any tincture in the adjacent parts.

6. The gullet or swallow was contracted like a hard fish bone that hardly a large pease could be forced through.

This was signed by Dr. Rossiter and was evidently intended to convey the idea of death from preternatural causes. Mr. Pitkin, the school master, followed with sundry observations on the symptoms of the case, and the incidents attending the death and body when laid out. This was sworn to and attested by Mr. Clark, Secretary of the colony. Nothing further was done, and Goody Ayres moved away and the claim or suspicion of bewitching was forgotten. In 1663 this same surgeon performed another autopsy on Rev. Samuel Stone, who died suddenly. The only thing mentioned was that this man had no gall bladder. In 1659 a new disease appeared of "bladders in the windpipe" which seems to have been very fatal among children. Some examinations revealed this state about this time. A curious record of the examination of animals to find the cause of death, is noted in the records of New Haven as early as July, 1650. In a lawsuit over an ox, in which it was claimed that he was killed by overwork, one Edwin Parker examined the body and testified to its appearance. The record states that the heart was full of blood, and the liver and lungs were swelled and the flesh was waterish.

This Kelley case was the first necropsy that was recorded fully, and the surgeon, Rossiter, was probably the most eminent man of his time. It is found from some old records that he received his education in England, and appeared in 1631 in the Massachusetts colony. He was an intense loyalist and did not get along very well, but finally he came to Connecticut and lived and died much respected for his medical ability.

The centennial volume of the State medical transactions of Connecticut contains many very interesting records of physicians and medical practice in the seventeenth and eighteenth centuries, and is among the first to gather and group this history in a permanent form.

LOUISIANA QUARANTINE.

The models of the Louisiana quarantine plant on exhibition in the Hygienic Department at the World's Fair are among the most interesting. The present quarantine system of the State of Louisiana is based upon that inaugurated by Dr. Joseph Holt in 1885, and consists of a complete plant for the fumigation and disinfection of vessels, together with the cargo and effects of ship, crew and passengers.

The apparatus for fumigation consists of a furnace for generating sulphur dioxide, from which the gas is forced through a pipe leading to the bottom of the vessel. The air used in the combustion of the sulphur in the process of oxidation is drawn from the ship's hold through a pipe whose extremity reaches just below the hatchway, thus drawing through the furnace and rendering innocuous the foul air of the vessel. In addition to this apparatus, which is on the steam tug, there is a like supplementary apparatus fixed on a movable car on the wharf. The disinfecting apparatus consists of two processes, that by steam and that by a solution of mercuric chlorid. While a vessel is undergoing fumigation, either in mid-stream by the tug or alongside the wharf, all textile fabrics and baggage are disinfected by being placed in the heating cylinders. These cylinders are eight feet in diameter and sixty feet long, and are three in number, thus providing ample accommodation for the disinfection of the largest steamship. After the goods have been opened they are suspended on racks which are run into the cylinders, the heads of which are then closed and steam injected until the thermometer indicates a temperature of 220 degrees Fahrenheit, which is held for one-half hour, when the effects are removed.

For the disinfection of furs, leather and rubber fabrics which would be destroyed by the heat, the mercuric solution is used, by means of hose with a spray nozzle which saturates them effectively.

The present cylinders in use were the result of long and careful experimentation by Dr. C. P.

WILKINSON, and differ materially from the original wooden chamber erected by Dr. Holt.

The furnace for generating the sulphur dioxide now used, is an improvement made upon the original by Dr. S. R. OLLIPHANT, and enables the production of a larger quantity of gas of greater proportionate strength than formerly. While the system is the same as that adopted upon the original ideas of Dr. Holt, the present plant with its improvements is far more effective and gives a greater guarantee of safety.

Having had principally to deal with vessels from yellow fever infected ports, it is believed that the efficacy of the Louisiana system of quarantine has been fully demonstrated by its results, inasmuch as no case of yellow fever has occurred upon a vessel after disinfection (although many have been previously infected) and by the absence of the disease from New Orleans, a city which previous to 1879 was perennially infected with yellow fever.

The establishment by Dr. Holt of the present system inaugurated a new era in maritime sanitation. Prior to this time detention and an attempt at disinfection and purification without isolation was the rule; now detention is only required to as limited a period as is consistent with safety, careful inspection and thorough disinfection, purification and isolation. The Marine Hospital Service immediately adopted the same plan with slight modifications; in fact all the maritime quarantines are practically carried on in like manner, and our coast defenses against the introduction of foreign pestilence are in excellent condition.

A MODEL HEALTH PUBLICATION.

For many years we have been in receipt of many sanitary publications, all of which are useful, many of them admirable, and some of them models; among the latter those of the Minnesota Board are fairly classed.

The mortality report for instance, is based upon a careful personal review of all causes of death reported to the Secretary's office for the month to which it is referred, and is collected to represent the actual population accounted for, and every fact, including individual causes of death, is carefully revised before publication.

The Minnesota system of obligatory notification of infectious disease, and the monthly report of causes of death with obligatory notification of all deaths and their causes by medical men, is supplemented by an arrangement the Secretary, Dr. C. N. HEWITT, has with Town Clerks and Health Officers to give the name and address of every physician in attendance upon a case of disease at death.

This system is the outgrowth of six years of assiduous effort, the intention being to make this infor-

mation available every month to Health Officers and physicians. On page 66 of "Public Health" will be found in the "mortality record for August," one method of using this information.

We reprint the September summary in the Miscellaneous pages of the Journal in this issue.

RIGHT TO ESTABLISH HOSPITALS.

An urban sanitary authority has recently purchased a building which it is proposed to convert into a hospital for infectious diseases, writes a subscriber to an English law journal of October 7. The building is not situate within the authority's own district, but in that of an adjoining authority. The property owners in the neighborhood feel that their property will be seriously injured by the situation of the hospital, owing to a reasonable apprehension of risk, and interference with the pleasurable enjoyment of their houses for ordinary purposes. Now what can be done about it? is the question asked in conclusion. The sanitary authority of the district can not, as such, prevent the use of the building as a hospital, it is answered. If the hospital can not be used without causing a public nuisance, the sanitary authority, or any owner of property, may maintain an action in the name of the Attorney-General for an injunction to restrain its use. But such an action, brought in advance, it is said, has been rarely successful. Of course if the hospital when opened is found to be a nuisance, any owner who is aggrieved may bring an action, and will undoubtedly obtain relief. A number of decisions are cited in support of these statements, and much the same principles will be found to be true and applicable in this country.

ARMY MEDICAL EXAMINING BOARD.

The Army Medical Examining Board recently convened in Washington, D. C., for the examination of candidates for admission into the Medical Corps of the Army has concluded its labors, with the result of adding five young officers to the Corps. We learn that about forty candidates received invitation to appear before the Board but that only thirty-four took advantage of the permission. Of ten examined during the first week one was successful; of fourteen who appeared during the second week none succeeded in effecting an entrance, while four of eleven in the third week were more fortunate in the effort to demonstrate their qualifications. A notable percentage failed on account of defects of physique; and among these were probably some who might have showed to advantage had they been permitted to proceed with the examination into their general education and professional acquirements. We print in another part of this issue, copies of some of the sets of questions used by the Board in the written examinations.

THE NEW CURE FOR TUBERCULOSIS.

Cures for consumption multiply as thick as the leaves in Vallambrosa, but the victims die as usual. The latest contribution to consumption cures is announced in a dispatch from Berlin to the effect that one Doctor J. SUMMERBRODT is now curing tuberculosis by the administration of creosote. It is well known that creosote is an anti-bacillary agent of high power, but we are sure that Americans will do well to await further particulars before going wild over this new-old discovery. The memory of the Bergeron method, the stupendous failure of tuberculin, and the history of the myriad other failures, each heralded in its day as an unfailling remedy for the scourge, will operate to cause a suspension of judgment until results shall have finished the demonstration.

THYROID GLANDS.

Owing to the interest that has lately been shown in the use of thyroid glands in the treatment of myxoedema, etc., and to afford physicians an opportunity of determining the value of this agent, Messrs. Armour & Co. of Chicago, offer to supply gratis a small quantity of "Desiccated Thyroid Glands" to members of the profession, upon application, for experimental purposes. The facilities of this firm for preparing the article are certainly unequalled, and the opportunity seems to us one which is worthy of attention, and which should be taken advantage of in the interests of medical science.

MR. GEO. KEIL of Philadelphia is in Chicago this week, representing the S. D. Gross Monument Fund, and will call on the leading members of the profession in this city. Twelve thousand dollars is the minimum amount required, and the raising of the amount should not be doubtful.

Gentlemen desiring to anticipate Mr. KEIL's visit may leave contributions for him at the JOURNAL office, if more convenient.

ASSOCIATION NEWS.

Time of Meeting.

OCTOBER 16, 1893.

To be Edited.—The next annual meeting of the Medical Society of the State of Washington was set for the first Tuesday in May, 1894, and I understand that the AMERICAN MEDICAL ASSOCIATION meeting is set for the same date. I see that a change in the latter is contemplated. Please let me know at the earliest date the time of the AMERICAN MEDICAL ASSOCIATION meeting at San Francisco, and we will arrange our meeting accordingly.

Very truly, R. I. THOMSON, Sec'y.

A note.—In order to enable State medical societies to send elected delegates to the next meeting, prepared to propose a proposed new constitution and amendments, a change of the date of the meeting has been proposed by a

few members of the Business Committee. A change in the time of meeting can only be authorized by the President, who has not yet issued the call.

The Journal of the American Medical Association takes as much interest in pharmaceutical affairs as any medical exchange we receive. No doubt the editor recognizes the close relationship which exists between the two professions. —*Meigs Brothers' Druggist*, October, 1893.

SOCIETY NEWS.

New York State Medical Association.

Tenth Annual Meeting.—Held in New York, Oct. 9, 10, 11 and 12, 1893.

S. B. WYLIE MCLEOD, M. D., PRESIDENT.

INTRODUCTORY SESSION—MONDAY EVENING—OCTOBER 9.

The President in his Address referred to the many important contributions that had been made by members during the past ten years, and the share each department had taken. He said that although the Association was organized on Feb. 4, 1884, it has at present eight hundred members, and a library of over nine thousand volumes.

Dr. JOHN SURADY of New York County, then delivered an address on

THE MEDICAL WORK OF THE ASSOCIATION DURING ITS FIRST DECADE.

He referred to many of the more important papers and discussions, such as, Dr. Conley's address on "The Nosology of Disease"; Dr. Janeway's address on "Pathology"; Dr. A. Flint, Jr.'s paper on "Some of the Relations of Physiology to the Practice of Medicine"; Dr. Van Zandt's paper on "Commercial Prescriptions"; Dr. McEwen's address on "The Mineral Waters of Saratoga"; Dr. Leale's article on "Nasal Feeding after Intubation"; and many others. A prominent feature of the work of the past few years is the practice, adopted from the British Medical Association, of having prepared discussions. The first of these, which was proposed by Dr. Flint, was on pneumonia. They had proved very profitable.

MORNING SESSION—FIRST DAY—TUESDAY—OCTOBER 10.

Dr. JAMES G. PORTEOUS of Dutchess County read a paper on the

PREVENTION OF DISEASE

in which he referred particularly to the many ways in which tuberculosis was spread abroad. Milk is an important factor in carrying infection of various kinds. What wonder that the medical profession is urging that dairies should be under strict medical supervision when those engaged in milking the cows are seen to dip their fingers into the pail of milk and wash off the udder of the cow, and by this repeated dipping of their fingers into the milk, remove both filth and disease from the cow and from their own hands, and deposit in the milk? In order to spread a practical knowledge of the dangers of tuberculosis, and the means of limiting its dissemination, the author is in the habit of distributing to his consumptive patients a printed card containing directions for their guidance, and also a reminder to the well persons with whom they are brought in contact. He advises them to collect all sputa in a wide-mouthed bottle, which is frequently washed out with hot water. They are cautioned against spitting around promiscuously, and against kissing people, and they are urged to have separate table utensils, bed linen, table linen and beds. Their friends are reminded that consumption is an infectious disease, communicated principally by swallowing the germs, by inhaling them, or by having them gain access to the system through wounds. They are also advised not to kiss *any one* on the lips who has a cough.

Dr. E. D. FERGUSON of Rensselaer County, read the next paper entitled,

AN ADDITIONAL NOTE ON NEPHRECTOMY AND NEPHROSTOMY.

He reported four cases illustrating the difficulties of diagnosis and treatment in this department of surgery, and called attention to the fact that in nine operations on such patients he had not found any evidence of tuberculosis being the cause of the trouble. He thought the drainage

tube of rubber which he formerly employed caused undue irritation, and therefore preferred to use now a free intestine and packing so as to retain an open sinus for a long time.

Dr. JOHN CROXBY of Erie County, cited a case illustrating the difficulty of diagnosis, and expressed the hope that in the future the cystoscope would render valuable aid in determining the true condition of both kidneys.

Dr. THOMAS D. SKIDON, suggested that by supra-pubic cystotomy one could ascertain by inspection the condition of the ureters, and at the same time treat the disease of the bladder.

Dr. FERGUSON said that as anything which is liable to aggravate the existing cystitis is liable to propagate the disease still further, he was opposed to the use of the cystoscope or to ureteral catheterization. He would prefer to do an exploratory operation.

Dr. JOHN W. S. GOLEY of New York County, took the same position. An exploratory operation has the advantage that if it confirms the diagnosis, a nephrectomy may be at once performed.

Dr. NELSON I. NORTH of Kings County, then read a paper in which he advocated the topical application of concentrated lactic acid to epitheliomata and canceroid ulcers. This acid is not a caustic, but nevertheless seems to destroy the vitality of abnormal cells.

AFTERNOON SESSION.

Dr. N. P. DANDRIDGE of Cincinnati, read a paper on

THE SURGICAL TREATMENT OF PLEURALY CAVITIES.

Such treatment he considered applicable to cases of abscess of the lung, gangrene, hydatid cyst, and to tubercular and bronchiectatic cavities. Such operations are not uncommonly done under the supposition that the case is one of localized empyema. The cavity having been located by an aspirating needle, this needle serves as a guide for the knife. After incision the cavity is best treated by packing it with iodoform gauze.

DISCUSSION ON LESIONS OF THE PLEURA.

Dr. JOHN SURADY of New York County, opened the discussion, propounding the following questions:

Question 1.—What are the factors of pleurisy? Its forms and contributive conditions? What are the pathological changes in a case of progressive pleurisy ending in recovery?

Question 2.—What are the points of differential diagnosis in pleurisy and other affections of the chest?

Question 3.—What is the treatment of empyema, with relative value of respiration, rib resection and free opening with tube drainage?

Dr. SURADY said that the key to the diagnosis was usually furnished by the shifting line of dullness in the upper part of the cavity. The indications for treatment are, to limit the exudation at the beginning, allay pain, keep the cavity free, and promote absorption. When there is enough effusion of serum to produce intermittent orthopnea, or when the chest is half full, or when after a month there is no sign of absorption taking place, it is time to resort to the aspirator. Aspiration is best done in the sixth intercostal space on the axillary line. In cases of empyema if there is not sufficient space between the ribs for proper drainage a portion of the rib may be resected, and a drainage tube with one lateral fenestra inserted, and sutured to the skin.

Dr. WILLIAM McCARTON of Kings County, in reply to the first question, said that pleuritic adhesions are found in about 50 per cent. of the lungs examined post-mortem. He attributed much importance to the microbial theory of the origin of pleurisy, and explained the apparently contradictory results of various observers by the different stages of the disease at which their investigations were made.

Dr. J. BLAKE WHITE of New York County, replied to the second question. He said that the origin of pleurisy is sometimes referred to the abdomen, and may therefore prove misleading. Cough, pain in the side and dyspnea, in the order named are developed in cases of tubercular pleurisy, but in other pleurisies the pain and dyspnea usually precede the cough. When the patient shows a tendency to clear the throat frequently, and there is nothing wrong with the throat, it is safe to conclude that this symptom is indicative of pleuritic adhesions. He did not believe that microbes had anything to do with the etiology of pleurisy.

Dr. J. G. TRACY of New York County, in reply to the same question, said that the pleuritic friction sound is usually quite limited in area, and changes its position frequently; it can be felt as well as heard.

Dr. CHARLES A. TAYLOR of New York County, answered the third question by relating the histories of one or two cases in his practice, in which, notwithstanding the severity of the attack of empyema, Nature had succeeded in effecting a cure without operative interference. Incidentally, also, he gave an illustration of the contagiousness of pulmonary tuberculosis.

Dr. THOMAS H. MERRITT of New York County, thought the dangers of aspiration were not generally appreciated. He stated that a review of his cases of thoracentesis showed that not one of them had lived after the operation more than three years.

Dr. CROXBY said he had been in the habit of using the aspirator quite early in all cases of pleurisy with effusion, and he had found this treatment only beneficial. He would treat acute pleurisy by revulsives, such as dry or wet cups, at the beginning, followed by a cathartic, and afterwards by opium to relieve the pain. Opium was preferable for this purpose to any of its alkaloids. He did not favor rib resection in empyema; it was unnecessary. He also called attention to the fact that consumption might be cured by metastasis, and cited a case under his observation, in which an attack of acute mania cured a pulmonary tuberculosis.

Dr. DONALD McLENNAN of Detroit, was also opposed to the use of the aspirator in the treatment of pleurisy, for it is rare that it will completely empty a cavity. He thought resection of the rib in empyema was extremely important, and in accordance with surgical principles.

Dr. DANDRIDGE took the same position with reference to resection of the ribs, but he thought aspiration was of service in some cases, as it produced a negative pressure in the chest and so aided lung expansion.

EVENING SESSION.

Dr. AUGUST FLINN of New York County, presented a paper, entitled,

REMARKS ON FERMENTATIVE DYSPEPSIA.

As he was firmly convinced that fermentation in the alimentary canal is due to microorganisms, he naturally resorted to the use of various anti-fermentatives, and among these remedies he had found the subgallate of bismuth the best. It is best given in capsules or tablet form, in doses of 5 grains, either before or after each meal.

Dr. CROXBY thought that in those cases in which the anti-fermentative had been found so efficient, he would have found hydrochloric acid equally beneficial, for the condition calling for treatment is apparently one characterized by a deficiency of hydrochloric acid in the stomach.

Dr. HENRY F. RICH of Kings County, thought it was of the first importance in treating these cases of fermentative dyspepsia to ascertain whether the fermentation was due to decomposition of hydrocarbons or of nitrogenized substances. If the product of the fermentation be carbonic acid gas, it is evident that the hydrocarbons are at fault, and this class of food stuffs should be eliminated from the diet. Similarly, if the odor of the patient's breath is foul, the nitrogenized substances should be withheld.

Dr. C. LEVIN alluded to the great benefit that he had observed during the past summer in the St. John's Guild Hospital, from lavage of the stomach and bowels in infants, and from the subsequent use of starched linens.

Dr. JAMES A. WARD of New York County, then read a paper entitled,

BLOODLESS OPERATION, OR THE PLASTIC OPERATION, AS A SUBSTITUTION FOR THE PLASTIC OPERATION.

This method was introduced by him to the profession in 1880, and since that time he has been able to effect relief in a large number of thirty-five amputations at the hip joint in which it had been employed. In thirty-five cases it was done for disease, and in four, for very severe injuries. Of the thirty-five, five died, and all of the cases of injury proved fatal.

MORNING SESSION—SECOND DAY—WEDNESDAY, OCTOBER 14.

Dr. W. D. GRAYSON of Westchester County, sent a paper on the

VOLUNTARY COMMITMENT OF THE INSANE TO ASYLUMS.

He said that the modern notion is that asylums should really be hospitals, and the treatment should be individualized as far as practicable. Many insane would avail themselves of asylum care if they could be voluntarily committed, and if the several States had enacted laws permitting this, the patient after his commitment was treated about the same as those who had been placed in the asylum against their will. The New York law now permits persons

who are able to understand what they are doing, to voluntarily commit themselves to family asylums, but not for any specified time.

DR. GUSTAVUS ELIOT of New Haven, Conn., read a paper on
THE TREATMENT OF ENTERIC FEVER,

in which he laid great stress on keeping every patient with typhoid fever, or any suspicious fever, in a condition of absolute rest, mental and physical, until thoroughly convalescent. He advocated giving at the outset from 7 to 10 grains of calomel on alternate days for four doses, and subsequently administering iodine or carbolic acid in very weak solution.

DR. GEORGE DOUGLAS of Chenango County, added still greater emphasis to the importance of absolute rest, as a life saving measure, and also favored the giving of two or three doses of calomel at the beginning of the illness. He did not approve of the free use of alcoholic stimulants.

DR. WILLIAM FINDER of Rensselaer County believed that food should be given sparingly during the early stages, and expressed his great faith in the efficacy of sulpho-carbolate of zinc, as an internal antiseptic and astringent.

DR. JOHN H. MARTIN of Otsego County, also indorsed the calomel treatment. He fed his patients all through the disease, but was decidedly opposed to the use of alcohol in typhoid fever.

DR. E. K. SQUIRE of Kings County, said that the favorable action of calomel in this disease was no doubt due to the fact that it is first converted into an albuminate, and is then slowly decomposed into the more energetic antiseptic, the corrosive chlorid of mercury.

AFTERNOON SESSION.

SIR JAMES A. GRANT of Ottawa, Canada, in an interesting paper (which will appear exclusively in the JOURNAL in full) on

RARE FORMS OF GOUT AND RHEUMATISM.

cited the case of a young girl who had all the usual symptoms of perityphlitis, until the sudden development of acute articular rheumatism in the joints of the upper extremities, when the abdominal symptoms immediately subsided.

DR. DONALD McLEAY of Detroit, then presented some interesting

SURGICAL AND PATHOLOGICAL MEMORANDA.

Among other things he said that a large experience with ununited fractures had taught him that the chief cause of their non-union was excessive violence at the time of the fracture. He described his method of controlling hemorrhage in amputation at the hip joint by means of an aortic compressor. He considers this method superior even to Wyeth's method.

DISCUSSION ON THE TREATMENT OF APPENDICITIS.

DR. FREDERICK S. DENNIS of New York County, opened the discussion, propounding the following questions:

Question 1.—What proportion of cases of appendicitis end in resolution?

Question 2.—What class of cases require immediate operation?

Question 3.—What class of cases do not require immediate operation?

DR. DENNIS said it was now generally accepted that about 50 per cent. of cases of inflammation in the ileo cecal region end in resolution, and he did not approve of resorting to operation ordinarily until there had been a rapid pulse, a suppurative temperature, and intense pain for forty-eight hours without improvement. The operation is not easy or without risk, and it is very frequently followed by ventral hernia.

DR. GORLEY took the same position. He related the histories of several cases which had recovered without operation, although at first apparently seriously ill. Of course, where there is good evidence that perforation has taken place, immediate operation may save the patient.

DR. McLEAY said the subject was weighed down with difficulties and responsibilities. He could recall quite a large number of cases during the past two years where, despite the urgency of the symptoms, and the fact that no operation was performed, recovery was complete.

DR. JOSEPH D. BRYANT of New York County, said that the relative frequency of foreign bodies in the appendix, in the two sexes, is about the same as the relative frequency of appendicitis in males and females, hence there is probably a close connection between the two facts, and this is interesting from an etiological standpoint. The symptoms of perforation are usually quite marked, and, when present, indicate the necessity of immediate operative interference.

The presence of the "McBurney point" can only be considered as confirmatory of other signs, for the frequent and marked variations in the position of the caecal coli show that no fixed point of tenderness can be looked upon as pathognomonic of appendicitis. The existence of a tumor is also of but little assistance, for in about 14 per cent. of cases the vermiform appendix is situated in the pelvis, and in 20 per cent. it is behind the caecal coli. He would lay more stress upon rigidity of the rectus muscle than he would upon an elevation of temperature as a guide to diagnosis and prognosis.

DR. WYETH said that all the disasters he had seen in this branch of surgery had been due to delay, and not to too early operative interference. Again, the danger of ventral hernia is much less after an early operation.

MORNING SESSION—THIRD DAY—THURSDAY, OCTOBER 12.

DR. DOUGLAS AYRES of Montgomery County, read a paper entitled,

THE MALE CATHETER, WITH SOME OBSERVATIONS UPON THE PROPER MODE OF INTRODUCTION INTO THE BLADDER.

He said that the proper and scientific use of the catheter demanded a practical application of the familiar anatomical knowledge as to the three great divisions of the urethra—the prostatic, the membranous, and the spongy portions. While flexible catheters are often of service in cases where the urethra is unusually tortuous, the silver catheter, No. 9 or 10 of the "American" scale, was his main reliance, as he could more readily assure himself of the exact position of the instrument. The patient should be placed in the recumbent posture, with the thighs well drawn up and flexed, and the shoulders slightly elevated. It is well worth remembering that the introduction of the catheter in difficult cases is often greatly assisted by pressing down the soft parts above the pubes, thus relaxing the suspensory ligament.

DR. GORLEY then exhibited an instrument of unusual historical interest—an exact bronze model of the catheter found in the ruins of Pompeii. It has the sigmoid form, supposed to belong to a much later period; it is distinctly conical, and has one eye, situated close to the vesical extremity. He also exhibited a number of catheters of American manufacture, and stated it as his opinion that they excelled in finish those of all other manufacturers. Even the cheap 10-cent catheter is made with an excellent finish. He suggested that obstetricians should use these in their practice, for owing to their cheapness they can be thrown away after one using.

DR. WILLIAM FINDER of Rensselaer County, read a paper on

THE EFFICIENCY OF VACCINIA AFTER TYPHOID FEVER.

Some years ago he found that persons who had recently had typhoid fever could be vaccinated with the greatest ease, and that they appeared to be no longer immune to smallpox. He had had an opportunity to observe this curious fact on various occasions, and he now made it a practice to re-vaccinate people who had had typhoid fever since their last vaccination. He presented these observations in the hope that other observers would either confirm or disprove the theory he presented, that typhoid fever eliminated the protection produced by vaccination.

DR. H. ERNST SCHMIDT in a paper entitled

REFLECTIONS ON THE NEED OF CLOSE OBSERVATION OF DISEASE, AND UPON THE VALUE OF HYGIENIC THERAPEUTICS,

narrated some amusing anecdotes showing what wonderful results could be achieved, especially in the practice of medicine, by attention to details. Commenting on the uncertainties of medical science and art, he asked what justice there was in a law which punished physicians for making pardonable mistakes, and yet allowed the lawyer who loses his cases through like errors to go unpunished.

DR. DAWSON COVY of Wayne County, reported a case of puerperal blindness, in which a liberal caesarean shortly before confinement greatly relieved the patient and, in his opinion, prevented the occurrence of eclampsia, and perhaps other severe complications.

DR. McLEAY said he had seen five cases of blindness occurring in connection with puerperal eclampsia, yet all recovered their vision without a resort to venesection; and in a paper entitled,

A PLEA FOR THE NON-OPERATIVE METHOD OF TREATING DYSMENORRHEA, PELVIC INFLAMMATION AND PELVIC ABSCESS.

stated that he had found that the liberal use of hot water,

by mouth and by enemata, increased the portal circulation, and so promoted the absorption of polyic exudates. Even when an operation becomes imperative, this treatment has put the system in a most favorable condition for operation.

Dr. THOMAS D. SROOG, of Chautauqua County, was elected President for the ensuing year.

Cedar Valley Medical Society.—The following were elected officers for the ensuing year: President, N. S. Pierce, Cedar Falls; Vice-President, M. J. A. Mueller, Dyersville; Secretary and Treasurer, W. B. Small, Waterloo. Independence was selected as the place for holding the annual meeting next year.

NECROLOGY.

Dr. G. R. Shaw at Antigo, Wis., October 12.

Dr. J. W. Green of Marengo, Ill., October 14.

Dr. W. A. Martin at Goshen, Ind., October 19.

Dr. Allan A. Stevens at Sinclairville, N. Y., October 13.

Dr. W. H. Thompson of New Haven, Conn., October 18.

Dr. J. W. Weatherford, Portland, Oregon, September 29.

Dr. Justus Duffan of Houston, at Austin, Texas, October 9.

Wm. F. Hutchinson.—Dr. Wm. F. Hutchinson died at Providence, R. I., October 17. Dr. Hutchinson lived in Minneapolis, 1870 to 1873, when he removed to Providence. He was Assistant Secretary General of the Pan-American Medical Congress; and Vice-President of the American Electro-Therapeutic Association.

Dr. Moncrieff Drowned in Siberia.—Word has been received here of the death of Dr. D. Scott Moncrieff, who was sent to Siberia under the auspices of one of the auxiliary congresses of the World's Fair. The information came through Minister Dunn, at Tokio, Japan, who says Dr. Moncrieff was accidentally drowned. The State Department at Washington has also been notified. —*Chicago Post.*

Dr. Algernon Sidney Coe of Oswego, N. Y., died October 18. He was a surgeon of more than local prominence in the northern part of his State. During the late war he served as surgeon of the 148th Regiment from August, 1862 to June, 1865, and did not lose a day in all those three years. He was an alumnus of the College of Physicians and Surgeons, N. Y., of the class of 1854.

Dr. John N. Garnett, aged 73, died at Kansas City, October 14. Dr. Garnett was born in Virginia. He had been in Kansas City since 1879 and until of recent years had practiced medicine. In his younger days he was a great sportsman and was known as an expert with the gun and rod. Dr. Garnett is the father of ten children, five of whom, three sons and two daughters, are still living. His wife also survives him.

Dr. J. S. H. Fogg died October 16 at his home in South Boston. John Samuel Hill Fogg was born in Elliot, Me., May, 1826. He began the study of medicine with Dr. Theodore Jewett in 1844, attending meanwhile the medical course of lectures at the Bowdoin Medical School, and later at the Harvard Medical School, at which place he took his degree in 1850. He at once opened an office in South Boston, where he remained until his death.

In 1850 he married Sarah Frances Gordon, daughter of John Gordon, Esq., of Exeter, N. H., who died in 1871. A year later he married Miss Mary G. Clinch.

Dr. Fogg was a member of the Medical Society of Massachusetts, also a corresponding member of the Maine Histor-

ical Society. He was one of the Massachusetts Health Commissioners in 1855, and was for some years on the School Board of the city. He was a member of the Congregational Church.

Dr. John C. Peters Passes Away.—Dr. John C. Peters, the well-known authority on cholera, germ diseases and ophthalmology, died on October 21 at his residence, "the Corners," at East Williston, L. I. He was 74 years old, and was stricken with palsy a short time before his death. Dr. Peters had practiced medicine in New York since 1842. He was born in that city, and educated at the College of Physicians and Surgeons and the medical universities of Berlin and Vienna. He was one of the founders and at one time president of the New York Pathological Society, and for many years was editor of the Society's proceedings. He was the physician and personal friend of Washington Irving. Dr. Peters made a special study of Asiatic cholera and his library on cholera is said to be the most complete in the country. He wrote many pamphlets on this subject. He assisted Dr. Edmund C. Wendt in preparing a treatise on cholera, and in 1866 wrote Peters' "Notes on Asiatic Cholera," a standard work. Dr. Peters suggested new remedies in the treatment of consumption, Bright's disease and membranous croup.

BOOK NOTICES.

The Southern Surgical and Gynecological Association Transactions. Vol. V, 1892.

This volume of this handsome series contains an account of the proceedings and the papers read at the fifth session of the Association, held at Louisville, Ky., Nov., 16, 17 and 18, 1892, under the presidency of Dr. J. McFarland, master of Atlanta. The papers in the volume include articles by J. S. Conston, Brokaw, Haggard, Baxter, Dugan, McWherry, Horner, Grant, Ap Morgan Vance, Wm. W. Potter, R. M. Cummins, Howard A. Kelley, Bartleson, Myers, Lydston, Talbot Johnson, Bedford Brown, Jas. Evans, C. C. Simon, Chapman, Stone, our omnipresent friend H. O. Marcy, and others. One of the most interesting papers is by Bedford Brown, "Personal Recollections of the late Benjamin W. Dudley of Lexington, Ky., and of his Surgical Methods and Work." Dr. Brown was a pupil of Dr. Dudley from 1846 until the conclusion of his medical education, and was therefore in a position to know the great pioneer surgeon thoroughly. If it be true that "no man is a hero to his valet," it is equally true that the old-time preceptor was sure to be the great man of his age to his pupil. The following announcement will strike many as a revelation: "In the use of sterilized water as a dressing for wounds he had an abiding faith, and used it to the exclusion of all other dressings. Not a drop of non-sterilized water was permitted to touch a wound. He believed that unboiled well or spring water contained poisonous materials, the nature of which of course was not well defined in his mind. He contended that the purest form of water, next to boiled or distilled water, was that from the cistern, which was used exclusively for drinking purposes in his family and office. His use of boiled water in all wounds, except those healing by first intention, was profuse and abundant." Our space is not sufficient to quote further from this most interesting paper, and we rise from its perusal with greater admiration for the surgical methods of fifty years ago, and regret that there were not more Dudleys in that period, now growing misty with the lapse of time. Of the other papers in the volume it is only necessary to say that they are replete with scientific interest. The general appearance of the volume is highly creditable to the accomplished Secretary, Dr. W. E. B. Davis of Birmingham, Ala.

A Text-book of Ophthalmology. By WILLIAM F. NORRIS, M.D., Professor of Ophthalmology in the University of Pennsylvania, and CHARLES A. OLIVER, M.D., Surgeon to Wills Eye Hospital, Philadelphia. In one octavo volume of 641 pages, with 357 engravings and 5 colored plates. Cloth, \$5.00; leather, \$6.00. Philadelphia: Lea Brothers & Co. 1893.

This work is divided into two parts, of which the first is by Dr. Oliver and treats of embryology, macroscopic and microscopic anatomy, physiology, optics, physiological optics, examination of the eye, ophthalmoscopy, fundus-reflex test, methods of determination of errors of refraction and accommodation, and correction of errors of refraction and accommodation.

The painstaking care with which the author has developed every detail of his subject, has produced a work which leaves little to be desired; there is no padding or redundancy, and there is an earnestness born of an intimate knowledge of the subject and a sincere desire to convey instruction.

The second part of the work, by Dr. Norris, treats of the diseases and injuries of the eye, the eyelids and the orbit, including the affections of the optic nerve and its internal prolongations. The concluding chapter describes some of the more common and important operations on the eye. In this section the same care has been taken to prune superfluities, and secure precision, as in the first, but naturally the author has more latitude of expression, owing to the nature of his subject.

The illustrations are excellent and the typography good.

Anatomy, Descriptive and Surgical. By HENRY GRAY, F.R.S., Lecturer on Anatomy at St. George's Hospital, London, New American from the thirteenth enlarged and improved English edition. Edited by T. PICKERING PICK, F.R.C.S., Examiner in Anatomy, Royal College of Surgeons of England. In one imperial octavo volume of 1,100 pages, with 635 large engravings. Price with illustrations in colors: Cloth, \$7.00; leather, \$8.00. Price with illustrations in black: Cloth, \$6.00; leather, \$7.00. Philadelphia: Lea Brothers & Co. 1893.

This well-known work on anatomy which has been the principal text-book in England and the United States for the last thirty-five years, has again made its appearance in a new edition, this time wholly English. The Holden's Landmarks incorporated in the last edition have been omitted. The changes have included the latest teachings on general anatomy and the development of the tissues. No recommendation of ours could add to the already high estimation in which this book is held by the profession in America. It has sometimes been said that there were many errors in Gray, but nevertheless they have grown fewer with each successive edition, and it takes such a hypercritical vision to discover them now, that like the spots on the sun, the average man only knows of them from hearsay.

A Hand-book of Ophthalmic Science and Practice. By HENRY E. JONES, F.R.C.S., Ophthalmic Surgeon to St. Mary's Hospital; Surgeon to the Royal Westminster Ophthalmic Hospital, London. New (second) edition, revised and enlarged. In one octavo volume of 562 pages, with 201 engravings, 17 colored plates, test types and color blindness test. Cloth, \$5.50; leather, \$6.50. Philadelphia: Lea Brothers & Co. 1893.

This well-known work contains concise descriptions and typical illustrations of the important affections of the eye. The different structures are treated of seriatim, commencing with the eyelid, and concluding with a chapter on diseases of the orbit. The most extensive chapter in the book is that devoted to normal refraction and errors of refraction. The consideration of the diseases of each structure commences with the anatomy and physiology of the part. The illustrations are much better than are usually found in manuals of this character, and the colored plates are fine specimens of the chromo-lithographic art. In the appendix will be found useful formula, reading tests and test types.

Essentials of Bacteriology. Being a Concise and Systematic introduction to the study of microorganisms for the use of Students and Practitioners. By M. V. BALL, M.D., Physician to the Eastern State Penitentiary at Philadelphia. Second edition, with eighty-one illustrations, cl. 16 mo. pp. 205. Philadelphia: W. B. Saunders. 1893.

This little book having passed to its second edition, has its success assured in advance. Bacteriology has made such rapid changes in the last year that a work on the subject needs frequent revision to keep in touch with the new discoveries. The author says: "In this second edition the results of last year's earnest work have been embodied. . . . The separation from the blood of antitoxines, and their application to the cure of disease will probably revolutionize our present method of treatment, and add some peculiar agents to our materia medica. The question of immunity is still unanswered, though the phagocytic theory of Metschnikoff and the Alexines of Buchner are bringing us to the solution. Upon these lines the greatest efforts are at present being made."

Johns Hopkins University, Baltimore. Studies from the Biological Laboratory, Vol. V, No. 4. Baltimore, 1893. Price \$1.00.

The contents of this volume are, 1, An undescribed Acanthate by E. A. Andrews; 2, Contributions to the Embryology of Chiton, by Maynard M. Metcalf; 3, The formation of the so-called Cypress-knees on the Roots of the *Taxodium Distichum*, by John P. Lott; 4, On the Origin and Development of the Stehidiata and Tetrasporangia in *Dasya Elegans*, by B. W. Barton. This volume is edited by Prof. H. S. Martin and Prof. William K. Brooks.

Asiatic Cholera: Its genesis, etiological factors, clinical history, pathology and treatment. By JOHN A. BEXSON, Professor of Physiology and Associate Chief of the Department of Medicine, College of Physicians and Surgeons, Chicago. Chicago: The J. Harrison & White Co. 1893.

This is a book of 248 16mo. pages, in which the author has compiled in a series of lectures to his class, the essentials of the current teaching in regard to cholera. It is well written and has been brought up to date. The illustrations are cheap and poorly done, but as a whole the book is to be highly commended.

Minor Surgery and Bandaging. By HENRY R. WHARTON, M.D., Demonstrator of Surgery in the University of Pennsylvania. In one 12mo. volume of 529 pages, with 416 engravings, many being photographic. Cloth, \$3.00. Philadelphia: Lea Bros. & Co. 1893. Second Edition.

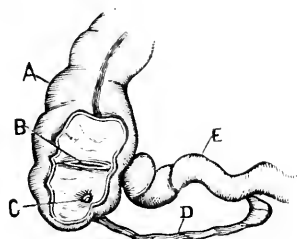
There is little change in this work from the original edition published in 1891. The author says: "The aseptic and anti-septic methods of wound treatment have been thoroughly revised and a considerable number of new illustrations have been added."

SELECTIONS.

Abnormal Appendix Vermiformis.—So much surgical work is being done to-day upon this part of the intestine that the following anomaly is worthy of notice: the subject, a native of Germany, had died at the age of 63, of phthisis. In dissecting the region of the cecum, I found the appendix beginning by a funnel-shaped opening at its lower and posterior portion; thence running over the brim of the pelvis, and terminating in a cul-de-sac, which opened into the ileum about three and one-half inches from the ileo-cecal valve.

Its appearance was smooth and bluish pink, about the size of a lead pencil, and measured six and one-half inches in length. It readily admitted a good sized probe at its termination in the ileum which passed into the cecum,

There was no evidence of previous inflammation, and its mucous membrane seemed to be continuous with that of the ileum.



A—Colon. B—Ileocecal valve. C—Appendix of appendix. D—Appendix. E—Ileum.

The specimen (which the accompanying engraving shows about one-fourth the natural size) may be seen in the museum at Cooper Medical College.—*LAWRENCE BORDO, S. B., in Occidental Medical Times.*

Hard Times and Free Medicine.—From every part of this great and rich country, the news comes to us of extreme stringency in the financial position of our confrères, the general practitioners. Never was there a richer opportunity for the masses to play the pauper than now. The present panicky state of the money-market affords people an immense excuse for wholesale imposition on the profession. The conditions of the times will not give them free bread, free clothes, free transportation on the railroads or rent free, but they lie away to many of our too numerous hospitals and dispensaries for free treatment—advice, medicine and all included for nothing, or for “ten cents”—the figure fixed in certain palatial infirmaries.

The consequence of all this has been most demoralizing to the profession and the public. Practitioners reduced to a state of enforced idleness and grim want, are forced either to quit their profession altogether, or to “moo stool with steel,” to open rival dispensaries, to advertise, or to drift into downright quackery.

Many cases have come to our knowledge which go to prove that the practice in vogue in many of our largest dispensaries is a species of downright robbery, and tends to work incalculable harm to the profession. Case after case is taken from among people of ample means and turned over to the hospital or to the college professor for his clinic, without a word being asked as to their mendacity or ability to pay anything at all. Cheap railroad excursion rates drain the outlying villages for miles in every direction.

This hydra-headed monster of indiscriminate free treatment must be seized and strangled, or we will soon see the profession of medicine dragged in the dust; open downright quackery will be rampant, and integrity and honor in the healing art will be things of the past.

By no means let us withhold our services to the poor and deserving, for humanity compels us to gratuitously attend those without means. Nor let us strip the field of such clinical material as legitimately belongs to the teacher, but let the teacher not forget that he has no prescriptive right to filch from the struggling practitioner what justly belongs to him.—*Medical and Surgical Reporter*, Oct. 21, 1893.

Relative Values of Meat Extracts.—In the *Public Health* for September, 1893, we find the results of an official analysis of several extracts of meat, made by Mr. Tatlock, the public analyst for the city of Glasgow. These studies form a part of the annual report of the Chief Sanitary Inspector, Mr. Fyfe. The desiderata now aimed at in the preparation

of these food-stuffs are: 1, a concentration or freedom from water, as great as possible; 2, freedom from fat; 3, palatability. It is an error held by very many that a given weight of meat extract may contain many times the nourishment of the same weight of meat. This can not be, since no extract can possibly hold more than the total soluble parts of the beef, which are not more than one-fiftieth part of the weight of beef itself. The table given below contains a comparison regarding four specifically named extracts, and the analyst introduces his table with the following remarks:

“In making a comparison of the relative values of these samples, it is only necessary to determine how far they comply with the above requirements. Bovril does this within 20 per cent, but it is but fair that allowance should be made to this extent for water necessarily present to keep the extract in a soft state. Liebig’s also complies with these conditions, and even more closely, as this extract shows little over 10 per cent of water, but it is an extra dry one. Valentine’s, containing as it does over 50 per cent of water, does not fulfill these conditions, so that after allowing for 20 per cent water, it might well be 30 per cent stronger. Brand’s extract is scarcely an extract at all in anything else than the name, as is obvious from the fact that it contains over 90 per cent of water, so that after allowing for 20 per cent water it might contain 70 per cent more dry extract of beef.”

	PER CENT			
	Bovril Fluid Beef.	Liebig's Cons. Extract of Meat.	Valentine's Meat Juice.	Brand's Cons. Extract of Beef.
Water	20.42	10.75	51.40	90.18
Ether Extract	0.06	0.08	0.01	Trace
Albumen, Peptones and Gelatines	14.67	17.90	7.90	4.83
Creatine and Nitrogenous Extractives	37.01	42.20	18.76	2.98
Non-Nitrogenous Extractives	8.00	8.00	11.90	0.47
Mineral Matter	19.54	20.71	10.18	1.24
	100.0	100.0	100.0	100.0
Total Solids	79.58	89.21	48.60	9.82
Weight of sample in ounces of Meat from which the total sample is derived	2.028	2.028	2.028	2.028
Pounds of Lean Roast Beef required to make 1 lb. of Extract	12.3	13.8	7.5	1.5

MISCELLANY.

New Medical College.—The trustees of the Kansas Medical College met at Topeka, October 9, and voted to erect a new college building. Francis Storrs, M.D., was elected Instructor in Latin and G. L. Beers, A.M., M.D., Professor of Materia Medica and Therapeutics.

Sir Andrew Clark. This well-known London physician was stricken with paralysis while talking with a patient, October 19. He was born Oct. 28, 1826, and was graduated in Edinburgh. The attack, in view of Sir Andrew's great age, is considered serious.

New York Post-Graduate Hospital.—In the Court of Common Pleas, Judge Biscoff denied an injunction *quodlibet* applied for, to stop the erection of the new structure at the corner of Second Avenue and Twentieth Street. The Court held that as the old structure had been occupied for many years for hospital purposes, without becoming a nuisance, the new building should be permitted to proceed.

New Pasteur Institute at New York.—On October 9 a handsome new structure was formally dedicated to this institution. The building is of stone and brick, five stories high, and contains every appliance indicated by modern ingenuity for the relief of hydrophobic sufferers. It is located at West Central Park and Ninety seventh Street. It will

remain under the control of Dr. Paul Gibier, formerly the Assistant Professor of Pathology at the Paris Museum, and since 1889 a resident of New York city. The address on this occasion was delivered by Dr. Ogden Doremus, who pointed out the necessity of supporting complete laboratories and infirmaries for those unfortunates who seek the Pasteurian treatment, and on account of diseases of the nervous system. The private means of Dr. Gibier, together with a few contributions from sections where the good results of the treatment have been gratefully recognized, are the sole source of present support. Neither city nor national legislators have felt impelled to give any vote of assistance to this beneficent undertaking.

Hospital Change.—The patients were removed from the old City Hospital to the new hospital at St. Paul, October 16.

New Hospital at Lincoln, Neb.—The Cottner Medical College has established a hospital in connection with their institution.

Hospital for the Insane, Middleton, Conn.—This institution is to have an annex at a cost of \$100,000, that amount having been appropriated by the last Legislature.

New Hospital at Champaign, Ill.—A new hospital is to be established at Champaign, Ill. A banker of that city starts the subscription with a check for \$10,000.

Proposed New Hospital, Chillicothe.—The physicians of Chillicothe, Ohio, E. F. Waddle, J. M. Leslie and others have urged upon the city authorities the establishment of an Emergency Hospital at Chillicothe.

Foundling Hospital Closed.—The San Francisco authorities have closed the Foundling Hospital on account of alleged mismanagement. The infants still alive in the institution were handed over to the Sisters of the Good Shepherd.

New Hospital at San Francisco.—The new hospital annex of the Cooper Medical College of San Francisco will be opened some time next summer. The building will cost somewhere in the neighborhood of \$150,000 and will have a capacity of 100 beds.

Landgraf Home and Hospital.—Articles were filed in the County Clerk's office October 18, establishing the Alma Landgraf Home and Hospital of New York city. The trustees are Alma and John Landgraf, Runegrunde Sulzer, Mary Mecker, Emma and George Schmidt and Charles, Matilda and John Morgan.

The Board of Managers of the Chester, Pa., Hospital met October 10, and in addition to reflecting the old officers of the Board, appointed the following medical staff for the ensuing year: Drs. J. L. Forwood, J. T. M. Cardeza, W. B. Ulrich, F. E. Long, S. R. Crothers, F. R. Graham, Ellen Brown, Hannah J. Price, D. W. Jefferis, J. M. E. Ward. Drs. Cardeza and Ward are new members of the staff, and take the place of Drs. J. Frank Evans and C. W. DeLannoy.

Choked by a Sponge.—A patient at St. Joseph's Hospital, Syracuse, N. Y., while undergoing an amputation October 17, the throat filled with mucus and an attempt was made to clear the fauces by sponging. The sponge slipped from the forceps and was drawn into the trachea by inspiration. Tracheotomy was immediately performed and the sponge extracted, but the patient was fatally asphyxiated and did not rally.

New Laboratory.—The bacteriological laboratory of the Postgraduate Medical Department of the University of California is now fully equipped and ready for students. It is under the direction of Dr. John C. Spencer, and is one of the most complete of its kind in the West.

Dr. S. O. L. Porter, for the past eight years Professor of Practice at the Cooper Medical College, has resigned his chair.

The Charleston Medical College opened October 16 with an increased attendance over last year. Dr. F. L. Parker gave the opening lecture.

Appointments.—Mrs. Wm. P. Northrop, S. T. Armstrong and Albert I. Swan have been appointed visiting physicians to the Contagious Disease Hospital on North Brother Island, N. Y.

The Schoolmaster Abroad.—The Medical Practice Act of Connecticut, took effect October 1, and applicants for registration are numerous. The following are reported as among the applications recently received, from which it would appear that the Examining Board has not commenced its labors too soon:

"I taught first when I received your notice that your board did not register veterinary surgeon, but I learnt since that you do I practice four years under other Doctors and Three years alone before I came to this state I have been Two years in this state I did not state that I had practiced in this state on the blank because I did not have an office hear altho I have practice I have had at anavrag one case a week since I have been hear."

Another produced the following:

"I write to you to see if I can get a permit to put up a Blood medison maid of Herbs this has been my business for years and I intended to have wrote to you befor this but I have had a sick Lady to see to so I have not had time."

Both of these epistles were received from residents of the same town.

Alvarenga Prize of the College of Physicians of Philadelphia.—The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Senor Alvarenga, and amounting to about one hundred and eighty dollars, will be made on July 14, 1894, provided that an essay deemed by the Committee of Award to be worthy of the prize shall have been offered.

Essays intended for competition may be upon any subject in medicine, but can not have been published, and must be received by the secretary of the College on or before May 1, 1894.

Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within it the name and address of the author.

It is a condition of competition that the successful essay or a copy of it shall remain in possession of the College; other essays will be returned upon application within three months after the award. CHARLES W. DULLES, Sec'y.

Sanitation Mass Meeting.—A sanitation mass meeting was held in San Francisco on the 3d inst. to consider leading questions of sanitary reform. The attendance was a large and enthusiastic one, and the meeting was addressed by leading physicians and citizens. Dr. Winslow Anderson, a member of the State Board of Health, read an able paper on "Fifth Diseases: Cholera, Diphtheria and Typhoid Fever." He referred to the thoroughly organized defensive campaign of the Board of Health against any possible invasion of cholera. "Inspectors," he said, "are ready at an hour's notice to go to any point of ingress on our borders; there strict quarantine will be observed; every case will be isolated, disinfected, guarded. We have the hearty coöperation of our chief executive, of all the railroads, and ample funds at our command should the emergency arise." Dr. Anderson warned his listeners against over confidence in the peculiar situation and favorable atmospheric conditions of San Francisco, citing the great epidemics in Sweden and Russia as evidence that immunity from cholera is not dependent upon conditions of climate. His advocacy of a new sewerage system for the city was enthusiastically received. Matters of such grave moment to the people should not be left, he said, to supervisors and political jobbery; but to a board of men skilled and experienced in sanitary science.

Choking to Death.—A policy of accident insurance covered only injury or death received through external, violent and accidental means. The insured lost his life by eating a piece of beefsteak that, in the attempt to swallow, accidentally passed into his windpipe, choking him to death in a few moments. That the policy covered such death was of course denied by the insurance company. But the Court of Appeals of Kentucky, in a decision rendered Sept. 16, 1891, (Amer. Acc. Co. v. Reigart, 23 S. W. Rep. 191) holds otherwise. It says that it was only required that the means by which the injury should be external, and not that the injury should have been external, and that when the substance causing the death was visible, and placed in the mouth of the assured, following by accident in the windpipe, instead of the stomach, producing injury or death, it was as much an accident as if he had taken arsenic under the belief that it was some harmless medicine, which the authorities hold renders an insurance company liable. While a violent death, as the term is used, is simply an unnatural one,—a death not occurring in the ordinary way.

Must have a License.—The Health authorities of Philadelphia have given notice that lying-in hospitals in that city must hereafter comply strictly with the law, and such institutions must take out a license.

The law passed by the Legislature and approved by the Governor was prepared by the Pennsylvania Society for the Protection of Children from Cruelty. Its expressed purpose is to keep lying-in houses within sight and prevent malpractice and criminal operations at so-called maternity hospitals. Major Veale, Chief Medical Inspector Taylor and Secretary Crew, of the Children's Society, are determined to have the law's provisions carried into effect.

In order to secure a license application, in writing must be made to the Board of Health, to which the names of six reputable citizens must be appended testifying to the respectability of the applicant. The house named is then to be visited by Chief Medical Inspector Taylor, who reports to Health Officer Veale, after which the Board of Health takes action. The license is for two years, for which a fee of \$5 is charged.

Licensed institutions are furnished with blanks on which all cases looked after are to be reported to the Health Officer, showing the name and residence of the mother, the date of birth of the child and the time and place of removal of the child.

Public Health in Minnesota.—The mortality record for August, 1893 (see page 72), 1,021 deaths, is noteworthy as larger than the average of the same month for the last six years (1,016.8) and greater than the record of this month in any of those years except 1888 (1,415).

Looking for the cause—*Tuberculosis*—was much in excess of the average (109—92.5) and greater than the same month in any year except 1890 (115). *Enteric Fever* greater than the average of six years (48—39.5) or the same month of any year since 1887. *Diphtheria* was in excess of average of six years (30—31) and only exceeded by the record of 1888 and 1890 (40—38). Other diseases of the list are notably less than the average, but *Dysentery* and *Diarrhea* caused greater mortality than for the same month in last six years, except 1888 (260-379). *Pneumonia* was much below the average of six years. There has been a steady decline in the mortality from this cause in August, since 1887 (31, 18, 16, 14, 12, 11) and the same is true of *Bronchitis* (13, 12, 11, 11, 8, 5).

Enteric Typhoid Fever made the following mortality record in 1892 as compared with 1891 and the average of six years (1887—1892).

DEATHS PER 100,000 OF POPULATION.

Average in six years

	1891	1892	Avg. of 6 yrs.
State at large	41.	30.9	42.32
Cities over 35,000	55.3	47.4	60.5
" 15,000 to 35,000	146.1	87.7	118.8
" 5,000 to 15,000	56.2	36.8	41.1
Cities and Villages under 5,000	29.4	21.8	29.8

In other words the mortality from enteric fever in 1892 was less in all classes of our population than in 1891, and than the average of six years. It is but just to give sepa-

ately the rates of the two cities which make up the second class—Winona and Duluth.

DEATHS PER 100,000 OF POPULATION.

	1891	1892	Avg. of 6 yrs.
Duluth	214.3	127.2	172.4
Winona	21.9	17.9	21.4

Winona is located on a sandy gravel tract through which passes the cold and hard spring water from the north and to its rear, and the problem of disposing of excreta and garbage has been a comparatively easy one, as has the introduction of public water supply and sewer system. Besides it has had for years a well equipped and active local Board of Health and under the direction of Dr. Franklin Staples as Health Officer.

Duluth on the contrary is literally founded on rock, so that the introduction of public water supply and construction of sewers has been a very expensive and tedious labor. The population in a limited area has increased with great rapidity and the city has, besides, to accommodate a large floating population going and coming from the mines and lumbering camps. Despite these natural difficulties and secondary causes of enteric fever, under the vigorous and intelligent direction of the present Health Officer, Dr. W. C. Goffe, the work of sanitary improvement has begun a marked and steady reduction of mortality from this cause, e. g. the annual mortality for 1892 was 123.2 per 100,000 of the population as compared with 214.3 in 1891.—*Public Health*, September, 1893.

THE PUBLIC SERVICES

Army Medical Examination Papers at the Recent Examinations.

ARITHMETIC.

1. When the divisor and quotient are given, how can you find the dividend?
2. How many inches are there in .0025 of a yard?
3. What is the interest on \$855.32 for 1 year, 3 months, 10 days at 7 per cent?
4. If 15 pounds of sugar cost \$0.023 what will 25 pounds cost?
5. How many grammes are there in 7.25 pounds avoirdupois?
6. Illustrate the six principal forms of triangles.

GEOGRAPHY.

1. Give the boundaries of Italy by land and sea.
2. Name the principal rivers of India.
3. Through what States would you pass, going from St. Louis to Mobile?
4. Bound Minnesota and name the capital.
5. Through what States does the Connecticut River flow.
6. Name the provinces of British America.
7. Name those parts of the United States where the rainfall is unusually large.
8. Give an outline of the indications useful in weather predictions in the Eastern United States.

HISTORY AND LITERATURE.

1. From what power was Louisiana purchased and in what year?
2. State what you know of the battle of Palo Alto.
3. Who composed the first Roman triumph?
4. When and with whom did the Plantagenet line of English sovereigns begin and end?
5. What historian has the United States produced? Name at least one work of each.
6. In what works do the following characters appear: Ichabod Crane, Friar Tuck, Colonel Newcombe, Falstaff?
7. Who was Poe? When did he live and what did he write?
8. Mention the principal authors contemporary with Queen Elizabeth.

PHYSICS.

1. What is the mechanical principle of the pulley? What advantage is gained by use of a single pulley? What by a series of pulleys?
2. What is meant by the pressure of the atmosphere? Under what conditions does it vary?
3. What is an artesian well? What principle of hydraulics does it illustrate?
4. What fundamental laws of light are illustrated in the action of lenses?
5. What are the peculiar features of an insular climate and how are they explained?

6. Briefly explain the principle of the electric telegraph.

CHEMISTRY AND TOXICOLOGY.

1. What is meant by catalytic action? Give an example of this action.

2. What is the atomic weight of sulfur? From what place is the sulfur of commerce chiefly derived? What is the symbol of the gas which it forms by its union with hydrogen gas? How is this gas prepared?

3. What is bleaching powder? What is its chemical symbol? How is it prepared?

4. Describe the chemical action which takes place when fragments of iron wire are dropped into hydrochloric acid. When they are dropped into sulfuric acid. When they are dropped into nitric acid.

5. What conditions are necessary to the process of alcohol fermentation? Describe the process. What are its products?

6. Describe briefly, Reinsch's test for arsenic.

MATERIA MEDICA AND THERAPEUTICS.

1. Give a brief account of the physiological action of atropin, and mention the diseases in which belladonna has been employed. Give official preparations with doses.

2. Contrast the physiological effects of the three most important anesthetics. How are they supposed to act, and what are their relative dangers?

3. Enumerate the salts of potash employed as medicines. Give dose and brief therapeutic indications for each of them.

4. Mention the remedies which produce vasomotor paralysis, as well as those which have the opposite effect.

5. Give physical characters, source, solubility, dose and brief therapeutic application of aconitin, amyl nitrite, acetanilid, antipyrin and aristol.

PHYSIOLOGY AND MEDICAL JURISPRUDENCE.

1. Draw a diagram of the lateral surface of the left cerebral hemisphere (human brain) marking out carefully the cortical areas.

2. Describe the minute structure of voluntary and smooth muscle, and state what physical and chemical changes take place in muscle during contraction.

3. Describe the part taken by the pancreatic juice in the digestive process.

4. Mention the important waste products of the body; give the quantity of each daily excreted, and state what organs are concerned in their elimination.

5. In conducting an examination of the dead body of a newborn child, what circumstances would lead you to the opinion that the child had been born alive? What does the term, "born alive," imply in a legal sense?

ANATOMY.

1. Describe the phrenic nerve, its origin, course and relations to other organs. How does the right nerve differ from the left?

2. Describe the origin, course, distribution and exact relations of the median nerve.

3. Describe the posterior tibial artery and its exact relations.

4. Describe the popliteus muscle and its exact relations.

5. Describe the ulna. Give its relations in the arm. Locate the areas of attachment of the muscles that arise from or are inserted into it.

SURGERY.

1. What is traumatic fever? How and under what circumstances does it occur and what causes it?

2. How do wounds heal? (Take this subject and write a brief account of what you know about it.)

3. What are the symptoms, etiology and treatment of phlegmonous erysipelas?

4. What are some of the latest views on the surgical management of aneurism?

5. Describe some of the principal amputations done upon the foot, with illustrative diagrams.

PATHOLOGY AND BACTERIOLOGY.

1. Describe the microscopic appearance of a tubercle; give its mode of formation and the subsequent changes which it may undergo.

2. What pathological changes would you expect to find in the lungs, liver, spleen and kidneys, in a case of long-standing obstructive lesion of the heart?

3. Give the histological characters of sarcoma.

4. Mention several of the most important discoveries made in bacteriology during the period, 1880-1893.

5. Describe the morphological and biological characters of streptococcus pyogenes. What diseases are caused by this organism?

HYGIENE.

1. What are the forces which occasion an upward movement of the air of a room or ward, through a ventilating shaft extending from the ceiling to beyond the ridge?

2. What kind of water or class of waters act most readily on lead pipes? What are the prominent symptoms caused by the continued use of water contaminated with lead? Could you discover whether lead was present in a given water? If so, describe the experiment by which you would discover its presence.

3. What is meant by the siphonage of a water trap? How is it prevented?

4. Why are starchy and saccharin articles of food such as arrowroot, tapioca, etc., used so largely in the diet of sick persons?

5. What diseases or diseased conditions are usually attributed to exposure to sewer air? What are the constituents of sewer air, and which of them are the active agents in the production of the diseases you have mentioned?

PRACTICE OF MEDICINE.

1. Give the clinical history and differential diagnosis of acute military tuberculosis.

2. State briefly the causes, diagnosis, symptoms and treatment of acute pericarditis.

3. What are the varieties and causes of jaundice?

4. What, briefly, are the causes, symptoms and treatment of acute nephritis?

5. What are the principal forms of insanity? What are the characteristic symptoms of, and what the prognosis in melancholia?

6. Describe the clinical course of a case of leprosy.

OBSTETRICS AND DISEASES OF WOMEN AND CHILDREN.

1. Presentation and position and relative proportions of maternal and fetal parts being normal, what causes may delay labor? Indicate treatment of one.

2. Under what circumstances should version be performed? Briefly give method.

3. What are the symptoms of placenta previa? How would you treat a case?

4. What are the supposed causes, the symptoms and the treatment of chlorosis?

5. What affections are liable to demand attention at the menopause?

6. What abnormal conditions, besides suspended animation, may require treatment in a newly born infant? Selecting most common, how would you treat it?

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from October 14, 1893, to October 20, 1893.

First Lieut. A. N. STARK, Asst. Surgeon, now at Ft. Clark, Texas, will proceed at once to Ft. McIntosh, Texas, and report to the commanding officer, for temporary duty with troops in the field at Carrizo, Texas. First Lieut. ROBERT S. WOODSON, Asst. Surgeon U. S. A., now temporarily at Ft. McPherson, Ga., will return to his proper station, Ft. Barrancas, Fla.

First Lieut. MERRITT W. IRELAND, Asst. Surgeon (Ft. Apache, Ariz. Ter.), is granted leave of absence for one month, to take effect about the 20th inst.

LETTERS RECEIVED.

(A) Anderson, Winslow, San Francisco; Ashmun, G. C., Cleveland, O.; (B) Bates & Morse, Adv. Agency, New York City; Blackwell, Emily, New York City; Ball, R. V., Philadelphia, Pa.; Barker, E. K., Philadelphia, Pa.; Brainerd, Mrs. S. L., Osage, Iowa; (C) Clark, M. S., Youngstown, O.; Cantwell, A. W., Dayton, Iowa; (D) Dangleton, R. J., Philadelphia, Pa.; Duggett Table Co., Buffalo, N. Y.; (E) Eskridge, J. T., Denver, Col.; (F) Ferdinand, R. J., Tallahassee, Fla.; (G) Good Health Pub. Co., Battle Creek, Mich.; (H) Grady, W. E., Birmingham, Ill.; (I) Haldensten, J., New York City; Hughes, O. J., D., Meriden, Conn.; Hummel & Barnack, Philadelphia, Pa.; Hill, E. W., Newton, Mass.; (J) Jones, A. M., Paton, O.; (K) Kahn, Jos., Milwaukee, Wis.; (L) Loeb, H. W., St. Louis, Mo.; Leffmeyer, H. S., Milwaukee, Wis.; Levy, Rolt, Denver, Col.; (M) Mettler, L. H., Chicago, Ill.; Minor, J. C., Hot Springs, Ark.; Marshall Printing Co., Marshalltown, Iowa; Morse, J. C., Buffalo, N. Y.; Medical Echo Pub. Co., Lynn, Mass.; McFarland, D. W., Waterbury, Conn.; Morton, T. C., Philadelphia, Pa.; McFarlane, A., Boston, Mass.; (O) Oelrichs & Co., New York City; Owsley, W. T., Washington, D. C.; (P) Peacock Chemical Co., St. Louis, Mo.; Parke, Davis & Co., Detroit, Mich.; (R) Raymond, H. H., Brooklyn, N. Y.; Robinson, Pettet & Co., Louisville, Ky.; Rowell, Geo. F. & Co., New York City; Ravenel, M. P., Charleston, S. C.; Reece, Madison, Abington, Ill.; (S) Smith, A. J., Univ. of Texas, Galveston; Stockdale, S. O., Boone, Iowa; Stearns, Frederick A. Co., Detroit, Mich.; South, Mrs. R. H., Seattle, Washington; Smith, Prescott, & Belmont, C., Richmond, Va.; Stearns, S. Y.; Simms, J. R., Racine, Wis.; (T) Tracy, E. A., S. Boston, Mass.; Taylor, H. L., St. Paul, Minn.; Taylor, J. M., Corinth, Miss.; Town, L. S., Geneva, Mich.; (U) University of Buffalo, Buffalo, N. Y.; (V) Wallace, J. S., Brunswick, Me.; Wilford, J. B., Hudson, Wis.; White, A. A., Richmond, Va.; Westlake, W. B., Loganston, Ind.; (Y) Yates, W., Chicago, Ill.

The Journal of the American Medical Association

VOL. XXI.

CHICAGO, NOVEMBER 4, 1893.

No. 19.

ADDRESS.

ADDRESS ON GENERAL MEDICINE.

Read at the Meeting of the Mississippi Valley Medical Association, held at Indianapolis, Ind., Oct. 12, 1893.

BY JAMES F. HIBBERD, LL.D., M.D.
RICHMOND, IND.

Mr. President:—I purpose to call attention to four points in general medicine that seem to me to deserve a rehearing, more familiarity with which, I think, promises us higher satisfaction with ourselves and larger usefulness to our clients. These points are:

Progress of preventive medicine; biological law in its relation to medical science; cell place and power in structure and function; mind influence in pathology and therapeutics.

On these points I present my individual views; I am not a teacher nor an expert student, have no authority to speak *ex cathedra* and do not assume it.

PROGRESS OF PREVENTIVE MEDICINE.

Preventive medicine in its wider sense includes all measures to maintain health instituted under hygienic regulations and sanitation, but I shall content myself on this occasion by reference to the management for the suppression of contagious diseases.

ON CHOLERA PREVENTION.

Ten years ago the only known means of preventing the invasion of any country or city by cholera was to exclude every person and thing contaminated by the germs of the disorder. In 1884 cholera was epidemic and severe in Egypt, and was soon transported to southern Europe, Germany, England, France and Italy each appointed a commission of practical medical men and expert bacteriologists to inquire into the nature of the malady, and devise means of prophylaxis. No better illustration of the rapid progress of preventive medicine and the manner of that progress can be desired than a study of the methods of investigation pursued by those commissioners and the formulated results of their labors. Their investigations began in Egypt, continued in Europe and were completed in India, where cholera has its continuous renewal and perpetual home. The results of their labors were not entirely harmonious at first, but the unequalled Koch, at the head of the German commission, made a detailed report of the work and established the facts, the accuracy of which has been conceded by all parties.

Accordingly, we now know that the cholera germ is the spirillum cholerae Asiaticæ—commonly called the comma bacillus of Koch—that it is found in the human body only in the intestines of its victims where it multiplies rapidly; that it is not communicated directly from person to person, but the alvine evacuations of the victims find their way, generally

through water, into the bowels of susceptible persons, who then become additional victims; that this germ also finds a breeding place in damp soil and in stagnant pools and in running streams containing organic matter, and survives in pure water but does not multiply there; that it is virile only within narrow thermal limits; that it holds its life by a trailer tenure than any other equally prolific and destructive pathogenic spirillum, being quickly destroyed by the official germicides, by drying, by acids, and by a temperature below 56 degrees or above 126 degrees Fahrenheit.

It is the application of this exact knowledge that has confined the cholera to the quarantine dominions at New York, thus preventing its diffusion in the United States; and it is a like application of this knowledge that has, on sundry occasions and at divers points in England and on the continent, enabled the authorities to confine the Asiatic plague to the single case in which it was discovered. And, per contra, it is ignorance of these established facts, or failure to use them, that permits the ravages of cholera at this time in Arabia, in Russia and on the shores of the Mediterranean.

Every practitioner of medicine in this country should feel it an obligation to constitute himself a propagandist of the knowledge of the means of prevention of cholera among the populace, and when the people are thoroughly informed in this behalf and join intelligently and heartily with the health authorities in recognizing and managing the first case that may appear in any locality, the disease will be stamped out at that point and then cholera can never again become epidemic in the United States.

YELLOW FEVER.

Yellow fever is another scourge that has been and still is being much studied, not with such satisfactory results touching the nature of its course as with cholera, but enough has been determined in regard to its nature to warrant the declaration that it can be stamped out at any point where it may appear. All that is necessary to protect us from further invasion of yellow fever is the watchfulness, the intelligence, the skill and the devotion to duty everywhere that has been so successfully exercised for eight years by the health authorities at New Orleans.

It is known that yellow fever is an exotic in the United States, and that it comes to us almost exclusively from the inter-tropical islands and mainland on the eastern border of the Western Hemisphere, and it is a reasonable anticipation that the diligent expert investigation now actively prosecuted will presently yield us such knowledge of the nature of its germ and its nativity, as will enable us to strangle it in the place of its birth. The pregnant idea of dealing with germ diseases, that have a local-

ized origin, at the point of their generation was under consideration by the Pan-American Medical Congress at its first session in Washington in September, and it is just such great organizations as that, composed of men with enlightened minds, and courageous natures, that will work out the problems of sanitary science and art for the welfare of the world.

So far, we have considered prevention of disease on the line of keeping the susceptible people from coming in contact with the germs of disease, but there is another phase of prophylaxis equally important, namely, preparing people artificially, so that although they come in contact with pathogenic germs, they will be able to resist them and suffer no ill, i. e., render people immune against contagious disease.

The most notable example of this is the fruit of the acute observation of Dr. Jenner in discovering, about one hundred years ago, that milkmaids who contracted cowpox were immune from smallpox; and the AMERICAN MEDICAL ASSOCIATION has done itself honor in providing for a Jennerian centennial celebration in May, 1896.

The name of Pasteur need but be mentioned to recall the work he has done in the last decade, by virtue of vaccination against rabies in man; and inspired by the genius and success of Pasteur many experimentalists in recent years have essayed to render people immune against cholera, yellow fever, etc., by hypodermic injections of special cultivations of these germs respectively. None of these efforts have, however, succeeded.

A closely related line of experiments has been most diligently pursued by quite a list of distinguished investigators, in various parts of the world, based upon the theory that it is possible to produce, artificially, such a condition of the human system as exists after an attack of smallpox, scarlet fever, whooping cough or other contagious disease that attacks man but once. Assuming that during an attack of such a disease there is something added to the system or subtracted from it, that renders it perpetually immune to that disease, the effort has been made to establish this immunity by making an equivalent change in the system by artificial means, that would not endanger life nor create serious suffering. It will be observed that this is but a slight modification of Jennerian vaccination, closely related to Pasteur's arrest of rabic intoxication, and not remote from the idea involved in the original claim for Koch's tuberculin. Encouraging progress has been made through experiments on the lower animals, but nothing definite has been accomplished in man.

The concept in the premises may be illustrated by reference to what has been done to simplify and extend the Jennerian vaccination. Dr. Sternberg took the blood serum of a heifer that had had cowpox, and injected it into the system of a heifer that had not had cowpox, and thereby rendered the latter immune from cowpox, as was demonstrated by control experiments.

From the result of this experiment, the inference is drawn that if the blood serum of a person who has had smallpox should be injected into the body of a person liable to smallpox, the latter would thereby become as immune against the smallpox as was the person from whom the blood serum was extracted.

If this inference be well taken, it would seem to justify the broad generalization that we are approaching the time when we may be able to render man immune against all diseases to which he is only once liable. To accomplish this, however, even if it be within the limits of human effort, will require further study into the nature and function of ptomaines and leucomaines, toxines and anti-toxines, further allusion to which is not within the purview of this address.

BIOLOGIC LAW.

I submit this broad and comprehensive proposition, namely: in the origin of man and in his development through his savage state, the Stone Age, his cave dwelling career, and up to his present enlightened status, every step has been taken, and every advance has been accomplished, in obedience to a law impressed upon matter in the beginning by the Creator. This law is absolute and unvarying; it is the universal law of living things, known as the law of vitality.

It has not been given to man to arrest, to abridge, to extend, or even to modify the law of vitality, but man has been given the power to change its application and direct its force even more strongly in a selected direction, and to soften its impulse in other directions, and this man may do to such an extent that the inexpert observer, and the illogical reasoner, may honestly conclude that the old law has been modified, or a new one made, but not so; in every instance when a new law of vitality has been announced, and the search light of scientific modes of collecting related facts and the inductive method of using them has been followed, the most obscure mystery has been found but a heretofore unobserved modification of the application of the normal law of vitality.

A recognition of the universal law of vitality, as it applies to man, is the soul of scientific medicine, and the full service of science in medicine is to study the seemingly endless manifestations of vital law under diverse environment, and how its operations may be turned this way or that to ward off illness, to cure disease and to modify human suffering.

It is not the duty, nay it is not even the privilege, of the true physician to question why the Creator in the plenitude of His omniscience exercised His omnipotence by impressing matter so that, in the presence of a certain environment, a limited number of the elements of the earth should combine and enter upon a new order of motion, known to us as vital activity in its simplest manifestation, and by orderly appreciation of substance and differentiation of force develop into man, rather than by an exercise of cataclysmic power have created man as he is to-day. The *why* of what the Creator has done, is not a legitimate inquiry for the physician—it is the fullness of his mission to study the *how* of what has been accomplished.

EVOLUTION AS LEGIBLE AS PRINT.

But how do we know that man has attained his present estate, the highest exhibit of creative power, step by step, from primitive protoplasm?

The Creator has written the history of the origin and progress of vitalized matter in the rocks and their debris; in the ocean and its fauna and flora; in the rivers, their eroded channels and their deposited silt; in the wrinkles of the crust of the earth

we know as mountains; in the fossils and the bones of extinct animals; in the preserved carbon of our coal beds; and in the living things that to-day inhabit the land, the sea and the air. The history thus written is as legible as print, and as veritable as the history of astronomy, by which we can predicate the eclipses and occultations of the planets for a thousand years, as surely as we know there will be an eclipse of the sun next Monday.

This development, from primary protoplasm to man, has been without arrest or shadow of turning, steady as the movements of the solar system, and to him who will reverently follow its progress there shall come a joy as satisfying and more real than the alleged music of the spheres.

There is no pretense that this harmony is recognized by every one who is called doctor; there are seiolists who practice medicine and practice a good deal of it, who honestly think they see in individual disease under certain circumstances; in localized epidemics and in the great waves of contagious disease that periodically enwrap the world, a wide departure from the law of human existence, as predicated by a beneficent and loving Creator. But while earthquakes and tornadoes, floods at one time and drouths at another, waste the products of the husbandman's labor and rob the people of proper sustenance, and we acknowledge the Creator as the giver of the law that brings seedtime and harvest, governs the movements of the earth, and regulates all meteorological changes, we need not waste time to discuss the point with the pseudo-scientist, but turn him over to the logic of the poet who declares:

"All nature is but art, unknown to thee;
All chance, direction, which thou canst not see;
All discord, harmony, not understood;
All partial evil, universal good."

CELL PLACE AND POWER.

As already intimated, the immediate foundation of all living things is protoplasm, and I may now add that the cell is the primary form of organic life, and is properly recognized as the unit of vitality.

A single cell was the earliest form of organized matter and it possessed the attributes of selecting food, digesting and assimilating it; developing itself and propagating its kind. These are substantially all the attributes exercised by the highest organizations, albeit the wide difference in the manner and extent of the manifestations of these attributes sometimes requires the acumen of the trained scientist to recognize the major as nothing more than an amplification and differentiation of the minor manifestations. Present knowledge authorizes the declaration that all living things are single cells, or an aggregation of cells, with the products of cell metabolism or catabolism.

The history of vitality already recited, teaches that the first cell was a vegetal organism, complete in itself, and an essential condition precedent to the next step in advance, i. e., an organism of two cells; and this the progenitor of all subsequent organisms of more and more cells, presenting every conceivable form, glowing with every prismatic color and all possible combinations thereof, luxuriant in leaf, in flower and in fruit beyond the highest soaring of the human imagination, and to a size culminating in the sequoia gigantea, the great redwood tree of the snowy Sierras of California, all cells: the simplest a single

microscopic cell, the largest but a countless aggregation of cells.

It is worthy the attention of the student of scientific medicine, that all this extensive, varied and imposing development of vegetation is accomplished without the slightest hint of a nervous tissue.

The primal vegetal cell had made but limited advance when the environment, changing the application of vital force, produced a new feature in the cell organization that constituted the initial link in the great chain of the animal kingdom, quite as extensive, fully as variegated and more wonderful than the vegetal kingdom. The first animal was the similar of the first vegetable, in being a single cell, and the order of the development of the higher animal from a protozoa was identical with the development of the higher vegetation from the protophyte; and this fact is the clinching testimony that the Creator has but one way of building living things, of low or of high degree, and that is through the agency of the cell, the unit of vitalized matter.

Accordingly, we find that the present man perpetuates his species through a cell, the counterpart of the protozoa in which he originated. But in this sense man is a compound being, consisting of male and female, and for perpetuating the human race neither has any virtue without the other. The female in our climatic and other surroundings prepares, secretes, say 400 germ cells during the thirty years of her menstrual functioning, but these cells have no possibility of reproduction without encountering the sperm cells of the male who, in the sixty years of his virile power secretes millions of them, all waste material, except the few that meet the germ cells of the female in the interior of her organs of generation when, in such an event, there is not a simple embrace or union of the two, but an actual conjugation of them, each sacrificing its own individuality to constitute a new cell, having in it the potentiality of a human being.

The conjugated cell receives no additional powers or attributes; the act of conjugation completes all that is necessary to reproduce the likeness of its parents, except nutrition, and this the mother's womb furnishes and contributes nothing else. The conjugated cell at once starts on its career of development and in nine months has traversed substantially all the stages the protozoa passed through in the eons it occupied in developing into man. The story of cell place and power would have no pertinence to the service I have been called to on this occasion, if it were not that every pathological condition that besets the human organization is nothing less nor more than a disturbance of the normal activity of a few, or many of the cells of which it is composed, and when this pathological activity proceeds no further than to create error of function, the whole service of the medical attendant is to remove the cause or render the tissues insensible to its presence; and where the disturbing cause becomes a destructive agent, producing molecular death of a part, the sole reliance of medical science and art is to cultivate cell growth to fill up the void and reestablish the continuity of the tissues. The full recognition, by the medical fraternity, of the entirety of the rôle of the cell in human economy will be an event to be marked by a white stone. Upon such recognition the future of medicine depends for rapid progress and true results.

MIND INFLUENCE.

I may be doing my professional confrères an injustice by entertaining the thought, but I have a loose conviction that the influence of the mind over the physiology, the pathology, and the therapeutics of the body is less thoroughly understood, more inadequately appreciated and consequently more mischievously neglected than any other department of the healing art.

The imagination will not only convince a man that he is ill when nothing is wrong but his imagination itself, but it will frequently magnify a slight ailment into a fancied fatal distemper, and a physician who does not discern these relations, or discerning treats them as a bagatelle, falls short of the obligations of his calling and fails in duty to his patients. Much of the shortcoming in this department is probably due to the absence of a clear, concise and satisfactory definition of mind and of its relations to and association with, the nervous organization. But the lack of exact knowledge on these points need not and should not prevent us from recognizing what is conspicuously plain to all who choose to observe and appreciate the constant phenomena of human life, namely, that the measure of the sanitary condition of every individual is the sum of his physical and psychical activities. No man is well who thinks he is ill, and per contra, a man may have serious disorder of his physical organization and yet imagine his health perfect. The laconic definition of a well man is "a sound mind in a sound body."

Beyond all peradventure, there are a considerable number of disorders in a limited class of people that can be relieved by so-called Christian science. A disordered mind is as much a pathological verity as an inflamed lung. A patient who believes he has a definite organic disease that he does not have is, nevertheless, out of health, but the disorder is in his mind not in his flesh, and will be restored as quickly, perhaps more quickly, by a qualified faith healer than by the most accomplished disciple of Esculapius. Even where disease has been diagnosed and can be successfully managed only by medicaments, it must have been within the experience of every practitioner of even a few years' service, that a large percentage of the ailing will progress more satisfactorily if the patient has full faith in all that is said to, and done for him. If to these patent facts we join the pregnant one, that many persons with diseases, even acute ones of alarming presence, will be restored to health by natural processes without medicines, the assertion that persons claiming to be dangerously ill and recovering under the management of so-called spiritual healing does not authorize the conclusion that the patient did not have threatening disease, nor does such recovery warrant the claim that the treatment was influential in the cure.

All physicians are familiar with the nature and severity of the grosser developments of hysteria, but it should be fully recognized that from these typical cases there is a diminishing series to a vanishing point, and that the milder members of this series, while frequently independent, are perhaps more frequently complications of disorders not belonging to the neuroses, but which not only embarrass the practitioner in diagnosis and therapeutics, but induce him to administer perturbing medicaments where placebo and placebos were the true remedies.

Indeed, it is just here where the professional sins of both omission and commission in daily routine practice reach their most abundant mischievous results.

Much of the perplexity of comprehending the influence of the mind on the body, in all its vital operations is remedied, where one has acquired his knowledge of the nervous system through study of its physiology with a minimum of attention to its anatomy; and in this study made no attempt to unravel the complicated service of the encephalic ganglia in man until he has reached that highest evolution of the nervous system after inaugurating his study by a comprehension of its shadowy appearance in the protozoa, and following up its development, step by step, through all the links of the chain of changes from the protozoa to man. By this line of investigation, much of the obscurity in the functioning of that part of the nervous organization peculiar to man, and especially of the gray matter of the cortex of the cerebral hemispheres which is the chief organ of the mind, is removed.

To one thus equipped, the mystery of Christian science, of faith cures, of spiritualism as a medicine, of witchcraft, of mesmerism, of hypnotism and similars, is dispersed and leaves a mind thus clarified to walk the way of scientific medicine, cleared of the nebulous mists that hinder and of the clouds of doubt that confuse.

To accept the vagaries of the professors of these occult arts is only to a degree more unwise than to deny or deride all foundation for them. Both science and clinical experience, as well as common observation, confirm the existence of a varying psychic state under diverse names including spiritualism, mesmerism and hypnotism. It is the reasonable duty of the scientific physician to winnow the two grains of truth from the two measures of nonsense in which honest ignorance and unscrupulous chicanery has enveloped it. In this direction, Mr. Ernest Hart has done a most excellent service, by investigating the hypnotic teachings illustrated by marvelous frauds in the great Paris Hospital of La Charité, conducted by Dr. Luys of world-wide notoriety. Within the current year, Mr. Hart has presented in detail his method of investigation and its results, published in a thin volume in London, which has been reproduced in this country by the Appleton's of New York. To persons who have only a hazy view of hypnotism, and to others who see it in full light but enjoy a cutting scientific exposure, without malice, of a charlatan who has long posed before the world as an exalted scientist, this little book will be a boon.

I have covered my points, consuming my allotted time. If I have seemed dogmatic the occasion offered opportunity for nothing more.

Resumé:—If I have been successful in an effort to make myself intelligible you will understand me to hold:

1. That there is rapid progress in preventive medicine; that its present advanced status is highly appreciated; and that we may confidently look for yet brighter results in the near future.

2. That our present concept of the complicated organization of the human body is based on the theory that the Creator, in the beginning, endowed vitalized matter with a perpetual law by virtue of which man has been developed, step by step, from primitive protoplasm.

3. That there is no longer dubiety in the proposi-

tion that the cell is the unit of vital activity, and that all living things are a single cell or an aggregation of cells and cell products.

4. That the influence of mind on vital activities, normal and abnormal, is not recognized as it should be; and that there is a line of study that would, if properly pursued, dissolve the agnosticism that has in the past embarrassed a knowledge of the reciprocal relations of matter and mind.

Doubtless you are ready, from sentiments herein expressed, to class me as an optimist, but I hope I am a reasonable optimist, holding my position consonant with demonstrated facts; an optimism that comes of attention to the progress of science, confirmed and brightened by my intercourse with my confrères under the best possible circumstances, namely, meeting them in great, enlightened and cheering associations like this.

ORIGINAL ARTICLES.

METHODS OF TEACHING CLINICAL MEDICINE.

Read before a Pedagogic Section of the Pan American Medical Congress, Washington, September, 1893.

BY FREDERICK C. SHATTUCK, M.D.

JACKSON PROFESSOR CLINICAL MEDICINE IN HARVARD UNIVERSITY, BOSTON.

Whether there is anything perfect in this world, I do not know. That it is possible to improve the teaching of clinical medicine in this country, at least, I feel quite sure; at the same time, also, I recognize the advance which is certainly making, and am convinced that this will continue. We believe that the best is none too good for us, and propose to have it. To hasten and secure progress in the future it is well to understand and consider the past, and the lines along which evolution has worked to bring us where we are. We must also bear in mind the local conditions, with the advantages and disadvantages which they entail. The problems are, to make the best of what we have got, to get more, and gradually to surmount the bars to progress, whether these are accidental or inherent in the spirit and institutions of the country.

It is easy enough to see the advantages of governmental control of the higher education, as exemplified in European countries. Professors are government officers; hospitals and laboratories are built and maintained by the State. All the parts which go to make a complete medical school should therefore work together like the parts of a machine, well oiled by National appropriations. But it is not likely that we shall see any general adoption of this system, or anything similar to it in this country, even if it were desirable that we should.

While the town or municipality properly insists on and provides for primary education with us, intelligent private liberality must in the future, as it has done in the past, provide in the main for the endowment of advanced and professional education. Laboratories of all kinds, including hospitals, cost so much to build and maintain that no medical school can pay its bills from the tuition fees of its students, even if a self-denying and devoted faculty is willing to forego all direct pecuniary returns. It is to the honor of this country and of American public spirit that there are good medical schools, the teachers in

which have, from the start, adopted this honest plan of devoting a constant surplus to improving the facilities for teaching.

Without endowment it is impossible to provide all that is needed. Endowments, with a view towards proprietary schools, which are exposed to more temptation than is desirable towards lowering or half-employment of standards. They will, however, flow to sources which are really parts of universities, and I believe that we can rely absolutely on the intelligence and liberality of our citizens to provide all that is required. But we must make our wants known, and indicate the means by which they can be best supplied. Everything comes to him who waits.

Allow me now rapidly to touch on the beginnings of medical education in this country, and the manner of its growth.

Roughly speaking, a century ago we became an independent people, full of virile energy, and with ample opportunities for its exercise in the development of a vast and rich territory. During the Colonial days we looked to the parent country for professional education, as well as for many other things. With independence came an increased stimulus to provide more fully for ourselves. The Medical School of the University of Pennsylvania had been already started. That of Harvard began in 1783 with three professors. Other schools gradually followed. Medical education before this was obtained entirely from a preceptor, whose students compounded his pills and draughts, read such books as he had, drove about with him on his rounds, and assisted him in many ways, even to the care of his horse perhaps. For many years after the establishment of medical schools, clinical teaching remained in the hands of the preceptor. But it marked a distinct advance, when opportunities were offered to enlarge the minds of students by coming to a city and hearing the leading facts and theories of medicine set forth by broad men of large and varied experience. Clinical teaching was then wholly derived from the private practice of the preceptor; systematic and didactic teaching formed the lecture course of the medical school. The number of men who could get their professional education in whole or in part, in European capitals was very small.

The medical school was a private institution, responsible to no one in theory, though the board of trustees of eminent laymen chosen to add respectability and eclat to the enterprise, sometimes proved to be masters where they were intended to be servants. Or affiliation was sought with some existing university. But this connection was generally a loose one, the university practically doing nothing but confer the degrees on those recommended by the medical faculty. The schools were essentially proprietary. This was the case at Harvard until twenty years ago, when the union became real and organic. It is only two years since the College of Physicians and Surgeons of New York, became really a part of Columbia College.

Medical schools antedated hospitals. The largest cities in the country one hundred years ago were small, the population was practically native, and there were very few poor requiring hospital treatment. The development of hospitals in this country, practically, is included within fifty years, when the stream of immigration began to change from a brook

to a river. Medical schools being essentially proprietary, and being active only a few months in the year, hospitals were a separate foundation and grew up under separate management, a misfortune which perhaps could not have been avoided under the circumstances, but a great misfortune nevertheless, and one which still weighs heavily on the great majority of the schools of the country. Medical schools were founded by physicians; hospitals by benevolent laymen, always, it is true, with the active coöperation, and oftentimes distinctly as a result, of professional influence. But the two were under separate management, and it was natural enough that laymen should consider the introduction of students in a hospital as a drawback, rather than a help to the patients, and that they should be unwilling to hand over the hospitals to a proprietary medical school, which could give no guarantee of permanency or of reasonable freedom from selfish action.

Under this mode of hospital foundation, the service was divided up among the leading or most active medical men of the town or city. If a teacher had a service of three or four months—the duration of an old-fashioned lecture term—he was satisfied. Indeed, he, in common with the non-teachers, preferred a short term, as allowing more time for private practice, the emoluments of which he required as those of his teaching position were indirect and uncertain. Thus arose a second great drawback to clinical teaching,—a drawback which is the more felt now that the older schools undertake to furnish entirely, or in much larger measure than formerly, the bedside instruction of the old preceptor.

In a word, then, the two chief difficulties with which we have to contend in this country in developing first-rate and sufficient clinical teaching, are, the lack of complete union between medical schools and hospitals, and the system of broken hospital service. Another and incidental disadvantage is the impossibility of calling clinical teachers from other places. In the purely scientific branches, it is merely a matter of providing a salary; but the school which does not own its hospital can not provide the clinical teacher with a hospital service.

It will, of course, be understood that I am speaking broadly. There are schools in this country which own their own hospitals and can regulate the terms of service therein. But I think I am safe in stating that, with the possible exception of McGill University in Montreal, there is not a single one of the leading schools which absolutely controls sufficient clinical material for the methods of clinical teaching which prevail at present, much less for such methods as we should aim to follow in the future. The Johns Hopkins will start with a clean slate, on a proper system, and with every facility for the best and most thorough clinical instruction. All friends of medical education must watch its course with the greatest interest. Its success must stimulate other schools to make more of the advantages which they possess, and must strengthen their hands in the struggle to secure those which they lack.

It must be added, that in spite of the disadvantages under which we labor in this country, as a whole, the practical working of things is not so bad as might be expected. The laymen who manage private and endowed hospitals are enlightened men, as a rule, and are realizing more and more that the

interests of their sick charges, as well as the reputation of their hospitals, are subserved by the instruction which is carried on within their walls. And I can see a current setting toward a diminution in the size of the staff and a consequent lengthening of the term of service.

There is much more that might be said—and doubtless better said—on this broad theme of the relation of medical schools to universities and hospitals. It is a fundamental question. If we can secure and control further opportunities for clinical teaching, the subsequent details present no special difficulty.

To a brief consideration of these details I must now pass on. I do not know where and when the first Chair of Clinical Medicine, independent of that of Theory and Practice, was established in this country, and this little paper is written far from any medical center or books. It is rather less than forty years since the Chair was founded at Harvard, and my father was its first occupant. Since this time the increase in the amount of clinical instruction has been, on the whole, steadily progressive. In the twenty-five years which have passed since the writer began to study medicine, the number of exercises per week in clinical medicine have been multiplied several times; and the four years' course, the success of which must depend largely on clinical opportunities of all kinds, is bringing still further increase in amount with, it is hoped, some corresponding improvement in method.

The clinical lecture to large classes in the amphitheater, which marked the commencement of instruction in clinical medicine, maintains and always will maintain a place. Much instruction can be imparted in this way, with economy of time to the student and of teaching force to the school. However careful and ample the drill of the individual student may be made, I believe that the clinical lecture will survive. During a year a wide range of disease, as well as much of the variation of individual diseases, can be illustrated by patients drawn both from the wards and from the out-patient department. The student is thus shown methods of diagnosis and treatment; his attention is called to the changes in structure and function which disease works in the living body, and the particular case can be made to illustrate general principles. But the work is done for the student, and must be done for him, in the main. The limits of an hour, and the enlistment of the sustained interest of the class, as a whole, do not permit the drill of one or two individuals whose profit is largely at the expense of the main body. In many of the schools of this country clinical lectures to a full class are given in sufficient number and of high quality.

What, practically, all the schools need most is the clinical drill of the individual student and a close contact between student and patient. This implies a wealth of clinical material and a considerable number of instructors among whom the class can be subdivided, so that each can have the precious opportunity of observing and finding out for himself. The ward visit is a valuable means of instruction in rendering it possible to see and follow out diseases and cases of disease which can not well be transported to the amphitheater. But it is hard to make a ward visit profitable to more than a dozen students at once, and the management of an independent hospi-

is apt to look askance at a method which tends to increase and complicate the work in the ward in ways which it is not necessary to elaborate.

There is one feature in particular of the English system of clinical teaching, which has always seemed to the writer most admirable. Each student must serve a fixed number of months in the ward as clinical clerk, with certain cases for the care of which he is responsible under supervision, and with all the details and course of which he necessarily becomes familiar. It is thus impossible for him to enter practice without any practical experience whatever; and, what is more important, he is forced to exercise his powers of observation for himself. The identity of school and hospital make this system easily possible. And yet it has not been attempted in European schools to any extent, as far as I know. Anatomy can not be learned without dissection; chemistry, without laboratory work. Nor can clinical medicine be learned in the best way without work in a hospital ward and out-patient room.

It is possible that much use could be made of the sick poor at their homes under the charge of dispensary physicians, though there are practical difficulties in the way. I believe that along this line lies the first present necessity and opportunity for development. The recognition of the necessity is the first step toward the provision and utilization of the means.

There should, again, be primary as well as advanced clinical instruction. In the new schedule of studies under the four years' course now in operation in the Harvard school, this principle receives full recognition. The course in the second year is entirely separate from that in the third; that in the third will be more or less independent of that in the fourth year. Each student will have in his second year four hours a week, partly clinical lectures and demonstrations of semeiology and diagnostic methods; partly drill in small divisions in physical diagnosis; partly ward visits in the hospital. The general scheme for the third year is to provide more advanced instruction in the wards and amphitheater, including therapeutics, as illustrated by the case or cases in hand. In the fourth year it will be the aim to make the work as practical as possible, and give the student opportunities to apply and fix the knowledge which he has already gained, at the same time that he increases his stock by more intimate contact with disease.

Many years ago my father introduced an exercise in clinical medicine which has become popular and been adopted by other departments in the Harvard school, to which it is still, as far as I know, peculiar. It is called the clinical conference. Each student in his final year is provided with a selected case, usually in a hospital ward, though sometimes in a dispensary district. He is expected to visit and follow up this patient, and write a practical paper on the diagnosis, prognosis and treatment. A month or six weeks is allowed for the preparation of the paper, which is then handed in and which counts a fraction toward the examination for the degree. From these papers a selection is made, according to character and subject, and every week one is read by its author before the class and a number of instructors in the department. The reader is then subjected to criticism and question by his fellow students and teachers. On the preparation of these cases much pains is

bestowed, and I think there can be no question that the exercise is a useful one. It is a matter of course that the writer of the case should be one of the students himself. Under the four years' course, instead of one, I hope that each student may receive a number of cases to look up in this way.

I believe that the future is bright with promise. The progress of a century has been enormous. At first we depended almost wholly on Europe or Great Britain for a graduate medical education. Then students crossed the water for clinical advantages in hospitals, as these were non-existent or small in this country. Then a prime inducement was the chance for laboratory work,—physiological, pathological, histological, biological. Just as our hospitals have become second to none, so will our scientific laboratories. It will always be enlarging to the mind to visit foreign schools and study their methods. But it is no longer necessary for the attainment of an excellent equipment, alike in practical and scientific medicine. We should bear in mind the fact that we have many possessors of large fortunes, who will quickly see that in no way can they so usefully and with so much credit to themselves dispose of their surplus, as by promoting medical education within, as well as outside of hospitals. But the matter must be laid before them, as it can not be expected that they should be familiar with the requirements of clinical teaching. Who is so fit to explain the matter, and who can exert more influence, than the family physician? Even if a teacher himself, he can not be considered a specially interested party if he is an officer of a university, which goes on forever, and the management of which can be depended on to administer funds intrusted to it, strictly within the purposes and wishes of the donor.

RARE FORMS OF GOUT AND RHEUMATISM.

Read before the New York State Medical Association, Oct. 1901.

BY SIR JAMES GRANT, M.D., K.C.M.G.

(OTTAWA, CANADA.)

Mr. President and Gentlemen.—This I consider "a red letter day" in my professional life's work, and more particularly from the very fact of having received so generous an invitation, through the Secretary of your Association, to read a paper on this auspicious occasion. We Canadians, as a whole, delight in noting the advance of our American neighbors, in almost every line of thought in medical and surgical science. The assembled wisdom of this Association from the great State of New York, almost a kingdom in itself, is only an index to the intellectual power to-day at work in almost every State of your prosperous republic. How gratifying it must be to con over such names as Rush, Mott, McDowell, Sims, Gross, Pancoast, Flint, Sayre, Thomas, Emmett, Da Costa, Bowditch, Goodell, Pepper, Weir, Mitchell, Bull, McBurney and a host of others equally great, but too numerous to mention, who by their skill and ability have added luster to the name of America.

To-day I propose offering some observations on rare forms of gout and rheumatism, conditions not by any means frequent as to their occurrence.

PNEUMONIC GOUT.

The following brief notes are of a pneumonic form of gout, associated with slight hepatic complication.

Case 7.—H. V., age 78 years, stout habit of body, not plethoric, but generally vigorous and accustomed to long hours of arduous official duty; can not trace gout to his ancestors and always lived well and liberally. Feb. 10, 1893, he was suddenly seized with acute pain in the right side of the chest, opposite the middle lobe of lung, with general malaise and rather severe cough. No excessive flushes in the cheeks; the breathing was somewhat hurried, about 30 per minute, temperature $101\frac{1}{2}$ to 103 degrees, and the pulse for several days ranged from 100 to 114. The cough, after the first day, was associated with the expectoration of a thick, tenacious mucus and rusty colored; not uniform, however, in its character, but somewhat patchy as to the distribution of the blood through the tough sputum. The left side moved more freely during the respiratory process than the right, and over and about the seat of pain in right side there was an evident area of dullness on percussion and yet the breath sounds were heard with a degree of almost unexpected clearness, with an occasional slight mucous rale. The posterior aspect of the right lung held its ground, kept moderately clear and, in fact, the pulmonary trouble was chiefly confined to the lateral and anterior aspect of middle lobe and right lung. Throughout, the sputa presented an unusually tenacious character, and up to the 21st of February exhibited a patchy, rusty and most peculiar appearance, after which date it became clear, but retained the sticky, glutinous peculiarity up to the 27th of February, when it subsided. During the entire illness the pain in the side was not of the usual pleuritic type, but more of the burning, throbbing, aching and piercing pain, and out of all proportion to the ordinary defined pulmonary condition. From this well-known gouty diathesis, I was led to believe that the attack was really gouty in character, and informed the friends that metastasis to the feet of the lung condition, was not unlikely. On the 23d both feet became very painful and swollen, a condition of system (as to his feet) he had experienced several times during the past ten years. Almost immediately the lung improved in every particular, which quite settled the point as to the gouty character of this attack in the lung tissue as a primary development. Throughout, the usual course of treatment was adopted, with the free use of elixir salicylate or lithia, and lithia water as well. During the entire attack I saw no special indications of hepatic trouble beyond a degree of uneasiness about the liver generally. Four years ago he had a well defined attack of jaundice, unattended by any anatomical lesion to account for its development; it was of short duration and passed off quickly.

PERITYPHLITIC GOUT.

The same individual whose case I have just cited was the subject of the following data:

Case 8.—Sept. 10, 1892; age 77 years. Almost up to the present attack he had been enjoying apparently good health; retired to bed this same evening, and in the middle of the night was suddenly seized with a severe pain in about the region of the appendix vermiformis, attended with a sensation of throbbing, together with a degree of tension in this particular region, and which radiated more or less over the entire abdominal walls; considerable heat of skin with a degree of restlessness, general febrile disturbance, and a sense of uneasiness about the stomach with occasional vomiting. Temperature 102 degrees; pulse 116, full and regular. The pain and sensibility of the abdominal wall were chiefly over the ileo-cecal region. The bowels were constipated and the tongue moderately coated with a moist white fur, pointing to evident gastric derangement. Knowing the gouty history of this patient for some years, although not of an hereditary type, I suspected from the character of the pain—boring and gnawing, such as I had observed more than once in his feet—that it might prove a case of gout, of which there were well-defined results, such as tissue thickening about the tarsus and heels of both feet, owing to the deposition of gouty material during past years. The fingers on both hands showed also evidences of disturbed chemistry in the system, resulting in gouty thickening in and about various joints. The bowels, though at once relieved by an enema, still continued painful. Linseed poultices were freely applied, sprinkled with chloroform liniment, and tablets of sulphate of morphia freely administered, to relieve the intense suffering, which was so acute as to almost prohibit the most moderate bed clothing. Salicylate of lithia and lithia water were freely given so soon as admissible; and the bowels were frequently washed out with warm water, which almost played the part of an inter-

nal poultice. The pulse and temperature continued high for fully five days, when both gradually lessened in intensity, and about the sixth day pain was complained of in both feet, particularly about the toes, but not by any means as severe as in the marked metastasis after the attack of pneumonic gout.

At this date there was a marked amelioration in the entire character of the symptoms, the abdomen became more flaccid and much less painful on pressure, and the decidedly *colicky area* in the ileo-cecal region gradually parted with its suspicious outlook. McBurney's appendix point was for days an interesting and instructive outlook, until rendered less attractive by the evident outcome of metastatic gouty action. Undoubtedly there was well marked and circumscribed induration in the ileo-cecal area. The precise condition or character of this induration was difficult to define, and yet the rapid change consequent on metastatic action, pointed to gouty deposition in or about the region of the appendix, so peculiar and transitory in its manifestations. At the end of three weeks an excellent recovery was made, and since that date there has been no recurrence of intestinal trouble.

RHEUMATIC PERITYPHLITIS.

Case 9.—Miss T., age 12 years, vigorous and robust habit of body, conformation regular and organs, as a whole, normal prior to present attack; of a highly nervous temperament, but has usually enjoyed excellent health and spirits. June 1, 1893, complained of pain and a sense of uneasiness in her feet, with a general feeling of systemic irritability. June 3 was suddenly seized with severe pain in the bowels, but more particularly in and about the ileo-cecal region, where tenderness on pressure was most marked. Fully two days prior to June 1 a sense of heat and feverishness were experienced, and prior to being under my care. Temperature $102\frac{1}{2}$ and pulse 120. The bowels were at once washed out by a warm water enema, which afforded much relief. Hot linseed poultices applied, and placed on milk diet and an aconite mixture. From June 2 to June 8 the pain experienced over the bowels was very considerable, and the tenderness so severe that coughing or stretching of the legs increased the pain in a most marked manner. Turpentine enemata also afforded considerable relief. June 4 there was a decided hardness, on moderate pressure, over the ileo-cecal region, which gave one the impression that some tissue change had taken place, and the fact that rigidity in the abdominal walls was more marked on the affected side than on the other, led me to view the condition with a degree of suspicion, although the actual position of hardness was a little lower down than McBurney's point. For fully three days the temperature was over 102 degrees, on which account suppuration would not be an unlikely result. June 7 the right shoulder, elbow and wrist joints exhibited well-defined symptoms of acute articular rheumatism, these parts being painful on pressure, swollen and moved with difficulty. Just in proportion as these, almost outside rheumatic conditions developed, the abdominal symptoms actually lessened in intensity, and on the tenth day the entire features of the case evidenced a marked change for the better, no relapse being experienced whatever. The question very naturally arises, What was the attack, and how developed? True, the recognition of appendicitis is not all that is needed. In this case, almost from the first, there was localized pain associated with tenderness over the region of the right iliac fossa and ascending colon, with well defined swelling, and for days the pain was so severe that it was increased at once by coughing or deep inspiration, and the almost constant desire was to elevate both knees to relieve suffering. For days also there was entire inability to take nourishment, owing to attacks of vomiting. The bowels were frequently injected with warm linseed tea, which afforded a degree of nourishment, as well as clearing the contents of the canal.

In the last case I concluded there was lodgment of undigested material in the cecum, and most likely induced by inability to assimilate the food, owing to deflected *nerve power from over mental strain*, as is frequently the case in our schools and universities at the present day. In the ordinary avocations of life we can trace the operations of like results, interfering seriously with the very principles of sanguinification and blood change.

The next question is, How is rheumatism associ-

ated with perityphlitis? True, the essential cause of rheumatism is still a doubted point. Errors in diet, as an etiological factor, have much to do with the production of both gout and rheumatism, and such strengthens the metabolic theory that rheumatism depends on a morbid material, produced within the system, the result of defective processes of assimilation. True, Prout, Latham, Richardson, Mitchell and Dr. William H. Porter of New York, have thrown much light on the subject of rheumatism, and certainly the present case points to rheumatic complications as the outcome of defective assimilation, an important factor in its production. Thus the chemical laboratory of the human system becomes disturbed, resulting in false products, enabling us to establish a connecting link between even perityphlitis and rheumatism. In the structure of the intestinal walls there is undoubtedly a large amount of fibrous tissue, just as in the fascia and the tendons of the joints, and it is reasonable to suppose that these structures should be influenced in the same manner. Assuming that the case under consideration was even quasi-rheumatic in its character, it affords one more illustration as to the importance of giving due consideration to the line of action embraced in medical or surgical treatment under like circumstances.

In a recent paper by A. Haig, M.A., M.D., Metropolitan Hospital, London, on "Gout of the Intestines," he states "that his chemical and experimental experience had led him to believe that a very large number of cases of colic, enteralgia, and enteritis, and cases which are clinically indistinguishable from typhlitis, are neither more nor less than a gout of the walls of the intestinal tube, or a rheumatism, as has just been defined." In Canada, as a whole, gout is almost an *unknown quantity*, except in occasional cases of an hereditary type. Our people, in the midst of life's pursuits, live in a moderate way, which contributes greatly to the promotion of health. On the other hand, rheumatism is of frequent occurrence. The coldness of our winter climate, the occasional absence of tannin, and excessive exposure contribute to develop rheumatism.

After noting the life history of many thousands of our lumbermen, I have been amazed at the few attacked by rheumatism. Bread, pork and strong tea constitute their chief articles of diet, and the general experience is that the tea enables them to digest the pork with remarkable comfort, and certainly after a hard winter's work they return home well-nourished and healthy in every particular. These facts point to the importance of simplicity as to diet. Our progenitors frequently attained the age of "threescore and ten," nourished by grain ground between two stones. As a rule, the present generation *live too fast*, resulting in mental strain and the absence of simplicity. With greater attention to diet, simple in its character, in conformity with the normal functions of the alimentary canal, and the avoidance of alcoholic beverages, as a whole, I feel confident perityphlitis and appendix troubles, even unconnected with gout and rheumatism, would become less troublesome factors in the line of disease.

To avert various irregularities in the alimentary canal, which if neglected, would undoubtedly lead to trouble in time, is as important as subsequent treatment, when the stage is passed in which the efforts of nature are powerless to afford relief. What

active agent in the system is more frequently hampered with than gastric juice, which requires a normal temperature to perform its part in the economy. Ice water at the commencement, and ice cream at the end of a meal may be fashionable, but certainly not life-preserving. Unstimulated food makes its way to parts not designed by nature to transform and absorb; as the result, how frequently on pericension we find extensive portions of *band balloned* by abnormal efforts to accomplish the digestive process. Such conditions result from irregularities in living. No portion of the alimentary canal is more liable to diseased manifestations than in and about the appendix, which is a species of loop-line to the digestive tract.

Insurance associations can not note too carefully the probabilities of life in this connection. There is still much to be accomplished, and let our medical education be so directed as to bring about simplicity in living, as near as possible, to the normal functions of our organs, and our generation will be greatly benefited.

RIPEXING OF IMMATURE CATARACTS BY DIRECT TRITURATION.

Read in the section on Ophthalmology, at the Forty-fourth Annual Meeting of the American Medical Association.

BY ROERNE BETTMAN, M.D.

CHICAGO.

PROFESSOR OF OPHTHALMOLOGY AND OTOTOLOGY IN THE COLLEGE OF PHYSICIANS AND SURGEONS. PROFESSOR OF OPHTHALMOLOGY IN THE CHICAGO POSTGRADUATE MEDICAL SCHOOL, OF CLINT AND ALLISTON, THE MICHAEL, EITZ AND GERMAN HOSPITALS. ATTENDING SURGEON TO THE ILLINOIS CHARITABLE EYE AND EAR INFIRMARY.

Six years have elapsed since I first called the attention of the profession to my operation for ripening immature cataract. During this time I have had excellent opportunities to study the indications for this procedure and to note its immediate and later effects. I have made known my observations in three papers, and my main object in presenting another to-day is to call attention to a few more features and to elicit a discussion from a representative body of specialists.

The most important question, the *raison d'être* of the operation will first occupy our attention. Is the operation justifiable? Knapp in his paper on cataracts read before this section last year says: "Preliminary ripening operations are, in my opinion, almost always superfluous. I prefer the risk of extracting an unripe cataract to that of any ripening method with which I have become acquainted. The leaving of remnants behind has, in the manner in which I operate, very little to signify. Locked up in the capsule they produce no iritis, and can easily and successfully be dealt with by the secondary division of the capsule."

"I avoid operating on cataracts swollen by inflammation. They render the section difficult and rarely come out cleanly, whereas the immature cataracts, known under the name of nuclear sclerosis, if the anterior chamber is deep mostly, not always, come out entire."

Hirschberg denounces all procedures for maturing lenses in even stronger terms. In a review of his paper, "Ueber Kernstar Ausziehung," he says: "I operate on all senile, nuclear cataracts past the age of fifty, as soon as the vision is decidedly diminished (erheblich beschränkt), that is to say, as soon as the

patient finds no pleasure in living, and is no longer able to gain a livelihood by his vocation." Further on, he speaks of all operations for artificial ripening of the nuclear senile cataract past the age of fifty, as appearing to him not only dispensable (entherlich) but rather as unnecessary (unzweckmässig).

It seems to me that the opinion of these two eminent authorities voice the sentiments of opponents to artificial ripening the world over, and therefore I allude to these only.

Evidently, Dr. Knapp regards preliminary ripening as risky. I agree with him that Förster's entails the danger of setting up an iritis which, although not of a serious nature, naturally may affect owing to the posterior synechia, more or less the execution of the subsequent extraction of the lens.

That my method is absolutely safe when properly performed, has been proved by the absence of any complication attributable to the procedure. In the twenty cases thus far reported, and the three to be mentioned later on, good results were obtained after delivering the cataracts. The only danger Dr. Knapp refers to is iritis. This is obviously excluded when the iris is not mutilated or even bruised in the slightest degree.

I have long ago abandoned iridectomy, and with the introduction of my trowel shaped spatula have secured the iris against all danger of mechanical injury. Possibly the Doctor had also in mind, mishaps to the lens and suspensory ligament, although he makes no mention of these in his article. Others have, however, expressed themselves in this manner in personal discussion with me. As a rejoinder I can only point to my results, and again refer to the convincing argument employed in a former publication which reads as follows: "As for the second series of objections, I can only reiterate that careful and skillful manipulation of the spatula in my hands has never been followed by any untoward symptoms; seemingly the most probable misadventure would be tearing of the suspensory ligament and dislocation of the lens. In two cases only, vitreous escaped due, however, to other causes."

I heartily agree with Dr. Knapp in ascribing the injurious effects to remnants of cortex left behind after cataract extraction, and have consequently, until lately, performed peripheric capsulotomy in every case.

Direct trituration of the lens breaks down and makes opaque the entire lens volume. Later on, when extracted, it ordinarily leaves in bulk, or if the softer cortical substance is scraped off by the corneal flaps this can be pressed out immediately after, en masse. Consequently this danger is reduced to a minimum, and induced me in the last case to lacerate the capsule more extensively; in other words to make a T-shaped capsulotomy.

In reference to Dr. Hirschberg's remarks, I must emphasize the fact that direct trituration of the lens was not intended for the so-called sclerosed cataracts. We all know that such cataracts never become thoroughly opaque, and that they can be readily removed as soon as they interfere materially with the patient's welfare. But not all patients past the age of fifty have sclerosed lenses. Furthermore, a great number are afflicted before they reach that age. An opacity of the nucleus with a few broad striae in the periphery may disable a person, or at least make life a burden and prevent him from following his

Extractions of unripe softer forms of nuclear cataract, where fingers are still counted at ten and fifteen feet I regard as hazardous, especially so when we possess a reliable and innocuous method, by which the transparent lens fibers can readily be broken down and their connection with the capsule loosened.

Again, the patient may possess but one eye; reduction of vision equal to one-half places him within the boundaries outlined by Prof. Hirschberg. Would the extraction of such a cataract be advisable? I have vainly endeavored to learn the exact amount of opacity of the lens which must exist before extraction of the lens is considered feasible by the adherents of early extraction. In other words, at what stage of immaturity do skillful men dare to operate?

Again, let it be understood that sclerosed lenses, such with fine striae, or with none at all, and with a firm nucleus often of an amber color are not to be considered in this connection. Cases with incomplete opacity of the anterior cortex, permitting fingers to be counted at three, five and six feet, can no doubt be safely removed in this condition of immaturity. But I am in doubt whether the operation would be undertaken, when the lens is so unripe that not only a reflex but even a view of part of the fundus is visible. Two of the cases reported later on were of this nature.

I have made a number of experiments on rabbits, to determine in the first place the amount of pressure the lens will bear without rupturing capsule and ligament. I also intended to study with the ophthalmoscope and later on with the microscope, the changes thus evoked in the lens. My rabbit house was lately burglarized by street urchins and every bunny, nine in all, was carried off. Two others succumbed to injuries caused by a blow on the back and one more escaped. My investigations have, for the present at least, been brought to an untimely end.

A few facts have been gleaned which may prove interesting: nine of the animals were young, perhaps five or six weeks old, three had reached the age of one year and were almost fully grown. In ten eyes I introduced the spatula, after having chloroformed the animals, and made a corneal incision with a lance and subjected the lens to violent trituration. The pressure I exerted was quite uniform, but rather severe, far more so than I would dare attempt in the human eye. In some cases I wounded the iris with a knife, in others a prolapsus of the iris followed which I did not attempt to reduce. The eyes were cleansed with a bichlorid solution and no farther attention bestowed on them. In nearly all, a decided opacity of the posterior cortex was visible the next day. In a few it extended to the body of the lens and then to the anterior cortex a day or two later. In the majority of cases the bulk of the lens cleared up within ten days. In two, not a trace of any abnormal condition could be seen and in the remainder more or less striae were still visible weeks after direct trituration. Secondary reaction ensued in a few, in those having prolapsed irides, but disappeared in a few days. These incomplete experiments indicate that normal lenses of young rabbits will stand very severe trituration without rupturing the capsule or suspensory ligament. They also indicate that changes (directly attributable to the massage) of a more or less permanent nature will appear in the normal lens.

If similar experiments, with similar results, were undertaken on old rabbits showing senile changes, we could then draw more conclusive deductions regarding the immunity from danger of the senile capsule and suspensory ligament following massage of the lens.

The cases I will now report were nuclear cataracts with broad striae in the anterior cortex. Two were senile, the other, that of a young man, cortical with a very small nucleus. In all, a marked reflex from the fundus was obtainable; in the young man, a dim view of the lower part of the fundus could be seen. None of these cataracts were ready for extraction, and I have grave doubts whether the gentlemen who advocate the removal of immature lenses would have considered them sufficiently advanced.

Case 1.—Theo. T., aged 68; admitted into the Eye and Ear Infirmary, Oct. 24, 1892. Senile cataract both eyes. R. E., mature three years. History of amblyopia. Simple extraction, October 27, November 17. Secondary capsulotomy V=20-20 with +10. An ophthalmoscopic examination revealed choroidal changes. L. E., immature cataract of six months duration. Could see enough to walk about the streets but not sufficiently to perform work on farm. A dim reflex from fundus was obtainable. My fingers were readily counted at eight feet. It was only after long persuasion that he allowed me to triturate the lens December 1. He left the infirmary December 6, with instructions to return as soon as sight failed entirely in that eye. He returned December 21, stating that for the week past he had not been able to count fingers. The entire lens was opaque. No iris shadow was seen. He was only able to indicate the direction of the moving hand.

I did a simple extraction the following day, December 22, and a secondary capsulotomy Jan. 11, 1893, which resulted in V=20-40 with +10. Slight choroidal changes were found in this eye also.

Case 2.—Alex. F., aged 50; admitted Feb. 19, 1893. Immature cataract of both eyes. R. E., V=20-20. L. E., nuclear cataract. Broad striae in upper and outer part of cortex; lower and inner parts much clearer, permitting a dim view of fundus. V=fingers at six feet. I did direct trituration Feb. 9, 1893. The lens soon became opaque March 7, the cataract being entirely mature and vision reduced to qualitative perception of light. I did a simple extraction and later on March 16, needled. He was discharged a few days later with V=20-20 with +11 D \odot = 1 day axis 180°.

Case 3.—Martin DeYoung, aged 34; admitted Jan. 3, 1893. L. E., mature soft cataract, white small nucleus plainly outlined; had not been able to see during past four years. R. E., immature, small opaque nucleus. Broad striae running from equator toward center leaving clear space between, through which blood vessels in the fundus could be distinctly outlined. Simple extraction was done on the left eye January 15. Secondary capsulotomy January 26, V=20-20 with +12 D. The left lens was triturated March 25. The condition of the cataract was as indicated above. Fingers were counted at five feet. A few days later the entire anterior cortex had assumed a fine satin-like appearance distinctly visible by oblique illumination. A month later the entire cortex had assumed almost a uniform white appearance, allowing the small, yellowish white nucleus to shine through. April 25, I performed a simple extraction. The corneal incision was made throughout in the cornea. The capsule lacerated in several directions. The small thin nucleus was expelled with a mass of opaque cortex clinging to it; the remainder of the soft, cohesive cortical substance was readily pressed out with the spoon leaving a clear black pupil. The eye made a rapid recovery with a slight anterior synechia at the inner edge of the wound. The patient was discharged soon after with V 20-30 with -12 D. I saw him a week ago; a few shreds of torn capsule surrounded the clear pupil. His vision was the same.

In conclusion, I will formulate the result of my six years experience:

1. Artificial ripening of cataracts is in properly selected cases demanded; 2, direct trituration is preferable to other methods; it is easily performed by one possessing ordinary skill; 3, it is not followed by any untoward symptoms, consequently it is a safe

and reliable procedure; 4, it is not indicated where sclerosis involves the bulk of the lens; 5, it is especially useful in senile cataracts with soft cortex; 6, the results of the massage are marked and rapid; 7, maturity of the cataract is usually induced in three weeks, often sooner; 8, very little discomfort is caused the patient aside from bandaging the eye two days; 9, at the subsequent extraction of the lens, the cortical substance is readily removed and dangers of iritis and suppuration of the corneal wounds are lessened.

Dr. KNAPP—I have had only a very limited experience in ripening cataracts, but Dr. Born, my associate at the New York Ophthalmic and Aural Institute, had ripened a certain number of cataracts according to the very method of Bettman and the results had always been good. Nevertheless Dr. Born has given up the ripening operation as being dispensable in almost all cases.

Dr. J. L. THOMPSON—Do you use a mydriatic before making the operation of ripening?

Dr. BETTMAN—I usually use cocaine.

Dr. ZEIGLER—I have performed direct massage of the lens for artificial ripening for cataract in two cases that I recall, and with excellent results. There was no reaction. The eyes healed in three or four days. The cataract matured in about two weeks. One was extracted safely at the end of six weeks, and the other in six months. The method I followed, however, was that known as Förster's, in which I did a preliminary iridectomy, although I introduced the shell spatula through the incision into the anterior chamber, and made gentle massage of the lens by direct pressure on the anterior capsule of the lens. This procedure is particularly applicable in those cases of slowly forming cataracts, where the vision of both eyes has become sufficiently hazy to interfere with the patient's usual occupation.

Dr. JACKSON—Since the last meeting of the Association, I have resorted to the operation then described by Dr. White for preliminary ripening in seven cases, six of which I have since extracted without any trouble and with good results. Five of the patients were over fifty years old; the results were practically the same. Immediately after the operation there was slight haziness of the anterior surface of the lens, which passed away in a few hours, and at the end of forty-eight hours no change in the opacity. Within three to five days there was perceptible increase in opacity, and in from one to three weeks complete opacity. The extractions were made at different times, from three weeks to six months after the ripening. The reaction after the operation was very slight, little, if any more, than would be due to the tapping of the cornea alone. The after treatment was simply the use of a mydriatic and keeping the lids closed for a few hours until the chamber was refilled. The operation is certainly satisfactory in producing the result aimed at. Yet I think that the chances are almost as good for extracting the lens without having produced this complete opacity. If the opacity were great enough to make the extraction necessary, I think there is no condition of the lens where I would hesitate to do extraction without any preliminary operation whatever.

Dr. MURRELL—How long do you triturate the lens, and about how much pressure do you use?

Dr. BETTMAN—I have explained the method several times and that is why I did not refer to it in my paper. I simply make an incision in the cornea with a keratome, then pass the proper instrument into the aqueous chamber and make light pressure on the lens, rubbing it up and down, and from side to side for a short time only. From six to twelve passes with the spatula will answer.

Lack of time will prevent me from making any extended remarks. I must take the next train for Chicago. The great objection to Förster's operation lies in the fact that not only the lens but the cornea and iris also are subjected to mechanical irritation, which is apt to produce cloudiness of the cornea and iritis. A further drawback is that the pupillary and coloboma areas become small after evacuation of the aqueous humor, consequently but a small surface of the lens is triturated. The same objections hold good in Waite's operation; in fact a smaller surface of the lens is exposed, no iridectomy being made. It is in my mind inferior to Förster's. Dr. Jackson is mistaken if he thinks the posterior surface of the lens is not affected by trituration. In the first place it is known that the posterior cortex is much thinner than the anterior; furthermore, my experiments on rabbits have proven that the posterior cortex breaks down and becomes opaque sooner than the anterior.

REPORT OF A CASE OF EXTRACTION OF CATARACT IN A NEGRO SAID TO BE 116 YEARS OLD.

Read in the Section on Ophthalmology, at the Forty-fourth Annual Meeting of the American Medical Association.

BY FRANK TRESTER SMITH, AND E. F. TRAVIS.
CHATTANOOGA, TENN.

Easter McCullough, residing at 611 Cowart Street, Chattanooga, a very aged negro woman, was seen in the summer of 1892, with the usual history of cataracts in both eyes, both fully matured. On functional examination the eyes seemed normal, save that the right pupil appeared a little irregular. Her children were not willing that she should be operated on, believing that an operation would be the death of the old woman on account of her age. In March, 1893, they concluded to have an attempt made to remove the cataracts. The left eye was first operated on by Dr. Smith who, after making an upward incision performed a small iridectomy and a linear cystotomy. The cataract was then pressed out and the speculum removed. After seeing that the eye was clean, a flannel bandage was applied. The operation was without accident. The incision was a little small but not enlarged. Anesthesia with cocaine. Healing was slow. The weather was damp and cold much of the time and the patient was bothered with rheumatic aches and pains and repeated colds.

The result (with -11 D. lens) finally showed a vision of 20-70, with a prospect of improvement from a secondary operation. This result may be considered as very good, from the mental condition of the subject.

A short time ago Dr. Travis operated on the right eye, but the case is not yet far enough advanced to declare the result.

As the only point of interest in the case centers on the age of the patient this question was investigated carefully. The family insisted that she was 116 years old. From the evidence of Dr. T. Y. Park of St. Elmo, to whose wife's aunt Easter formerly belonged, the conclusion was reached that she was about ninety-five. The years do not always represent the age from a physiological standpoint. Some men at fifty are more aged than others at sixty. The woman was as aged as any one we have ever met. The lesson in the case, which we do not presume to be new to the members of this section, is that old age is no contra indication to the operation for cataract.

The operation has had a marked effect on the patient in another way, in that she has seemed to take a renewed interest in life. She is in much better spirits, and bids fair to disappoint those who thought she had but a few months to live, and that it was useless to bother about such a little thing as her eyesight.

SYMMETRICAL DISLOCATION OF BOTH LENSES UPWARD AND OUTWARD. CONGENITAL.

Read in the Section on Ophthalmology, at the Forty-fourth Annual Meeting of the American Medical Association.

BY LEWIS H. TAYLOR, M.D.
WILKESBARRE, PA.

Mr. Chairman—I desire to present a short account of a case of lens dislocation, because of the unusual position of the lenses, and because of certain interesting statements by the mother of the patient as to the possible cause of the difficulty:



James McC., age 20, came to me Dec. 16, 1892, to see if anything could be done for his eyes which had been bad since infancy. V., O. D, 3-200; O. S, 1-200. His mother states that he has always had very poor vision and she thinks that this condition has existed from birth. He had rheumatism when 8 years old and has had heart trouble ever since. He now has marked valvular trouble with hypertrophy. The patient has a very peculiar, elongated face, with flattened nose.

The ophthalmoscope shows both lenses symmetrically dislocated, upward and outward, about one-third of the diameter of each being visible beyond the pupillary margin. Lenses partially opaque. He selects O. D., -11-100 -1.50 cy, axes 90, making vision 20-70. O. S, very uncertain and vision not improved with any glass. Inasmuch as glasses improved his vision so much above his former condition, no operation was advised. I have recently seen him and find vision O. D. 20-50, with his correcting glass, which he wears constantly and with comfort.

His mother states that during pregnancy and one week before the birth of this son, she accidentally fell forward, striking heavily upon her abdomen. This caused considerable pain, but she does not think that it hastened confinement as she was then very near full term. The interesting question to consider, is the bearing of this accident upon the dislocation of the lenses in utero. Inasmuch as the trouble has existed since birth, it is quite likely that the fall may have had something to do with the displacement of the lenses, though I am not aware that such an accident has been elsewhere suggested as a possible cause of ectopia lentis. The mother is quite confident that this was the cause of the patient's defect. Are we sure that the present case is congenital? Not absolutely, but in the absence of any history of traumatism since birth, and in view of the statement made by his mother and himself that his sight has always been poor, we are safe in assuming that the trouble was congenital.

In two cases presented on the same day in Prof. Jaeger's clinic, the notes of which were kindly given me by Dr. Randall, Prof. Jaeger held that the first was congenital, because both lenses were displaced inward and upward. No. 2, however, was regarded as probably traumatic, because both lenses were displaced upward and to the left, i.e., one outward and one inward.

Dr. W. S. Little, in Transactions of the American Ophthalmological Society for 1883, reports two cases of supposed congenital ectopia lentis: the first being non-symmetrical, the displacement being upward, but with both lenses to the left. In the second case,

the displacement was symmetrical, both being downward and inward. In all of the traumatic cases that I have seen, the displacement has been downward, and this I believe is usually the case, though of course it may be in any direction.

Dr. J. L. THOMPSON—Were the lenses movable, and were they all turned upward?

Dr. TAYLOR—The lenses were fixed, and were turned upward and outward.

Dr. KNAPP—I had a very interesting case of outward dislocation of both lenses. When I saw the patient he was 30 years old. His mother had the same trouble, also a nephew and two nieces. He had tetrapia quadruple vision, i.e., double vision in each eye and he squinted. One image was formed in each eye, by the light passing through the cornea and lens, and the other by the light passing through the cornea alone. In each eye he thus had, simultaneously, myopia one-fourth and hypermetropia one-fourth. By giving him either a concave or convex glass of one-fourth, the one image was made sharp while the other became so blurred that it disturbed him but little. In this way his tetrapia was reduced to diplopia, and this by a squint operation to single vision. It was one of the most singular cases I have ever seen. I mentioned it in some publication but have forgotten where.

Dr. TAYLOR—In this case the lenses were so far drawn to one side that the patient has accustomed himself to look through the pupillary space, not occupied by lens, as if he had been operated on for cataract. I saw the father of this family and found he was highly hypermetropic, but with no dislocation of the lenses.

THE PERNICIOUS INFLUENCE OF ALBINISM UPON THE EYE.

Read in the Section on Ophthalmology at the Forty-fourth Annual Meeting of the American Medical Association.

BY GEORGE M. GOULD, A.M., M.D.

OPHTHALMOLOGIST TO THE PHILADELPHIA HOSPITAL.

I have had the good fortune to examine and treat the eyes of two families of albinos, and the results of my studies have led me to some conclusions that I trust may be of interest and value to the profession, and may ultimately be of benefit to these most unfortunate beings.

I shall first describe my cases: the first family is composed of rugged, healthy, normal parents, of American descent and birth, the father a strong and robust farmer, the mother an equally well-developed woman, who has borne seven children, all living and healthy, now ranging from the ages of four to twenty-two. The most diligent inquiry has failed to elicit a single instance of albinism, or of pathologic taint in the ancestry of either parent; there has been no intermarriage of cousins, and nothing to lead one to suspect syphilis, intermixture of negro blood, other dyscrasia or disease-abnormality, to which albinism has heretofore been blunderingly ascribed.

Parents and children are all honest, hardworking, simple countryfolk, and all are remarkable for a sturdy development, a largeness and healthfulness of body, and a freedom almost remarkable from any illness during the life of each. The parents show no trace of albinism, no abnormalism of skin, hair or eyes. Their refraction, barring beginning presbyopia, is as near emmetropic as we can find, with no hyperopic astigmatism at axis 90 degrees.

Case 1.—The oldest child, W. T., a boy, 16½ years of age, six feet tall, big boned and of rugged build, presents the typical characteristics of albinism. As to the eyes, he has great photophobia, a rapid horizontal nystagmus, and an amblyopia of 20/100 in each eye, and a simple hyperopic astigmatism of 5 D., right eye; 4 D., left eye; axes 90°. There is possibly some divergent strabismus of the right eye.

Case 2.—The second child, L. T., a girl, 2½ years of age, with nystagmus and photophobia, rivals her brothers in physical vigor and development. The refractions: R. = sph. 5.0 D., cyl. 2.50 D., axis 90°; L. = sph. 2.00 D., cyl. 2.50 D., axis 90°; 20/100.

Case 3.—The third child, E. T., a big man of 18, shows no sign of albinism, and has a low degree of hyperopia, with no astigmatism or other ocular abnormality, structural or functional.

Case 4.—The fourth child, E. T., a girl of 15, a pure albino, with great photophobia and swift nystagmus, has the following error of refraction: R. = sph. 2.50 D., cyl. 1.50 D., axis 90°; L. = sph. 2.00 D., cyl. 1.50 D., axis 90°; 20/100.

Case 5.—The fifth child, E. T., aged 11, a pure albino, of less robust physical vigor than the rest, has a simple hyperopic astigmatism of about seven dioptres at vertical axes, and a visual acuity of about 10/200 or 20/200, with swift nystagmus and photophobia.

Case 6.—The sixth, L. T., a girl of 8, not albinotic, has an inconsiderable hyperopia and a very slight astigmatism.

Case 7.—R. T., the seventh child, a boy of 5, is not an albino, though there is faulty opacity of the iris, with some slight nystagmus and a hyperopia of perhaps two or three dioptres.

In the second family I have examined, the non-albinotic parents are of as good stock, and of as perfect healthiness, both general and ocular, as the first family. There have been but three children born, all good specimens of physical vigor:

Case 8.—The oldest child, a boy of 12, is a pure albino, with 2 D. of hyperopic astigmatism axes 100°, and 8 D. on top of 5 D. of hyperopia, 20/200 vision, nystagmus and photophobia, with moderate convergent strabismus of the right eye.

Case 9.—The second child, 10 years of age, is not albinotic, and except a little hyperopia, presents no ocular abnormality.

Case 10.—The little girl, aged 4, is not quite the purest type of albinism, has moderate and slow nystagmus, and as near as ascertainable, a compound hyperopic astigmatism of 2 or 3 D.

Hereditary, so powerful in all other factors, physiological or morphological seems, at least in the human race, to play no part in the production of albinism. In the literature I have examined this seems very evident. Darwin speaks of a family of albino children whose parents were first cousins, but this was certainly accidental, and can not be accounted as causal. In animals there are a number of species of albinos, in which the hereditary element is indubitable. The noteworthy fact concerning my two families is that albinism appears without any discoverable cause, and writers generally agree that this is usually so. Not only does the affliction strike a family like lightning out of a clear sky, but, as in both my families, there is an unaccountable alternation of albinotic and of naturally pigmented brother or sister. It is evident that here is an inviting field for investigation and even of experiment.

Physical and Mental Vigor.—The old notion that albinism is due to some general pathological element or dyscrasia, is likewise false. From other reported cases and from my observation, the exact reverse seems to be the truth. In animals and men, albinism is apparently bound up with exceptional health and robustness. The idea also that it coexists with cerebral or mental deficiency or disease is just as untrue. This statement, however, requires an important modification. Biologically, vision is the very

condition of mental development and existence, and with the necessary limitations the law holds as to the individual. Nothing more certainly and more thoroughly affects the mind than ocular disease or the deprivation of vision, and the highly abnormal vision of the albino is most profoundly active to hinder and abnormalize the mind, thus denied its most important means of knowledge of the external world. In this connection, however, the all-important point is the method or manner in which ocular disease produces mental abnormalism.

The Family Study, gives the best field of suggestive observation because, from the babe to the adult, the progress of the morbid changes can be traced and a logical idea is thus gained of the influences and laws at work. Many brothers and sisters may in this way be correctly focused, as it were, into one beam of light, or considered as phases or aspects of one personality and one law, the mass and unitized results standing out in more perfect relief.

Since the present writing is to be rated mostly as a suggestion to others of a fertile field and method of examination, I shall briefly state what I tentatively hold to be the law of the causes and of the effects in these cases, in order to solicit from others corroborative or contradictory facts whereby a neglected class of medical cases may be understood, and possibly much suffering forefended. I say much suffering, because if one may hazard a guess it would be that there are thousands of albinos in the United States, and for this frightful affliction I can not learn that ophthalmological science has either sought to learn the pathology of albinotic diseases, nor has ophthalmological art turned a finger towards their prophylaxis and therapeutics.

The Cause of Albinism, in the present condition of our knowledge, is entirely undiscoverable. The failure of the epiblast to secrete the usual pigment cells is a mystery of molecular physiology that the future must solve.

The Pathological Significance of Albinism lies, I believe, solely in the fact that the iris or diaphragm of the ocular camera is transparent, or so nearly so that it does not act as a true photographic or physiological diaphragm. The white hair and skin that so vexatiously attract the attention, have for the physician and for the patient absolutely no medical significance, except as regards the transparency of the lids. The skin and hair are in every way as healthy as other hair and skin normally pigmented, and serve every function quite as well. But I would also advance the theory that the absent pigmentation of the choroid has also little pathological significance, except as permitting trans-scleral illumination. In many blondes the retinal or choroidal pigment is almost or quite as fully absent as in albinos, but the iris being properly pigmented, there is no ocular disease. From non-opacity or non-pigmentation of the iris follows the entire train of evil results that afflict the albino, and from this slight cause alone, What are the evils?

Photophobia is the most evident and inevitable consequence of a transparent iris.¹ If one has endured the misery of mydriasis during a sunny day, and without the protection of colored glasses, he will have a vivid knowledge of the retinal torture that the albino must always endure. With prolonged habits of eyelid and face protection, and with the wise adaptations and compensations that living

tissues somehow learn, albinos, or some of them at least, develop a partial and suffering indifference to light, but most of them present the constantly painful picture of bowed heads, downcast eyes, wrinkled brows and lids, a vain endeavor to shut out the ill-defined and overpowering light rays pouring into the retina from all sides, and which not even the lids and sclerotic can exclude as our normally-colored lids and scleras do.

Nystagmus.—The existence of Miner's nystagmus, concerning which there has of late been much discussion, has served to show that these oscillatory motions of the ball are not primarily due to central disease. It is evident that the exciting cause is the occupation and the effort of healthy cerebral centers to compensate for and overcome the peculiar and abnormal ocular labor. We have somehow grown up with the idea, unconsciously accepted, that nystagmus is always a disease, and that it starts in abnormal function of the motor centers for innervation of the external ocular muscles. But in albinos the brain is strong and healthy; it is only the eye that is abnormal. The source of the nystagmus is, I firmly believe, in these cases not central, but is peripheral, and primarily it is only a physiological attempt of the ocular mechanism to find a less faulty and blurred image of an object. Every ophthalmic surgeon has time and again seen nystagmus in the making. Children and others with corneal ulcers, or extensive macule of the cornea, in searching for the diffused and faulty retinal image are constantly sweeping the eyeballs about and from side to side, in the desperate and never-to-be-renounced endeavor to locate the hazy and non-limited images. Coöperating with this cause is probably the attempt, constantly renewed, to throw the poor image that is formed, upon a less illuminated portion of the retina than the macula-region, in order thereby to secure a better contrast or definition. Snow-blindness and moon-blindness, as well as our daily experiences, show us that with continuance of stimulus the retina tires. Continuous exposure of the retina to light exhausts the molecular agencies, the delicate anabolism, and wears out sensitiveness. In the general illumination of the fundus of the albinotic eye, there is then a diminished excitability and a fierce war against the constant and powerful stimulus. Nystagmus is simply the attempt to give one part of the over-stimulated retina a rest of a fraction of a second, to give it time to build up its katabolism again, to locate the image upon other percipient elements that have had that rest and whose anabolisms therefore are not quite so exhausted or depleted. The peripheral portions of the retina are more shaded and the attempt is made to throw the image on these portions. The retina can never renounce the Sisyphean task of hunting for a more sensitive and darkened portion of its surface, and for a picture with a better definition. In this sense and at first, the nystagmic motions are simple physiological endeavors

¹ In the autobiography of the late Lord Sherbrook of England, who was an albino, we have an account by a great man of his suffering from this defect. "The peculiarity of my eyes, outside, in the total absence of coloring matter; this occasioned of course, especially in a man, a very marked peculiarity of complexion, amounting in youth to something of effluency. For this evil, however, I have found again a sovereign cure; but as the absence of coloring matter is vital to the eye, it necessarily occasions a great impatience of light. The eyelids must always be nearly closed, and so I have never been able to enjoy the luxury of staring any one full in the face. Of course this intolerance of light must be attended with something very closely appertaining to pleasure. I can not even conceive the state of a person to whom sight is a torture free from all pain and distress; but as I have no standard to measure by, I may exaggerate my own misfortune."

to locate an almost non-localized picture, and to definitize a suggested and ever borderless image. I take it that Miner's nystagmus is due to the forced repetition, a million times a day, to locate a fluctuating, dim and ever-disturbed retinal image. In albinos, the lens and dioptric media give the persistent hint rather than the sharp reality of a retinal picture, which the iris transmission of the peripheral light as certainly spoils, washing out its outlines and bathing the whole fundus-oculi with ill-defined images and confusing brilliancy. Thus, like blind men's fingers that grope after hoped for support and defense, the eyeball is kept constantly fluttering between hope and renunciation, in its ceaseless necessity of search for what can never be found. When abnormal function passes over into organized habit and pathologic tissue change, just when physiology becomes pathology, just at what time of life the proper image-definition, if it were possible to supply it, would stop the nystagmus, must be decided by future discovery and experiment. But I believe there is little room for doubt that the cause of the nystagmus is the definitionless image and diffused illumination of the fundus, caused by the transparency or translucency of the iris. This may be more than suggested by the removal of the iris in a pig's eye, and seeing the effect on the fundus image, or by diaphragmatic experiments with a camera obscura, or with the artificial eye of Perrin or Frost. The theory is about proved by the observation that in a family the nystagmic movements are slowest in the younger, and in the less albinotic irides, and are rapid in proportion to the increase of age, and of albinotic and ametropic defect. The clinical proof of therapeutics yet fails from the too evident present difficulty or impossibility of making an artificial iris, or of definitizing and delimiting the retinal image. But I have not yet despaired of this.

Ametropia.—It is commonly said in the copied, rote repetitions of the books, that the albinotic eye is a diseased eye, the lens malformed, and everything wrong about it. It is my belief, as I have stated, that primarily there is nothing wrong with the albinotic eye except simple want of iris-pigment, and that all its other evils flow from this as a sole cause. All the albinotic eyes that I have seen are beautiful and perfect structures, except as regards this pigmentation. The scrutiny of my cases and the comparison of each member of the family group with the whole, and with my theory as a key, goes far to prove my contention. Doing this, it is observed that the more transparent the iris and the older the patient the greater, other things being equal, the ametropic defect. And this is very readily explained by the influence upon the eyeball of the persistent lid pressure and blepharospasm, the cheek and forehead muscles also cooperating, together with the powerful retracting forces of the external globe muscles. The brilliancy of diffused fundus illumination is thus only partially lessened, but the attempt must always be kept up, even though the folded and wrinkled skin by its translucency can not wholly effect the desired exclusion of light. Age also has its influence, as the longer the lid pressure has been kept up, the greater is the ametropia, and especially the hyperopic variety of astigmatism. It is the axis of this astigmatism that also helps to reveal the nature of its cause. The influence of the spasm and crushing of the lids is seen only by noting

that no ametropia exists in the parents, and comparatively none, in the non-albinotic children; more hyperopia, or rarely myopia, in the younger albinos, either of the less pure type or of relatively less physical stamina; while we have enormous degrees of hyperopic astigmatism about axis 90 degrees in the older and stronger. The lids have crushed the eyeball so continuously that we have extreme corneal asymmetry at axis 90 degrees.

Amblyopia need not detain us long to explain. It is also secondary. The unphysiological image stimulus, and the nystagmus would in time necessarily bring about lessened visual acuity, even if it were not directly and at once the result of the diffused illumination of the whole retina, and especially of the macula-region. Continued over stimulus and abnormal stimulus everywhere destroys physiological reaction and blunts the delicacy of sensibility.

The combination, photophobia, nystagmus, ametropia (often also insufficiency or strabismus), and amblyopia, presents a union of four frightful ocular defects that leaves little to add of worse. It is interesting to distinguish how each is causally bound up with the other, and that there is thus formed a vicious circle of disease that tends to enlarge and increase in virulence so long as the tissue changes of the growing period of life render the ingravescence possible. But I wish to emphasize again my conviction that, each and several, these four things are directly or indirectly due to the one etiological factor, a non-pigmented iris. A non-pigmented choroid and lid exaggerate the evil.

Prophylaxis and Treatment.—If this be the true etiology, what will be the logical attempt at therapeutics? It is evident that, as all true cure aims at extinguishing the cause of the disease, so here the one hope of individual prophylaxis and cure must lie in supplying either a pigmented iris, or an artificial substitute for the same.

As all abnormalism of so constantly reappearing a kind as general albinism of the body must have a definite cause, we are compelled in default of present knowledge of that cause, to wait further scientific discovery before the prophylaxis or cure of this developmental epiblastic peculiarity is possible. In the meantime, the reported changes in individuals of pigmentation, both away from and toward albinism, give us hope that the law may be discovered, and that even a general cure is entirely possible and yet to be discovered by some brilliant investigator. There are seemingly trustworthy reports of several albinos in whom with years there was an increased pigmentation of the hair, skin, and notably of the irides.³

The old suggestion of tattooing the cornea has two decided objections: 1, the danger from the operation, performed on an otherwise healthy and normal eye. In a densely leucomatous eye there is nothing to lose, but were I an albinotic patient I would hesitate to permit the tattooing of my cornea; 2, the transparent sclerotic and lid will also transmit so much light as to prevent absolute perfection of result, even though the imitation tattoo-iris were successful.

In this connection, my friend, Dr. Wendell Reber

²This causal agency is shown in the quick changes to be noted according to my friend Dr. de Schweinitz, in the amount of astigmatism as observed by the ophthalmometer when the lid is drawn away from the globe, or when the patient partially closes and retracts the lids. Note also the power of a mechanical eye to change temporarily the axis of astigmatism. (cf. Gould, Medical News, June 3, 1893.)

³Joseph Jones, M.D., on Fevers, p. 165.

of Norristown, Pa., in conversation with me suggested tattooing of the palpebral conjunctiva,—a plan that would certainly aid in shutting out the light that the non-pigmented skin of the lid transmits. This might give the darkened lid a peculiar appearance, and render the sensitive patient more uncomfortable than ever, suffering, as he does, enough from his conspicuousness. If corneal tattooing were successful this would certainly aid in giving relief.

A more probably successful plan may be one with which I am now experimenting: the wearing of London smoke coquilles that will cover the eyeball, and that permit enough light to pass to enable the patient to catch glimpses of objects with the peripheral portions of the retina. This is for purposes of safety and comfort to the patient in detecting objects not directly in front. In these coquilles I first ordered a round segment, one-sixth of an inch in diameter, excised, directly in the line of the visual axes, and into the openings I inserted transparent lenses with the patient's ametropic correction. My hope was that by this plan the peripheral portions of the retina will be shaded, the image fixed accurately at the macula, and the nystagmus prevented, with the necessarily resultant cure of the amblyopia. These spectacles were given Case 5. Within thirty seconds after their application, the girl became deathly pale, was seized with violent nausea, and would probably have swooned if the glasses had not been removed. I explain this as perhaps caused by the too sudden cessation of the nystagmus, the violent checking of an habitual, powerful and rapid innervation, with consequent overflow of the innervation to other ganglionic centers and derangement of other related functions. The experience was so frightful that the patient could not be induced to repeat it. I then had another pair of lenses made similar to the first, but with the transparent lenses correcting the ametropia, five-eighths of an inch in diameter. After some trouble at first, these were worn with great comfort and delight. Observation of the pupil with these lenses in place shows immensely diminished nystagmus. After these with daily interruptions had been worn for a few weeks, the first pair with the one-sixth inch diameter lenses, were applied and worn with great comfort. The girl goes to school and dreading the unfeeling words and acts of the scholars she will not wear them at school, but does wear them by choice mornings and evenings at home. The difficulties of therapeutically or mechanically meeting and overcoming the defect are therefore seen to be very numerous and great. But it is a great pleasure to know that this method does to some extent meet them, and the almost cured nystagmus shows the theory I have advanced as to its origin, is substantially correct. I am sure that it would be entirely stopped if the lenses were worn continuously for a long period of time. I shall later report the results as to these experiments.¹

I will allude to still another method I have in mind: an attempt to stimulate the pigment-secreting function of the cellular elements themselves, and to supply the pigment matter. This would probably succeed if at all, only in the young with plastic tissues. With this end in view I propose to keep up instillations of a solution of pyktoanin blue in a

child's eyes, coupled with delicate massage with the closed lid. The tissues, such as the iris and choroid may properly be supposed more responsive to such treatment than those normally non-pigmented. If the experiment do no good it can hardly do harm.

It goes without saying that the acquired ametropia should be corrected. This is a difficult task, but patience and ingenuity will conquer it. Case 8 was wearing "prescription glasses," simple sph. + 2.50 D., in each eye when he came to me. There is a world of significance to this boy in the fact that he is now wearing R. + sph. 5.00 D., \odot + cyl. 2.00 D., axis 100°. L. + sph. 5.50 D. \odot + cyl. 1.75 D., axis 80°.

In my cases a sufficient time has hardly elapsed to give any results of the simple correction of ametropia, but in all cases there has been the most gratifying increase of power to read, study and sew, the glasses being prized as the most precious of valuable things. There has been an equally pleasant reduction of the photophobia in all of these cases.

I wish that physicians to whom the subject is of interest, will kindly send me all the ocular reports in their power of any cases of albinism that may fall under their notice. I would like to learn if the following tentative conclusions are supported or disproved by the experience and observations of others:

1. Albinos are normally and even exaggeratedly healthy in body and mind.
2. There is no discoverable influence of heredity in the cause or transmission of the peculiarity.
3. The sole pathological influence of albinism is upon the eye.
4. The ocular evils, photophobia, nystagmus, ametropia, (especially high degrees of hyperopic astigmatism), and amblyopia, are directly and indirectly caused by the transparency of the iris.
5. The modus operandi of this etiological factor lies, *a*, in the brilliant and diffuse illumination of the fundus of the eye by the non-exclusion of the peripheral rays of light by the faulty diaphragm, producing photophobia; *b*, the lid and muscular pressure upon the globe resulting from the attempt to exclude the light, produce the refractive anomaly; *c*, the effort of the groping eye to localize and definitize the evanescent and indistinct image produces the nystagmus; *d*, and the amblyopia is a necessary consequence of all these combined factors.
6. Proper correction of the ametropia lessens eye strain, lessens photophobia, and increases the power of near-range vision.
7. True prophylaxis and cure must look to the pigmentation of the iris, or to the construction of an artificial opaque substitute for natural faulty irides.
8. The younger the age at which any prophylaxis or treatment is begun, the more promising will be the results.

DR. MURRELL—I did not hear the first part of this paper, but heard only the latter part. I have a case of this kind under observation at home. By wearing the properly correcting convex spheres, about two diopters, ground on blue, her eyes are very quiet and she has practically very good vision. Her eyes are quiet as long as the glasses remain on, but in taking them off the eyes resume their former nystagmus.

DR. RISLEY—In cases of albinism which have fallen under my notice, there has always been present high grades of refraction error and nystagmus. Much relief has usually followed the use of correcting glasses. I have not used the

¹ My friend Dr. Risley, tells me he had an albinistic patient with double cataract, without nystagmus. It would be interesting to know if nystagmus existed prior to the cataracts.

tinted glasses, suggested by Dr. Murrell, but can readily understand that it must give great additional relief in these albinotic eyes on bright days. I was greatly interested at the time in the old lady, an albinic, with mature hard cataract in both eyes, to whom Dr. Gould has kindly alluded in his paper. The lens was successfully extracted in one eye. Vision 6-12 was secured with glasses. L50 D. There was a large posterior staphyloma at the temporal side of the nerve, so that this patient had evidently been myopic before the occurrence of the cataract.

DR. GOULD—I would like to ask the gentlemen when they have such cases to please send me a report of them.

TUMOR OF THE IRIS.

Read in the Section on Ophthalmology, at the Forty-fourth Annual Meeting of the American Medical Association.

BY J. SCHNEIDER, M.D.

MILWAUKEE, WIS.

Tumors of the iris not caused by infection, such as syphilis or tuberculosis are very rare in our clinical experience, and when seen the majority have arrived at that stage of development when the integrity of the eye has been so changed that in order to arrest farther and more serious consequences there remains but one alternative, that of enucleation. In the literature on the subject I have not been able to find a similar case, and in my personal experience but this one, where after the removal of such a tumor from the iris there has remained useful vision; and in the light of these facts I consider the following case very unique in its clinical and anatomical results:

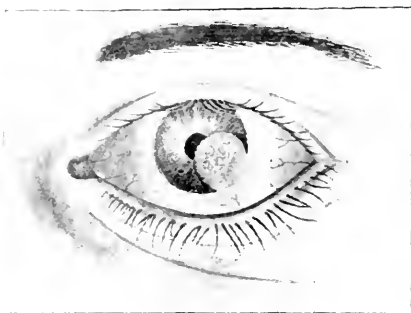
Miss M., of Iron Mountain, Mich., consulted me with reference to a disturbance in the vision of her left eye. On awaking the morning of the 29th of March, 1892, she noticed the sight of the eye much reduced and objects seen with it appeared a dark red color. On March 30, 1892, the patient came to me, when I found the following conditions: R. E. normal; L. E., ability to distinguish the movement of a hand at ten feet; peripheral perception of light normal; no pain; no inflammatory symptoms. The anterior chamber was filled with blood; external layer of the cornea normal, but the lower temporal quadrant of the middle and internal layers were hazy, the haziness extending four or five mm. into the cornea; tension somewhat increased.

After ten days' treatment the blood in the anterior chamber had disappeared, at which time I was able to make an examination of the deeper structures. The vision was 20-30; colors and field of vision normal. In the lower temporal quadrant of the anterior chamber was lying a mass partially filling in the space between the iris and cornea, but touching the cornea near the corneo-sclero junction only, thus leaving a shallow anterior chamber above the growth. It could plainly be seen that the neoplasm had its origin in the ligamentum pectinatum iridis, and extending nearly to the sphincter-pupillaris, filling almost completely the lower temporal quadrant. In consistence it appeared medullary, reddish yellow color, shaped similar to a half coffee bean with the flat side lying directly upon the iris. The portion of the growth nearest the corneo-scleral junction being pressed upon by the cornea was flattened and grayish white in appearance; the remainder appearing very vascular and studded with papillae. With a light reflected directly upon the growth it could plainly be seen that the tumor grew directly out from the iris. The longest diameter was 9 mm., the shortest 5 mm. The crystalline lens and vitreous were apparently normal; reaction of pupil to light, and appearance of iris as far as the periphery of the tumor were normal. The outline of the optic disc in the lower temporal quadrant was blurred; this cloudiness, for the distance of a disc diameter, extending into the retina and finally blending by means of white streaks into the normal tissue of the retina.

The patient was 16 years of age, menstruated regularly since her twelfth year, rather anemic, had never had any severe illness, body well nourished, family history tuberculous, but repeated examinations for symptoms of phthisis and syphilis always giving a negative result.

The parents state that at the age of 5 years the girl was injured in the left eye with a fork; five months later they noticed a small brown spot near the pupil. This spot did not change till four years ago when with no apparent cause it assumed a flesh color and began to increase in size. After several examinations I recommended, especially on account of the family history, that the growth be removed, but it was not agreed to by the parents and for some time the patient passed away from observation.

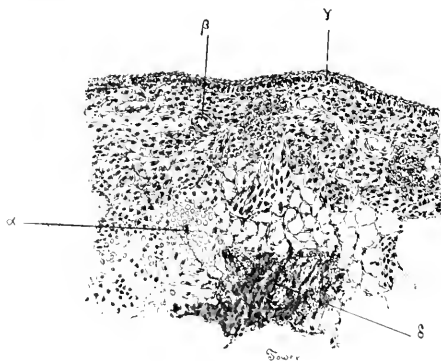
On March 24, 1893, the patient returned, complaining of a dull pain in the eye, tearing, sensitiveness to light with recurrent hemorrhages (the patient could produce a hemorrhage at will by pressure upon the growth). During the period of her absence the neoplasm had grown in all directions, extending upwards so as to cover one-third of the pupil; tension increased, cornea hazy and vision reduced to less than one-half of the normal. The optic disc and retina showed marked symptoms of pressure atrophy. We have to take into consideration that we have before us a solid, flesh-colored tumor, very vascular and probably not the product of a general dyscrasia. The tumor is definitely located, non-pigmented, the surrounding parts, i.e., the iris showing no pathological changes.



On account of the family history I was inclined to consider it a solitary tubercle or so-called granuloma. The negative results of the physical examinations would not be positive proof against a tubercle, for we know from Gradenigo, Perls, Haab, Cohnheim, Knap and others that tubercular degeneration can be localized in the iris without any constitutional symptoms. Pudden, Haab and others affirm that granuloma have for their origin the irritating effects of some microorganism. Second, granuloma are poorly organized neoplasms, infections, inoculable and invade neighboring tissues, especially those with which they are in direct contact. The granuloma undergoes, on account of its poor vascularization, cloudy swelling or fatty degeneration. Aside from these authorities, the clinical appearance of the neoplasm made me doubt the existence of a tubercle. I was inclined to consider it a non-pigmented sarcoma, but the age of the patient and the clinical appearance of the growth were evidences against a sarcoma. We can immediately exclude all neoplasms of the iris such as gumma, epidermoidome, cyst, cystoid degeneration and melanoma-sarcoma.

On March 28, 1893, the growth was removed in the

following manner: after the eye was thoroughly cocaineized, at a distance of $1\frac{1}{2}$ mm. from the corneo-sclero junction I made a linear incision, passing partially through the base of the tumor. With an iris forceps I attempted to seize the mass but it being so fragile, only small particles could be removed; with a platinum loop I made similar attempts with the same results, it being very evident that the iris was attached to the capsule of the lens. With an iris forceps armed with a double row of teeth I seized the iris on either side of the tumor and with some little effort withdrew the large mass and attached portion of the iris out of the anterior chamber, which mass was then excised as close as possible to the base. (There still remained some parts of the growth broken off by the manipulations, in the anterior chamber.) After the growth and the attached portion of the iris were excised there followed a severe hemorrhage. After the hemorrhage had ceased and the lips of the wound were adjusted, I applied a pressure bandage and put the patient to bed. During the healing process the eye showed but very little reaction and on April 23, 1893 the patient was discharged with tension normal and, with the exception of a small zone, the former corneal haziness had disappeared, some pigmented spots upon the capsule in the coloboma, lower temporal quadrant of disc pale, retina changes disappeared and vision 20-30.



DESCRIPTION OF PLATE.

- A. Small hemorrhage in growth just above iris in loose connective tissue, showing very plainly the blood corpuscles.
- B. Blood vessel. One of many which are seen scattered throughout and containing blood corpuscles.
- C. Surface of growth showing covering cells.
- D. Portion of iris from which the tumor probably originated.

The tumor measured 7 mm. in its longest diameter, 5 mm. in its shortest and 3 mm. in thickness; its superficial surface was uneven grayish-white, with the base showing normal appearance of iris. After its removal the tumor was placed in a sodium-chlorid solution, and shortly afterwards given to Dr. Tower of Milwaukee, for microscopical examination, who reports as follows:

"I took small particles, every precaution being taken to prevent them from being contaminated and planted them in tubes of agar, blood-serum, gelatin, and in bouillon both acid and alkaline, and kept them at 37 degrees centigrade and also at about 20 degrees centigrade for several days, and was unable to get any growths except in one tube a little penicillium which was a contamination from without, either from the air or some of the utensils used. I examined

stained preparations for the tubercle bacilli with negative results; in fact, did not find any germs at all or evidence of them.

"I have made examinations directly of small portions when fresh, under the microscope, and found a connective tissue and epithelial growth from apparently the iris. Upon section and examination, I find the growth to be a papilloma originating from the sub-epithelial connective tissue of the iris."

We understand by a papilloma, a neoplasm composed of connective tissue with epithelial covering; with very complete vascularization, resembling in construction skin, intestinal and mucous membrane papillae (Wagner). Papilloma start usually from an injury, producing increased circulation to the part, causing a similar irritation to that produced by dirt in the formation of warts and by decomposing glandular secretions in the formation of condylomae. Such a papilloma may originate in any tissue as they are found in paröphoron, cystic tumors of broad ligament (Mouillin), the skin, tongue, larynx, conjunctiva, fore-skin, glans penis, rectum, synovial membranes. If the tumor under consideration was of leprosy, tuberculous or actini-mycotic growth, the germs characteristic of these growths would have been found. If it had been any of these, or a syphilitic growth or a rhino-sclerotic, the particles remaining in the anterior chamber would have developed into a new growth.

I consider the prognosis in this case very favorable; especially on account of the age of the patient if there were particles remaining there would be no probability of the formation of a villous carcinoma, into which the papilloma sometimes develop.

THE CLASSIFICATION OF DISEASES OF THE EYE FOR HOSPITAL STATISTICS.

Read in the Section on Ophthalmology at the Forty-fourth Annual Meeting of the American Medical Association.

BY EDWARD JACKSON, A.M., M.D.

PROFESSOR OF DISEASES OF THE EYE IN THE PHILADELPHIA POLYCLINIC;
SURGEON TO WILLS EYE HOSPITAL.

The custom has become general among hospitals and dispensaries, of publishing Annual Reports, showing the number of cases treated. The principal value of such statistics, from the scientific point of view, is that they may throw light on the etiology of certain diseases, by showing their comparative frequency in different places and at different times. This can only attach to such statistics when the classification they employ is comparatively uniform, and their value, as well as the ease with which they can be handled in combination, will be enormously increased if the classifications be exactly uniform.

On consulting the reports of the principal ophthalmic hospitals of the country, it will be found that in the main they pretty closely agree as to the naming and relative frequency of the mass of conditions mentioned. There are, however, points of divergence which render the comparison of statistics obtained in the different large cities difficult and often valueless.

To elicit discussion, as well as to urge their importance, certain characteristics of a good classification may be mentioned.

First, it must not be so minute as to be seriously burdensome. With the future development of ophthalmic science, it will be possible, perhaps, to bring

together in our hospital reports many facts that we are now unable to handle with advantage. Subdivisions that are now of great practical clinical importance to the individual surgeon, have not been so widely accepted as to make it possible to enforce them in the reports of many ophthalmic hospitals. And while, individually, we may greatly desire that statistics with reference to this or that special point might be widely accumulated, the burdening of any common scheme with the subdivisions necessary for that purpose would prevent its general adoption.

In the second place, the scheme must have an entirely definite rigid basis, natural so far as possible, but when necessary, arbitrary. There has been widely adopted the plan of general classification upon an anatomical basis; thus we have one great class of diseases of the cornea. Another class for those of the lens, and another for the optic nerve and retina and so on. Then within these general classes, individual conditions are recognized upon a clinical or pathological basis. This general method of classification, we may regard as already adopted by common consent. The difficulty comes in with reference to the choosing of the special characters on which the division into individual conditions shall be determined.

It seems the essential point that must be recognized here, is that there must be no overlapping. For instance, take the classification of iritis: cases of this disease may be classified clinically, as serous, plastic, and purulent; but again they might be classified etiologically, as syphilitic, rheumatic, idiopathic, secondary, and traumatic, and such a classification is frequently adopted, but to recognize all these classes as subdivisions of iritis is to introduce confusion and render your statistics worthless.

One surgeon will be certain to place the mass of his cases in the column of plastic, although a large portion of these may be of syphilitic origin, and another surgeon will record them as syphilitic, although they may all be plastic in their clinical character. In either case, the statistics of one surgeon will be utterly worthless to the other, or utterly worthless for combination with those of the other at the hands of third parties. The only way possible to introduce the different sorts of classification, as clinical and etiological, is to make the one subordinate to the other. As under the head of plastic iritis, to recognize syphilitic or rheumatic as varieties, and to recognize the same varieties under the heads of serous or purulent. But in the general scheme this must be done very sparingly, if at all, on account of the enormous extension of the list that it will entail. Individual reporters may indulge in it to any extent, provided they make their main groups conform strictly to the general scheme. Regarding the case of traumatic affections, there is less danger that cases of such origin will be placed under some other head, so that some departure from the strict single basis of classification may be possible in regard to them.

One of the most difficult questions to deal with in this connection is that of the duplicate representation of cases. The question as to whether each case shall appear only under some single head, or whether it shall be represented under the head of every pathological condition present that is given place in the general scheme.

If statistics are to be used to determine the rela-

tive frequency of certain conditions, it is a very occurrence of such a condition, whether arising in connection with other diseases, should be reported. And probably this would be on the whole the best method of working. If we could only be sure that it was always carried out, very little could be said against it. With some conditions as, for instance, persistent hyphema, or erosion of the iris, there is little likelihood of omission. But in the cases of ametropia and heterophoria, conditions that are present in some degree in almost every case, it is not at all likely that they will always be recorded, with these and to a less extent with many other conditions, the relative proportion will necessarily vary with the proportion of the observer. Still, this would be largely true, with the plan of giving to each case but a single diagnosis so that, on the whole, it seems best to give up any attempt at making the number of cases balance the number of diagnoses, or the number of patients, balance the number of pathological conditions present.

With regard to nomenclature, the writer would favor the adoption of strictly English names throughout, merely adopting foreign terms or anglicizing where this is necessary. In most of the hospital reports the mass of terms are already English; very few attempt to give them all in Latin.

Where two or three different terms are in common use to designate the same condition, it will in some instances be necessary to include more than one, but this should be placed, not as distinct conditions, but as a synonym on the same line, so as not to allow one observer to report his cases under one title and another to report the same class of cases under another title.

Whatever system of classification is adopted, it will in the end be most successful if it be one that is capable of future development, without radical rearrangement or dislocation of its parts. For this reason, perhaps more than for any other, it should at first be simple, and attempt very little refinement, the main point now being to arrange principal groups, so that they will not need future alterations. Subdivision within these groups can be carried on by future conferences, or even may be allowed development at the hands of individual surgeons; since for purposes of comparison these subdivisions may at any time be thrown together, if only there is strict agreement as to the main grouping.

ULCERS OF THE CORNEA.

Read before the California State Medical Society, Feb. 2, 1893.

BY WILLIAM C. BANE, M.D.

DEVER, CALIF.

Late Lecturer on Diseases of the Eye and Ear in the Medical Department of the Western University of Pennsylvania, Philadelphia, and Lecturer to the Chair of Neurology of the Jefferson Medical Association, Philadelphia, and Professor in the Medical Department of the University of California, Hospital for Diseases of the Eye, to St. Anthony's Hospital, and at the House of the Good Shepherd.

The importance of this affection, I believe, justifies a brief review of the subject.

Corneal affections constitute over one-fifth of the eye cases that come under our care.

Of the three principal types of inflammation of the cornea, ulceration is the most common. The numerous varieties of corneal ulcers have been conveniently grouped as superficial and deep.

The superficial class includes those limited to the epithelial layer and are most frequent in young subjects. This is especially true of the phlyctenular ulcer, which occurs in the delicate and strumous.

Not infrequently is the superficial ulcer the result of traumatism, the accident occurring in persons whose blood state is poor, or the wound becoming infected, an ulcer forms. The symptoms of superficial ulcers vary from slight irritation to marked photophobia, lachrymation and pain in and around the eye. The pain is frequently paroxysmal in character. The ulcers differ in appearance, location, course and importance. The phlyctenular ulcer is usually small, circular and of a yellowish gray color. When located at or near the corneal margin, which fortunately is its most common seat, there may be one or more of them. Their course is short, as a rule, and little or no opacity remains. However, the phlyctenular ulcer does not always run so mild a course. The subjects being delicate, if the treatment is not proper, the ulcer may enter Bowman's membrane and finally result in perforation of the cornea, or being central in location, produce such an opacity as to permanently impair the vision. Fig. 1 illustrates this type of ulcer.

The so-called denticritic ulcer, is an exceedingly interesting one. It is limited to the superficial layer of the cornea, and is indicative of a blood state due to or like that of malarial poisoning. The arborescent or denticritic shape of the ulcer is readily recognized by those who are familiar with this form of keratitis. Some excellent papers on malarial keratitis, and keratitis denticritica, have been published within the past thirteen years. The first clear description of this disease was by Dr. Kipp¹ of Newark, N. J., in 1880. The following year Dr. Noyes of New York, and Dr. Hotz² of Chicago, published papers on keratitis due to malarial infection.

In 1889, at a meeting of the American Ophthalmological Society, Dr. Kipp³ read another paper, in which he gave an admirable description of the disease, and stated that of the 120 cases he had treated since his first paper was published, in 90 per cent. of them there was a clear history of malarial infection. His conclusions were confirmed in the discussion by Drs. Noyes of New York, Green of St. Louis, Sutphen of Newark, Theobald of Baltimore and Miller of Providence.

Dr. Kipp, who has made a careful study of this form of keratitis, has observed that "following a paroxysm of intermittent fever, a series of small, grayish, opaque elevated dots, like minute phlyctenule appear on some part of the cornea, usually not far from its margin, arranged in a line like a string of beads. On the following day, the elevations have disappeared, and in their place is to be seen a narrow furrow with a hazy floor and grayish ragged edges. At the same time, or perhaps not until some days later, one or several short grayish branches develop on one or both sides of the original furrow. . . . Unless arrested in this stage by treatment, the main furrow and its branches continue to grow in length without, however, increasing in depth or width. . . . The furrow always remains quite shallow and probably seldom penetrates Bowman's layer." The symptoms are similar to those of phlyctenular keratitis, excepting that there is less congestion of the ball; the pain is more severe especially in the supra-orbital regions. There is

also more or less anesthesia of the diseased surface of the cornea, as first pointed out by Dr. Noyes⁴ of New York.

Fig. 2, after a drawing by Dr. Kipp, illustrates the ulcer of malarial keratitis. In June of 1892, Haltenhoff⁵ published an interesting resumé on keratitis denticritica or herpes. From Haltenhoff's paper we learn that Haab and Hagnauer of Zurich, take the ground that the malarial keratitis of Kipp and his followers, and keratitis denticritica of Hansen Grut, Emmert and others, is nothing more than the ulcerative stage of febrile herpes of the cornea, as described by Homer of Zurich, in 1871. Haltenhoff expresses the opinion that it is likely that the two diseases, keratitis denticritica and herpes cornea, are separate and distinct.



Fig. 1. Phlyctenular Ulcer.



Fig. 2.
Malarial Keratitis.
(After Kipp).



Fig. 3.
Keratitis Denticritica.
(After Dunn).



Fig. 4. Superficial Ulcer.



Fig. 5. Superficial Ulcer Healing.

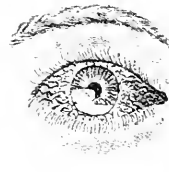


Fig. 6. Ulcus Serpens. Hypopyon.



Fig. 7. Crescentic Ulcer.

Dr. Dunn⁶ of Richmond, Va., has reported a case of keratitis denticritica, associated with herpes zoster, in the *Annals of Ophthalmology and Otology* for April of this year, with a drawing, of which Fig. 3 is a copy. In the same number of the *Annals*⁷ is a report of two cases of the so-called keratitis denticritica by Dr. Morton⁸ of Minneapolis, whose cases were evidently of a mycotic type, as they yielded to local antiseptic treatment. Studied from an unbiased standpoint I am led to conclude that, while the above types of superficial ulcers have many symptoms in common, they are separate diseases, excited by different causes and require different treatment. The mycotic yield promptly to local antiseptic treatment. The herpetic require constitutional, in addition to local treatment. The malarial type will not improve without anti-malarial treatment, as well as local applications.

The following report of a case under this heading is of interest, on account of the malarial history, though twenty years have elapsed since the disease was contracted:

F. G. W., male, aged 49; born in Germany. Family history unimportant. Admits moderate use of alcohol, but denies having had venereal disease. He had an attack of influenza one month ago, and has had several attacks of acute inflammatory rheumatism during the past three years. He is subject to facial neuralgia. About twenty years ago he had a severe attack of malarial fever. *Serapins*: V. R., 6-21; L., 6-6; R. E. There is some edema of the lids; the ocular and palpebral conjunctivae are very much congested; eyeball is tender to the touch; cornea is slightly hazy; there is a superficial ulcer in the lower outer quadrant of the cornea, extending 8 mm. along the margin and 3 mm. inward, as shown in Fig. 4. Having a history of inflammatory rheumatism, neuralgia and a recent attack of influenza, I ordered sodium salicylate and acetanilid in 10 grain doses every four hours. Locally, cocaine, homatropin and aristol were applied. On the following morning the patient reported, free from pain, and of having had his first good night's rest for a month. Less congestion and tenderness of the eye; 1 per cent. solution of cocaine instilled, and aristol applied to the ulcer.

December 1. Patient had four attacks of pain in the eye, and right side of the head since midnight. The eye, however, looks better. Aristol applied to the ulcer. Applied cantharidal collodion to the right temple. Ordered one-eighth grain of sulph. morphin, and 1 minim of fluid ext. aconite to be taken every two hours if needed to relieve the pain.

December 2. Pain returned at 5 p. m., and continued until 3 a. m. Cornea is clearer.

December 7. The eye has been dressed daily with cocaine and aristol. Hot water dressings for half an hour every alternate hour. Internally, one-twentieth of a grain of the bichlorid of mercury six times daily, instead of the salicylate. An attack of pain yesterday was only partially relieved by four one-fourth grain tablets of sulph. morphin taken within six hours. Hot fomentations gave temporary relief. The cornea is clearer, yet the ulcer is somewhat deeper. Being reminded of the effects of malaria, I ordered 3 grains of sulphate of quinin, to be taken every four hours, the evening dose to be 6 grains.

December 10. Patient has been free from pain since commencing the quinin; there is less congestion of the eyeball. Tension is normal. V. R., 6-12. The epithelial layer of the cornea is reforming and the ulcer is smaller. Under cocaine, the ulcer was touched with pure carbolic acid on cotton; the cotton was deprived of an excess of acid by compressing it between layers of dry cotton.

December 19. There has been no pain, excepting a slight attack on the afternoon of the 16th. There is now but slight ocular congestion. No tenderness of the eyeball. The ulcer has healed, leaving but a slight opacity. V. R., 6-6. Fig. 5 illustrates the ulcer as it appeared December 12.

On Feb. 21, 1893, patient called to see me while on a visit to the city, his home being in Saratoga, Wyo. An examination failed to reveal any evidence of the eye having been diseased. Vision, 6-6.

We are all, unfortunately, too familiar with the deep ulcer and its destructive work. It frequently is the result of an infected corneal wound, one of the most destructive of which is a wound infected from an old dacryocystitis. The deep ulcer, as already alluded to, is sometimes the sequel of neglected or improper treatment of a phlyctenular ulcer. It, at times, develops during an attack of purulent conjunctivitis and severe forms of exanthemata. An ulcer developing in the course of purulent ophthalmia is a grave complication. And when a gray infiltration makes its appearance in the center of the cornea, during the active stage of the ophthalmia, it is quite certain to melt away.

The seriginous ulcer, which commonly develops in the old and feeble, is sometimes very destructive. Beginning at the corneal margin, as perhaps a slight gray spot, it spreads toward the center, increasing in depth, the inner border being sharply defined while the outer is filling up. Unless the ulcerative process is checked it soon perforates the cornea, and becomes complicated with inflammation of the

deeper structures. Hypopyon affords in the anterior chamber is likely to appear before the perforation takes place. Fig. 6 illustrates this type of ulcer with hypopyon.

The crescentic ulcer, forming a deep furrow around the margin of the cornea, is occasionally met with in the debilitated. If neglected, it will extend around the cornea and cut off its nutrition. Being of a mycotic type, the progress can be checked by antiseptic applications.

Fig. 7 illustrates a case of this type, in which the application of carbolic acid, followed by daily instillations of warm solution of chlorate of potassium effected a cure in about ten days. In the treatment of corneal ulcers we aim at helping nature by relieving the pain and checking the destructive process. In some, the exciting cause is local, while in others it is constitutional. Others, being deep and very destructive, are at times almost painless. The first indication is to place the eye at rest. In young subjects the accommodation should be paralyzed with atropin and, in all cases, excepting perhaps the superficial phlyctenular ulcer, a protecting compress should be worn to aid in keeping the eye quiet, and prevent friction of the lids. The compress may be held in place by a bandage, adhesive strips, or with a pair of coquilles.

The application of hot water for ten or twenty minutes, every one or two hours, aids very materially in relieving the pain and congestion. The hot water can be applied to the closed lid and brow, or applied direct to the ulcer with the aid of a dropper. When using the latter method, I order 5 grains of chlorate of potassium to the ounce of water. Dr. Lippincott of Pittsburg, has reported excellent results from dropping water at the temperature of 150 degrees directly to the affected area.

In persons beyond twenty-five years of age, atropin should be used in weak solution; at the same time eserine may be used with advantage, in one-fourth to one-half grain solution. The eserine contracts the vessels, relieves the congestion, tension and pain.

Locally, to the ulcer, we have a choice of several well-tried and faithful remedies. They are, boric acid, aristol, ointment of the yellow oxid of mercury, 10 grain solution of nitrate of silver, liquid carbolic acid, serapins, actual and the galvanocautery. After clearing the ulcer of the detritus under cocaine, the application of dry boric acid, aristol, the yellow ointment, 10 grain solution of nitrate of silver, or the liquid carbolic acid, will do excellent service in the superficial and moderately deep ulcer. In the deep and rapid ulcers, the actual cautery or galvanocautery are the most reliable for destroying the unhealthy tissue and stimulating healing. When dacryocystitis exists, which according to Noyes, is the cause of infection in from 20 to 32 per cent. of the cases of ulcers serpens, it is essential that the sac be freely irrigated with an antiseptic solution, such as the bichlorid of mercury, 1-5000, once or twice daily, or at each dressing of the ulcer. In cases where perforation is threatened and pus has been deposited in the anterior chamber, paracentesis should be performed to relieve the tension and evacuate the pus.

Constitutional treatment is indicated in nearly all cases of corneal ulceration. The feeble and strumous should receive plain nourishing food with tonics

and cod liver oil. Where there is a malarial history, quinin or arsenic should be administered.

BIBLIOGRAPHY.

- 1 Noyes, Text-Book on Diseases of the Eye. 1890, p. 628.
- 2 Trans. Am. Ophthal. Soc. Vol. III, p. 91.
- 3 Am. Journal Med. Sciences, 1881.
- 4 The Chicago Med. Journal and Ex., Dec. 1881.
- 5 Trans. Am. Ophthal. Soc. Vol. V, p. 331.
- 6 Trans. Am. Ophthal. Soc. Vol. III, p. 35.
- 7 Ophthalmic Review, Vol. XI, p. 269.
- 8 Annals of Oph. and Otol., Vol. II, p. 139.
- 9 Annals of Oph. and Otol., Vol. II, p. 168.
- 10 Ophthalmic Review, Vol. XI, p. 277.
- 11 Trans. Am. Oph. Soc., Vol. V, p. 133.
- 12 Rep. of the Fourth Internat. Ophthal. Congress (London, 1873, p. 302).
- 13 Trans. of the Med. Soc. of Pa., Vol. XXI, p. 230.
- 14 Trans. of the Phila. Co. Med. Assn., Feb. 1891.
- 15 Noyes Text-Book on Diseases of the Eye, 1890, p. 366.

Steele Block, Sixteenth and Stout Streets.

ON THE PROPHYLAXIS OF CONTAGIOUS DISEASES IN A LARGE CITY.

Read in the Section on State Medicine, at the Forty-fourth Annual Meeting of the American Medical Association.

BY SAMUEL P. DUFFIELD, M.D.

DETROIT, MICH.

The above subject may seem to some who have not had charge of the department of contagious diseases of a large city, a very simple question. It will be found the most difficult problem that comes to the health officer for solution.

An experience of six years as Health Officer of Detroit has most effectually changed many of my views on this subject, and what I now lay before you is the result of practical every-day efforts to reach the point of holding these diseases in check to the greatest degree possible. I am satisfied I have found a method, but as my Board has not indorsed it, it must slumber until some one proves that my views belong to the practical every-day realm and not to theory. I place before you a tabulated record of the contagious diseases, scarlatina and diphtheria, and will refer to it as I go along:

NUMBER OF DIPHTHERIA AND SCARLET FEVER CASES REPORTED TO THIS OFFICE DURING THE YEARS 1891, 1892 AND 1893.

SCARLET FEVER.

	1891	1892	1893		1891	1892	1893
January	44	167	90	July	42	101	...
February	35	156	72	August	49	61	...
March	45	238	79	September	57	52	...
April	57	176	50	October	113	55	...
May	51	187	48	November	157	11	...
June	37	136	...	December	151	88	...

DIPHTHERIA.

	1891	1892	1893		1891	1892	1893
January	122	115	91	July	53	100	...
February	93	81	53	August	88	63	...
March	107	102	67	September	81	62	...
April	75	190	38	October	121	121	...
May	97	145	65	November	79	89	...
June	63	108	...	December	146	100	...

In looking this matter over, you will notice that beginning in 1891, with a low rate in January, 1891, it so continued up to July, when it began to rise, and in October we had an increase of sixty-nine over January.

I appealed to the Council for the power to quarantine; it was assumed the Board had power to quarantine, but when you quarantine you must feed and take care of those quarantined. As there had been no appropriation made for that purpose, I asked my Board to recommend that an appropriation of \$15,000 be given the Board of Health to establish a contagious disease hospital. This was laid upon the table and the Health Officer was invited to speak before

the Council, giving his views on the subject. In the meantime, real estate had improved about my small-pox hospital, which was originally outside the city limits, but in the effort to boom real estate in the city it was brought within the city limits, and being an eyesore to the real estate men "who had the interest of the city at heart" (?)—you, gentlemen, will appreciate this latter remark—my hospital was one night cremated and I left without a place for small-pox patients. Under these circumstances I saw I must quarantine at once, or have the city overrun with an epidemic, and so stated to the Council. They did not grant the request of the Board of Health, but said that should I, as Health Officer, go ahead they would allow all bills, etc. Accepting them at their word, I established quarantine, and have followed it as closely as I could with only one detective, and you see in the table that there has been a notable diminution in the number of cases in 1893 of both diphtheria and scarlet fever (let the reader contrast the years 1891, 1892 and 1891). You will especially notice, from the time I began the system of quarantine, which was in June, 1892, the cases began to diminish, and you will also notice that from that time forward we were under the figures for 1891, and very much lower than the figures of 1892.

Gains in scarlet fever, 601 in five months.
Gains in diphtheria, 299 in five months.

Total gains, - 900

While this is a decided improvement, it is not what could be brought about by other means.

The system of quarantine in a great city is deficient. Unless you have a large police force you can not have absolute isolation of the patient, and in my report for 1891 I recommended that we should have a series of cottage hospitals, virtually a series of cottages which could be arranged in the form of a cross, or otherwise, but in such a way as to be able to separate the play grounds and promenades completely from each other, so that a convalescent scarlatina patient will not come in contact with one recovering from diphtheria.

Since we had to contend with contagious diseases I have been, by observations and facts received from police and detectives, satisfied that these diseases were spread by personal contact of ignorant mothers and fathers of the children. The cottage in which they live is open to the neighbors and others who are not afraid of the placard; "don't believe it is scarlet fever anyway, because the child is playing around the house."

The man goes to work and carries the disease with him. If a skilled mechanic we have had to quarantine him, allowing him only groceries and provisions, and he loses money every day. Now should the isolation cottage system be adopted, we would solve completely this most difficult problem, for the mother could go with the child to the cottage and the home would not become infected with any prolonged sickness in it. Should another child be taken sick it can be transferred to the mother's care at once.

During that time I was being severely criticised for suggesting the cottage hospital system, etc., some one wrote that there should be a general place where workmen with their well children should go and be taken care of at the expense of the city, leaving the sick child and mother to inhabit the home. The city would have a heavy bill to pay, should it adopt

the system, and we would find we had grasped the short arm of the lever and would be unable to do anything.

The value of any machine is the force it can develop economically for practical use. So the value of any sanitary effort is in proportion as it does good practically, performing practical every-day work.

All the fine spun theories of preventive medicine have not yet solved the problem of perfect isolation of contagious diseases in a great city. The fact that these diseases exist more or less in a city proves this point. One of the most dangerous periods to the general public is the period of convalescence in scarlet fever patients. They are not considered sick and are more apt to come in contact with other persons. If the cottage hospital system was adopted, the diphtheria patients could be kept by themselves, and the scarlet fever also treated the same way.

On large hospital grounds they could enjoy themselves in the open air, etc., and yet no danger of communicating the disease would exist. Such a thing would by this time have been inaugurated and in full play, had not the people of Grosse Pointe placed a barrier in the way which, for the present at least, blocks all progress in the matter.

The city has a lease for ninety-nine years of the Crawford Street property, and as that property is in the city limits there is no danger of being disturbed in the possession of it. Being in the city limits no action, except that of the council itself, can drive it out. (See Howell's statutes.) While, should we go to Grosse Pointe, we would be liable to be driven away any time the supervisors of the town might see fit.

It is the duty of all large cities to establish these places to protect themselves from terrible epidemics, and so thoroughly has this been tested by real estate men and others attacking the right to establish hospitals in great cities, that the highest constitutional laws in the land give every city this as their unquestionable right. New York expends every year \$50,000 for the support of Riverside Hospital, and finds this her only way of escape.

HEAT A PREVENTIVE OF CHOLERA.

Read in the Section on State Medicine, at the Forty-fourth Annual Meeting of the American Medical Association.

BY CHAS. H. SHEPARD, M.D.
BROOKLYN, N. Y.

While we hope by reason of good sanitation to escape the scourge of cholera this year, yet the bare possibility of its coming renders all matters of hygiene of supreme importance. Therefore, whatever may contribute to our welfare in that direction is at this particular time worthy of more than ordinary consideration. In order to thoroughly master any disease it is necessary to know somewhat of its characteristics. The home of cholera is in India, and it is there only by virtue of removable causes. The personal habits of the natives are cleanly, but they have no public water supply, and in the larger cities the only water they can obtain becomes polluted from their own excretions. It has been demonstrated that where pure water was furnished the inhabitants, as in Madras and Calcutta, the ravages of cholera were greatly reduced, and the same has been observed in other countries. Dr. Pauline Root, who lived eight

years in Southern India, reports that cholera is always more or less cholera prevalent in that section, and that it is more common after certain religious festivals. Drainage, with the exception of the open sewer, is unknown, and the total lack of sanitation is responsible for the consequent spread of the disease.

The study of the history of various epidemics has made many things plain, but the first radical step towards the understanding of cholera was taken when Robert Koch, the leader of the scientific expedition in Egypt, in 1883, discovered the existing cause of that disease in the comma-like bacillus. Shortly afterward, Reitsch and Nicati, by introduction into the duodenum of cultivated comma bacilli, produced the veritable Asiatic cholera in guinea pigs, and the same effect has been confirmed by other investigators. It has also been demonstrated that the cholera germ is not an animal growth which can be suffocated by fumigating gases, but a vegetable, like the yeast plant, which needs a moderate amount of heat for its development; but apply more heat to the yeast plant or cholera germ, say 140 degrees Fahrenheit, and the germ is dead.

The introduction of this specific form of micro-organism is found to be necessary for the production of the disease. These germs must reach the intestinal canal alive, otherwise the disease can not be developed. They necessarily pass through the stomach, but an acid medium is death to their existence. In fact they are the most easily destroyed of all the pathogenic microorganisms known. If they safely run the gauntlet of the stomach, they come in contact with an alkaline medium and an albuminoid pabulum in which they develop and multiply with startling rapidity.

These germs always come from the dejections of a cholera patient, and are commonly re-introduced into the alimentary canal of a second person, either in drinking water or in food. It is asserted that they do not enter the blood or tissues of the body, but remain in the lumen of the intestinal canal until they have exhausted their period of existence or killed the patient. They require for their rapid growth and development a large amount of water, an albuminous pabulum, a moderate degree of heat, an alkaline medium and a quick removal of their products. The water is obtained by a rapid outpouring of this fluid from the blood. This large outpouring, together with the irritation by the growing bacteria, naturally increases the peristalsis and starts a diarrhea which at first is painless, but later becomes a pronounced symptom. The continual flow of water into the intestinal canal dehydrates the blood, and prevents the absorption of nutrition, thus at once parching and starving the victim. This readily explains the other symptoms and lesions. It is also plausibly asserted that the accelerated heart beat is due to the small volume of blood which flows with difficulty through the capillaries. The pulse is small and thready, because there is not enough blood to fill the arteries. The dyspnea is marked because the blood carries but little oxygen. The brain is sluggish and irregular in action from an incomplete blood supply. The muscular contractions are painful on account of the intense dryness, and a consequent binding of the fibers as they play one upon another, and the liver and kidneys degenerate from the same cause. The surface epithelium in the intestines de-

generates, dies and desquamates, producing the characteristic rice-water discharges. These symptoms and pathological conditions are identical with a severe attack of simple cholera morbus. Both the simple and Asiatic types of cholera can result fatally through the abstraction of water from the system.

The discovery of the bacteriologist, that the cholera germ will not live longer than twenty-four hours entirely without moisture, and that excessive heat or excessive cold will kill it, relieves us from all fear of taking the disease by breathing the germs in the air. Furthermore, the cholera germs do not produce spores or seeds. Reproduction is effected by rapidly progressing physical extension.

It has been found impossible to cure cholera when at its best, for under whatever treatment tried, nearly one-half of those attacked die. It is about as hopeless to expect to find a drug or nostrum which can go through the process known as "curing cholera," as to find a drug which can cure a man who has taken a dose of arsenic. Cholera once thoroughly established, drugs are of little avail. So said a prominent physician of England, and this statement but emphasizes the importance of all preventive measures.

In the present state of medical knowledge and sanitary science, cholera can be reduced to one of the least dangerous of maladies, instead of being one of the most dreaded. In theory, it is possible to eradicate Asiatic cholera from the face of the earth, by thorough disinfection.

The most important matter is the establishment of a system of civic sanitation which shall have for its object the prevention of an outbreak of cholera. Cleanliness is the one great safeguard against this enemy of mankind. Its victims are chiefly those who are already in an unhealthy condition or in unwholesome surroundings. If we put the surroundings in good order, but more than all, if we put ourselves in a thoroughly sanitary condition, we can defy the foreign plague.

A healthy stomach has the best guard against the cholera bacillus in the acid condition of the gastric juice. The more effectually to secure this action, large quantities of fluids, even water should not be taken with the food. By swallowing a large amount of liquid at once, part of the contents of the stomach will immediately pass the pylorus, and thus, even provided there were germs in the stomach that would have been destroyed if allowed to remain in contact with the acid of the gastric juice, they may be passed on to begin the work of destruction.

All agree that it is of the greatest importance to treat the first symptoms of looseness of the bowels, and in this treatment the usefulness of acid astringent drinks is most valuable. The bacteriologist finds that the healthy normal gastric juice of an animal's stomach will quickly destroy the cholera germ, even when literally fed on the same. Therefore he says: "Let each individual quarantine his own system, by keeping it clean and healthy at all times. Avoid stimulants, narcotics, dietary excesses and dissipation. Don't overwork."

Quarantine has been aptly described as an elaborate system of leakiness. If complete, it would be impossible for a commercial country, and if incomplete, it gives only a false security, as all foreign and continental experience thoroughly proves. The custom comes down to us from ancient times, and had its origin in the fears of the superstitious.

These barbarous regulations are still observed in many European countries, and our experience in New York harbor last autumn was more worthy of the Middle Ages than of the nineteenth century. The futility of such measures is shown by the complete system of isolation enjoined by the Chinese, and yet in no country are destructive epidemics more common. On the contrary the British have almost no quarantine, and at the same time are more exposed by their intimate commercial relations with the rest of the world than any other nation, yet last summer, while we were wildly excited over the matter, the English were more concerned about cleanliness than quarantine. The commercial interests of that country have given wisdom to their manner of dealing with infectious diseases of foreign origin, and the result has been the reduction of quarantine to its simplest form, with special attention to the sanitary condition of seaports, cities and towns.

England has expended, within the last fifteen years, about \$450,000,000 in local hygienic improvements, exclusive of a large amount of money spent by the Government to supplement the efforts of the local boards. The fact that last year that country was practically free from the disease, and that there was scarcely any interruption of travel or traffic, serves to show that sanitary measures are of more value than all else beside.

The cholera germ is not the most important factor, but is rather the incidental cause. The question of prime importance is the sanitary condition of the individual. The introduction of a person infected with cholera into a filthy town is like bringing a match into a powder magazine, but there would be no explosion unless the powder was there ready to explode.

Therefore, the most effective means to prepare our people against an epidemic of cholera is an enforcement of all sanitary measures, chief among which is the establishment of large public Turkish baths, which I had the honor of advocating before this body in a paper read last year. In no other way could public funds be applied where so much positive benefit to the whole community would be derived, nor could wealth in any way so completely honor itself as by entering upon large enterprises of this kind. By so doing we would establish a higher standard of health in the community, and not only would the poorer class be less liable to an invasion of the cholera, but of all other filthy diseases as well, such as diphtheria, etc. One of the most effective quarantine measures would be a large Turkish bath, where every immigrant could be thoroughly cleansed, completely disinfected, and his clothing and personal effects sterilized.

Let the people understand that the cholera is non-contagious. The atmosphere is not permeated by germs that endanger health; in fact the air may be thrown out of consideration almost entirely. The source of danger is the food and water that have been contaminated by want of attention to the gastric and alvine discharges of the sick, or to the careless handling of the bedding and linen that have been soiled by them. It is not so much the dirt of the street or the emanation of the sewers as the filthy people themselves that generate disease. The most injurious thing that can be done with cholera excreta is to dump it into the sewage to pollute the rivers of

any town. As it is at present, a large river in a city is an active element in the distribution and propagation of contagion, and the surest prevention of cholera is to burn or otherwise consume all sewage, instead of dumping it into the waterways. Strict attention to cleanliness is of the greatest importance in such cases, and renders cholera no more dangerous than a case of typhoid fever.

In London, during the year 1866, it was found that one family that had escaped from Egypt to dwell on the banks of the river Lee, from which the supply for East London was drawn, so contaminated the water as to produce an epidemic which carried off 6,000 people. The trouble in Hamburg last year, arose from the pollution of the river Elbe, from which the water supply of that famous city was drawn. Seven thousand victims in one month was a fearful retribution for the sin of neglect. The *Indian Medical Gazette* of May, 1887, reports an outbreak of cholera on board a ship at Calcutta, from milk supplied by a native. This milk was proved to have contained 25 per cent. of water from tanks contaminated with choleraic matter. No more cases occurred when the supply of milk was stopped.

Thus it is apparent that the most perfect personal defense against bacteria of all kinds, but particularly of cholera, is a vigorous digestion in a well-conditioned body, and the one fluid that is absolutely fatal to the bacillus of cholera, is healthy gastric juice. Furthermore, it would seem from a series of experiments on themselves, conducted by Prof. Pettenkofer and Prof. Emmerich of Germany, wherein each swallowed 1 centimeter of fresh culture of comma-bacillus, direct from Hamburg, that measures directed against the germ itself, such as quarantine, disinfection, etc., were less important than attention to hygienic conditions, diet and personal surroundings.

This most desirable consummation is to be attained by the action of heat, through a process that commends itself to every thinking mind, and is at the same time both pleasurable and invigorating. The highest medical authorities in this and other lands have given their fullest indorsement of its use and advantages. It has stood the test in several previous epidemics with eminent success. The great need of our country is large public establishments, where the people can resort at all times, and by a complete course of sanitation ward off all danger of an epidemic.

It is as a preventive that the great value of heat will be demonstrated, and the treatment that strives simply to augment in every way the vital resistance of the system to the successive invasion of choleraic poisoning is what we would most seriously urge. Hot baths, combined with absolute rest of the body should be availed of at the earliest moment.

That heat has manifold uses and confers countless benefits, all will admit. Its effects are apparent throughout the world, but none are of greater service than those directly applicable to the human body. Heat comes directly as well as indirectly from sunlight, which is itself but an electric force. There was a time when mankind worshiped the sun. Through heat we live, move, and have our being; without heat we die. While it is so powerful an agent in health, it can not be thought strange that it is equally powerful in disease, whether as a preventive or cure. Heat purifies the air that we breathe,

the water that we drink, the food that we eat, and thus becomes the best and most important disinfectant. Through the medium of the Turkish bath, which is found to be the most perfect form of administering heat to the human body, a record has been made that is astonishing to all who are not familiar with its practical working. The experimental stage has long passed.

Our food and drink are rendered both more palatable and germ proof by the action of heat. We can rely perfectly on heat as a means of sterilization. The germ can not live in food that has been thoroughly cooked, nor will it survive in water, milk, tea or coffee, that has been on the fire long enough to boil. Heat is also death to the cholera germ, if applied in air, steam or water.

Surgeon General Sternberg says that free exposure to air and sunshine is one of the most reliable methods of disinfecting articles which have attached to them the cholera spirillum. Its low death point which he places at 125.6 degrees Fahr., justifies us in giving heat the first place as an agent for the destruction of pathogenic microorganisms. Ten minutes exposure to 140 degrees may be relied on for its destruction. Milk or water heated to that point is rendered safe. The germs are also very quickly destroyed by desiccation. A weak solution of sulphuric, hydrochloric, or carbolic acid will also quickly destroy the germ.

Dr. J. T. Talbot of Boston, says: "There is no disinfectant or antiseptic equal to heat in a high degree, and in all those poisonous conditions depending on germ life the germs have ten times the resisting power of drugs, although they will in every case be destroyed by a sufficient degree of heat."

Medical Director Bogart reports that when on government vessels in Chinese and Japanese seas, in 1878 and 1885, the cholera broke out among the crew, but was promptly checked by cleanliness and heat. All clothing, bedding and personal effects were subjected to dry heat, and the ships were steamed by their own boilers.

Dr. Louisa R. Smith who was in Turkey during the epidemic last year, states as her observation that the majority of cholera cases can be saved, if proper means are used at the beginning, and that the infection is powerless among people who are careful to cook all water and food. She worked freely among the sufferers, but took only boiled water and hot food.

A Russian physician reports excellent results, in cases of pronounced cholera, from placing the patient in a bath of warm water, (99 Fahr.) As a result the vomiting ceases immediately and does not reappear as long as the patient remains in the bath, which ought to be at least half an hour.

According to Dr. Mariano Semmola of Italy, the sheet anchor of physiologic treatment is by means of complete fasting from the very moment the smallest manifestations of diarrhea appear, to be continued at least twenty-four hours after favorable reaction has set in. First in order of treatment comes hot baths, given at 100 to 104 degrees Fahr., and repeated as occasion requires. He states that the favorable moment for the hot baths is the first stage of the disease, before the algid period has begun, or when the patient commences to feel a sensation of uneasiness in the epigastrium, with or without vomiting. He further says that he has seen hundreds of cases

where the simple diarrhea, which had been obstinate and persistent for several days, and which would later on no doubt have developed into a regular attack of cholera, suddenly disappeared after one or two hot baths followed by abundant perspiration. . . . The return to alimentation ought to be made with the greatest prudence, as the smallest error may be fatal. Milk, in small doses, is the preferable form of food when it becomes necessary to recommence alimentation.

The bath was a religious and civil law of the Hebrews. During the epidemic last year in Russia, an investigation was made to ascertain the mortality among the Jews, and it was found to be only forty victims out of a total mortality of nearly a quarter of a million. This fact is a most emphatic comment on the Mosaic laws of cleanliness given that people over two thousand years ago.

A man in England once treated cholera patients by wrapping them up in blankets and placing them before a hot fire, and he claimed to cure every case he undertook. Mr. Urquhart, during an epidemic in Turkey, subjected every member of his household to hot air treatment daily, with the result of complete immunity, while deaths were constantly occurring in his immediate vicinity. During the prevalence of cholera in Cork, Ireland, some years ago, the men employed in cleaning out the brewers' vats wherein was heat sufficient to cause profuse sweating, were free from the disease, and the other workmen in the establishment petitioned to be put at that work.

What more fitting than the use of heat for the cremation instead of the burying of the cholera corpse. It has the sanction of the highest authorities, and all sanitarians recommend it. This is complete sterilization of the dead body. Virchow's advice as to the best factor in the prevention of an epidemic and in the destruction of any contagious carrier, is "*Heat or Cremation!*" This has been successful wherever tried.

Over thirty years' experience in the use of heat as a remedial agent, has demonstrated that all diseases of a diarrheal nature are quickly controlled by its proper use, and during the summer of 1865, when cholera was with us to a limited extent, many cases of painless diarrhea were at once corrected by the action of the Turkish bath.

Thus fortified both by theory and experience, we can but conclude that by no other means can one so thoroughly protect himself against the cholera, as well as against all other diseases, as by the frequent use of a hot air bath, otherwise called the Turkish bath.

DIPHThERIA: ITS SPECIFIC DIAGNOSIS.

A Paper read before the Mississippi Valley Medical Association, at Indianapolis, Ind., Oct. 4, 1893.

BY J. C. CULBERTSON, M.D.

PROFESSOR OF THE PRINCIPLES AND PRACTICE OF MEDICINE, CINCINNATI COLLEGE OF MEDICINE AND SURGERY.

A disease which our National census tells us has a rating as third in the mortality tables of our country is always worthy of profound consideration.

Diphtheria is a disease of peculiar interest, because of its singularity in being more treacherous and insidious in its manifestations than any other disease that is met with by the practitioner of medicine, simulating somewhat the Irishman's flea, or the

thimble rigger's paraphernalia, in which you seemingly see it, and then you don't see it. It is no unusual thing for the most acute diagnosticians to err by mistaking a case of diphtheria for a simple follicular tonsillitis, or a follicular tonsillitis for diphtheria, while papers and discussions without number on the diagnostic differentiation between diphtheria and non-infectious membranous croup have occupied very many hours of precious time at our medical society meetings.

This continuous uncertainty of diagnosis has caused some excellent practitioners to adopt a pernicious habit of diagnosing and treating all cases of sore throat, whether simple or malignant, as if they were true diphtheria. This might seem to be a safe practice, which is not only bad, but reflects very discreditably upon the diagnostic attainments of the physician who pursues this unwarrantable course. Such a method of procedure may seem justifiable as being a safe one to pursue, in that it is sure to afford favorable treatment, even if the case is only tonsillitis. True, a treatment designed for diphtheria may cure a tonsillitis, but inestimable harm may have been done in causing an unnecessary alarm on the part of the patient's family, and the disagreeable inconvenience that accompanies an isolation of the patient and quarantining of the family, to be followed by the mockery of a disinfection of non-infected apartments, and perhaps destruction of clothing and furniture. So great is the evil attending a safe diagnosis of this character. Furthermore, the Health Office is led astray and official reports made to report falsely. On the other hand, a case of diphtheria diagnosed as a simple tonsillitis may be the cause of breaking up a school or produce an epidemic, with an indefinite amount of sickness and many deaths, in illustration of which the following circumstances came under my observation:

In a seminary patronized alike by day and boarding pupils, a day scholar came to the school having a sore throat, seemingly not severe enough to require professional attention or to keep the child from school. A class-mate sitting near her contracted a severe diphtheria from that apparently innocent and simple sore throat, and which was quickly recognized by an attending physician. At once this patient was removed to the near residence of her maiden aunt, who was a lady fifty years of age and not very robust in health. Within three days this lady contracted diphtheria from her niece, and was so overwhelmed with the poison as to die after an illness of only four days, of what I believe to have been a heart paralysis. In each of these two cases, aunt and niece, there was the characteristic exudation plainly visible in the throat, and there was not discoverable any other source or cause of the infection of the niece than the one named.

Here was a progressive march of but two steps from a case so apparently benign in character as to be regarded as only a sore throat from cold, to a display of disease of the most malignant type, followed by death. The length of time from the contagion of the second case to the fatal termination of the third was but one week.

This narrative is not unlike that which might be told by almost any one present as reflecting a more or less similar experience, and is only told to illustrate the necessity for a correct diagnosis in all cases of sore throat, particularly in cases of children.

It is well known that the visible appearance of the throat does not always indicate the presence of diphtheritic membrane or exudation when true diphtheria is present, for this exudate may be found only in the posterior nares, the fauces, or some location entirely out of sight without the skillful use of a laryngoscope, and even this instrument may not reveal its presence. Hence our reference to diphtheria as an exceedingly insidious and treacherous disease. We do not, with the ordinary visual means of diagnosis, always know just how and where to find it.

Not long ago science came to our aid, and the presence of what is now known and designated as the Klebs-Löffler bacillus is regarded and recognized as characteristically pathognomonic of the disease. This discovery is of inestimable value; but, unfortunately, the ability to make a bacteriological culture and microscopical examination is not possible for the general practitioner of medicine, who is actively engaged in business. And, furthermore, it is no disrespect to say that many practitioners are unqualified to make such examinations, as the whole science of bacteriology is a growth of the last ten years. So that it may be truly said that only a few of our young members have had the advantage of such a training in special laboratory courses as to enable them to do this invaluable work when called upon.

To meet the situation and the exacting conditions required in order to utilize the science of bacteriology, the New York City Board of Health has hit upon a most admirable plan for effecting this purpose, in which it has undertaken to provide laboratory facilities for all practitioners of medicine in that great city, and to do it free of charge to the physicians. So that all the doctor has to do when called to a case that is suspicious is to rub off from the throat and fauces some of the visible secretion, by means of a swab of cotton, and transmit it at once on a culture-medium, that is provided by the Board, to certain drug stores, which are recognized as official depositories for this purpose, and having a direct connection with the special laboratory of the Board, where examinations are conducted. This system is so perfect that within less than twenty-four hours the doctor can ascertain (by telephone) the true character of the secretion he has sent for examination. If his diphtheritic suspicions are confirmed, the necessary prophylactic precautions may be continued.

This plan has been so successful in its workings in New York as to call forth the highest encomiums of praise. Within a period of three months there were examined in the New York Board of Health's laboratory 431 cultures, obtained in the manner described, and there was found the true diphtheritic or Klebs-Löffler bacillus in 301 cases, and what is recorded and reported as false or non-infectious diphtheria in 130.

What a world of satisfaction is revealed in a report like this, and what a deal of success in treatment and in the use of prophylactic measures must have followed this admirable plan of procedure! Yet, further, it inferentially tells us in unmistakable language that every city and county town should have connected with it a bacteriological laboratory, having facilities to take all cultures sent to it for examination, and make early and reliable reports to the physician for whose information the examination is made. Such examinations would be invaluable in

all suspicious cases, whether supposed to be diphtheria or some other infectious disease. In fact, the utility of these convenient county and city laboratories could be extended in application to agricultural chemistry. Furthermore, such little laboratories conducted in all our cities and county towns would be of untold value to the world. We should never forget that Jenner and Koch were both country practitioners of medicine at the time they made their scientific observations that have been of such incalculable benefit to our race.

The one purpose of this paper, more than all else, is to direct the attention of the members of the Mississippi Valley Medical Association to the great advantage to accrue to themselves and to the people by the adoption of the suggestions made, and which are believed to be applicable in every city and county town. For it is only by the adoption of some such means as that made use of by the New York Board of Health that the general practitioner can have the benefit of cold science in the making of a diagnosis in cases of suspicious sore throat. Further benefits to be derived from the establishment of small local laboratories might be spoken of as collateral to those mentioned, but the primary purpose, and the one to be most quickly appreciated by the people, will be in its enabling every physician to enjoy the benefits of a sure diagnosis in incipient and doubtful cases of infectious diseases.

BOOK NOTICES.

Transactions of the American Surgical Association. Vol. XI. Edited by DeFOREST WILLARD, M.D. Philadelphia: W. J. Dornan, 1893.

The present volume includes papers by Prof. Senn on direct fixation of the fragments in compound and ununited fractures by the bone ferule, an entirely new method; a paper by Prof. John Collins Warren, on "Hypertrophies and Degenerations of Ciacrices and Ciactrial Tissues," a paper on the "Surgery of the Gall Bladder," by Maurice H. Richardson, M.D.; a paper on the "Surgical Treatment of Cervical, Thoracic and Abdominal Aneurism," by Prof. Chas. B. Nancrede; a contribution to the "Surgery of the Rectum," by Arpad G. Gerster, M.D.; a "Report of a Case," by Prof. Roswell Park; a paper on the "Surgery of the Prostate," by Prof. J. William White; a paper on the "Bacillus Coli Communis," by Prof. Roswell Park, another case report by the same author, and an article by the same on "Sarcoma of the Tongue," a paper on "Retro-Pharyngeal Growths," by J. Ewing Mears, M.D.; a paper on "Operations for Appendicitis without removing the Appendix," a report of ten cases of "Ankylosis of the Elbow Joint," by Prof. J. S. Wight, and papers by Drs. P. H. Millard, S. J. Mayer, J. McFadden, Gaston, H. L. Barrall, and A. B. Miles.

These papers have been generally published and are doubtless familiar to our readers of *The Doctor*. The volume is well printed and carefully edited.

A Treatise on the Science and Practice of Midwifery. By W. S. PLYMOUTH, M.D., F.R.C.P., Professor of Obstetric Medicine in King's College, London; Examiner in Midwifery to the Universities of Cambridge and London, and to the Royal College of Physicians. Sixth American from the eighth English edition. Edited, with additions, by ROBERT P. HARRIS, M.D. In one octavo volume of 697 pages, 217 engravings and 5 plates. Cloth, \$4.00; leather, \$5.00. Philadelphia: Lea Brothers & Co., 1893.

It is like carrying coals to Newcastle to commend a book to American readers that has already passed through five

editions, and we can only say that it bids fair to be as popular as its predecessors. The author has thoroughly revised this edition.

The principal changes are the results of the statistics of the Porro-Cesarean and Sigaultian operations. The editor has "abandoned the term *laparotomy*, and the prefix *laparo*, as applied to abdominal surgery, and not to flank incisions, and the term *ecliotomy*, and the prefix *eclio* substituted for them." The American editor has also striven against the tendency of the author to favor craniotomy.

The publisher's work is all that could be desired for a text-book of this character.

Clinical Gynecology: Being a Hand-book of Diseases peculiar to Women. By THOMAS MORE MADDEN, M.D., F.R.C.S. Ed. Obstetric physician and gynecologist, Mater Misericordiae Hospital, Dublin, etc. With 250 illustrations. 80 cl. pp. 561. Philadelphia: J. B. Lippincott & Co. 1893. Price, \$4.00.

Dr. Madden who is well known in America, has produced a book that is at once pleasing and instructive. The style is attractive, and the author has taken occasion to incorporate in the treatise much that he has gleaned in his long service at the Mater Misericordiae Hospital.

The American gynecologists receive full credit for their share in bringing the science of gynecology to its present high position.

In regard to electrolysis for fibro-myomata, the author regards it as sub judice. While in twenty cases he has seen a cessation of the bleeding, he has not seen complete subsidence of the tumor in any case.

The author's conservatism leads him to doubt whether hysterectomy should be practiced for the cure of fibroids, when as is well known, the active existence of the fibroid is limited. On this topic he quotes in full from Dr Mundé of New York, with entire approval. But it is well known that many changes of opinion have occurred in the last decade upon that subject.

The volume in spite of the evident ignoring of European Continental literature, is a valuable and welcome addition to the surgeon's library.

Anæsthetics and Their Administration: A Manual for Medical and Dental Practitioners and Students. By FREDERICK W. HEWITT, M.A., M.D., Cantab. Anaesthetist and Instructor in Anæsthetics at the London Hospital; Anaesthetist and Lecturer on Anæsthetics at Charing Cross Hospital; Anaesthetist at the Dental Hospital of London and at the National Orthopedic Hospital. Cl. pp. 357, price, \$3.26. London: Charles Griffin & Co. 1893.

This work is a systematic instruction book for those practitioners and students who wish to learn the practice of the administration of anæsthetics, and as well a reference book in doubtful cases. The book is divided into four parts; Part One is devoted to "Preliminary Considerations," which includes a discussion of the properties and impurities of the different anæsthetics; the condition of the patient; the nature of the operation for which required; the selection and method of its administration; and the preparation of the patient.

Part Two, The methods of administration of each variety, separately considered.

Part Three treats of the management and treatment of accidents, and

Part Four of the condition of the patient after operation.

This book is extremely useful and is one of the few that is really called for by the necessities of the times.

Syphilis: Its Treatment by Intra-Muscular Injections of Soluble Mercurial Salts. By EDWARD COTTELL, F.R.C.S. Eng., Surgeon (out-Patients) London Lock Hospital, etc. 16 mo. cl. pp. 26. London: John Bale & Sons. 1893.

In this little book, the author advocates the use of sozin,

odol of mercury, with iodid of sodium. The following is his formula:

Soziodol of mercury 5 grs.

Iodid of sodium, 10 grs.

Distilled water, 200 min.

10 to 15 minims for an injection.

The patient should receive an injection about once a week for about six or seven weeks or until all skin and throat manifestations have disappeared, when once a fortnight will be found sufficient for another three or four months. After this, once a month will suffice.

A Practical Treatise on Diseases of the Skin: For the use of Students and Practitioners. By J. NEVINS HYDE, A.M., M.D., Professor of Dermatology and Venereal Diseases in Rush Medical College, Chicago. New (3d) edition. In one octavo volume of 802 pages, with 9 plates of which 3 are colored, and 108 engravings. Cloth, \$6; leather, \$5. Philadelphia: Lea Brothers & Co. 1893.

This popular text-book, as will be seen, has now passed to its third edition. Thirty-five new diseases are mentioned in this that were not treated of in the former editions. The systematic arrangement, clear descriptions and conciseness of statement which have made the work a favorite in the past are still conspicuous.

The author adheres to the classification adopted by the American Dermatological Association, while at the same time he admits that no classification yet proposed has met with general acceptance. The nomenclature is, however, more logical and complete than that in the Nomenclature of the Royal College of Physicians, which is daily growing more and more behind the age.

The metric system is used throughout the book, not, however, to the exclusion of the old system, and the latest investigations have been incorporated.

NECROLOGY.

Dr. D. M. Carter of Modoc, Ind., died October 14.

Dr. James S. Carson of Webster, Pa., died October 17.

Dr. J. D. Arrington of Hartsboro, Ga., died October 16.

Dr. James Henry Bodge of Newton Centre died in Boston, October 19. He was the son of Noah and Lydia C. (Mann) Bodge, and was born at Boston, June 26, 1841. He studied medicine at the Harvard Medical School, graduating in 1867.

Dr. P. F. Hulshizer, a resident of Stewartsville, N. J., died October 22, at the Roosevelt Hospital, New York. He was a member of the Presbyterian Church at Stewartsville. Deceased was about sixty years of age and is survived by his wife, one brother and two sisters.

Dr. Charles H. Fisher, President of the State Board of Health of Rhode Island, died at the Continental Hotel, Buffalo, N. Y., at 2 o'clock October 21. Dr. Fisher was 72 years of age; he had stopped off at Buffalo en route home from the World's Fair and attendance on the Health Congress. He was taken ill on the train. His illness developed into pneumonia which, owing to his advanced age, made rapid progress, early showing signs that it would result fatally.

Dr. A. W. Heise of Joliet, Ill., died October 22, aged 70 years. He was the oldest and best known man in his profession in the State. He was born in Bramsche, Hanover, receiving his education in the universities there. He was house surgeon in the Marine Hospital in 1857. He served in the army as Surgeon of the Twentieth Illinois Regiment, and on the last call as Surgeon of the One Hundredth. After Murfreesboro he was appointed Brigade Surgeon. After Chickamauga he was appointed operator of the brigade and then Inspector of Hospitals and Consulting Surgeon of the corps. In 1872 he was appointed prison physician at Joliet, holding the position many years. He leaves a wife and son with a large estate.

Journal of the American Medical Association PUBLISHED WEEKLY.

SUBSCRIPTIONS, EDITORIAL, AND CIRCULATION DEPARTMENT,
100 N. ANCON, IN. AGENCIES: ALL BOOKS AND PAPER SUPPLIES,
SINGLY COPIES, AND THE JOURNAL, FOR THE YEAR, 1893.

Subscriptions may begin at any time, and be sent to
THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
100 N. ANCON, IN. CHICAGO, ILLINOIS.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or County Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Executive Association, Dr. Richard J. DUNGLISON, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars in advance and subscription for THE JOURNAL, and to appear as a delegate at an annual meeting of the Association, or, if necessary to obtain membership, on receipt of the above and the weekly JOURNAL of the Association will be forwarded regularly.

All members of the Association should send their Annual Dues to the Treasurer, RICHARD J. DUNGLISON, M. D., Lock Box 1274, Philadelphia, Pa.

SATURDAY, NOVEMBER 4, 1893.

THE ARMY AND METEOROLOGY.

Under this heading, a recent editorial in an army journal abstracts the facts detailed in a paper by MAJOR CHARLES SMART, "on the connection of the Medical Department of the Army with the development of meteorological science in the United States," read at the Congress of Science in Chicago, Ill., in August last.

"The credit for instituting the Army meteorological service has been given to GENERAL JOSEPH LOVELL, Surgeon General of the Army, who in 1819 directed surgeons at military posts to furnish quarterly reports of weather; but DR. SMART has found from the records that DR. JAMES TILTON of Delaware, a Revolutionary War surgeon, was the first to suggest a diary of the weather in 1814. He was occupied at the time on the Northern frontier, looking after the interests of the sick and wounded. While DR. TILTON suggested the system he was interrupted in carrying out his idea by the war with Great Britain, and it was left to DR. LOVELL to take up the suggestion and develop its usefulness. In 1826 the first results of this work were given in a register, prepared under the direction of DR. LOVELL. There were eighteen points of observation, including Washington, at that time. In 1840 another publication on the subject was issued, and in the same year an enthusiastic meteorological scientist named ESBY was appointed to collate material on this subject. He established a voluntary system of observation and sought to develop the phases of storms. His first report contained twenty-nine beautifully engraved charts, illustrating the weather of the previous three months. DR. SMART says the merest glance at ESBY's charts demonstrates the fact that telegraphic communication was the only thing wanting to enable that enthusiast to plan the very weather service that we have at the present day. ESBY's work resulted in the detail of a board of officers to formulate directions for making observations. Invitations were given to colleges and students of meteorology to cooperate with the department, and an officer was detailed to give his chief time to the subject.

It was in this work of the Army Medical Department that GENERAL ALBERT MYER, then an assistant

surgeon, had first been employed as a meteorological observer. He had been appointed in 1844, assigned in 1850 to become the Signal Officer of the Army. During the war these surveys and transmissions of information regarding the movements of the enemy's troops absorbed all the energies of the newly-formed corps, but at its close, in 1866 GENERAL MYER had established a signal corps with himself at the head, and with the recollection of the Medical Department's meteorological work and the suggestions of ESBY before him, secured authority in 1870 to undertake the observation of storms and the prompt signaling of their approach. The observations were reported by telegraph to Washington, and the complete observations were plotted on a map after the fashion of ESBY's early charts. "MR. ESBY knew how the storm had traveled; GENERAL MYER knew how the storm was traveling." Since 1874 all meteorological reports from Army medical officers have been turned over to what is now the Weather Bureau, and to this day that bureau is not wholly independent of the officers whose labors in the past have done so much to establish it. There are many parts of this vast country occupied by military posts where no station of the Weather Service has been established, and at these places, some fifty in number, the medical officers keep up their observations as their predecessors did in 1814, when the first order for a weather diary was issued; and DR. SMART rightly remarks, "long and faithfully have the medical officers of the Army obeyed that order, and with honorable pride they can point to the results which have been achieved."

THE VERMONT STATE MEDICAL SOCIETY.

This Society lately held its eightieth annual meeting at Rutland. It was largely attended, and made prominent by the number of new members who joined. There are about four hundred and fifty regular practicing physicians in the State, two hundred of whom are active members of the State Society. Great efforts are being made to have every physician in the State join.

The Secretary, DR. HAWLEY of Burlington, in his admirable report, after calling attention to the needs and advantages of an active membership in the State Society, refers to the National Association as follows: "I feel it a duty to call attention to the AMERICAN MEDICAL ASSOCIATION, as the great leading Society of this country; one that we should support in every way with hearty zeal and interest. Its officers, JOURNAL and editors are representative men, whose work we should be familiar with. We should join as members and receive THE JOURNAL, and thus keep in touch and sympathy with medical progress all over the country. I urge every member of this Society to join this Association; I will receive the membership fee of five dollars, from all who are in good standing with our Society, and transmit it to the secretary. You will receive THE JOURNAL weekly for one year. I am sure you will profit very largely by its weekly visits, and have a permanent interest in

a National organization that aims to help and assist every medical man in the country."

The number of papers read at this meeting was larger than ever before, and some of them of great interest. It is a curious fact that consumption appears to be the most prevalent disease in this mountain State. Fifteen per cent. of all deaths come from this disease. The Vice-President's address, (DR. BREWSTER) was devoted to the various plans of treatment found valuable. Drugs were considered of secondary importance to general hygienic measures. Cod liver oil and creosote were used with good effect as adjuvants in treatment.

Much importance was given to the communication of the consumptive bacilli by dried sputa. The great necessity of destroying the sputa by fire was urged, and cases were mentioned of contagion from neglect of this measure. DR. LINLEY of Burlington, urged that the diagnosis of consumption could be made by every physician, by the microscope, with absolute certainty, and by little practice. He gave a lantern exhibition of photo-micrographs of the consumption bacilli in various stages.

The President, DR. WILDER, gave a very thoughtful address, on medical ethics and duties. The two prize papers were on "Septicemia" by DR. SHERWIN, and "Peritonitis" by DR. POXI.

It is a fact of considerable interest that the profession in this State have more than usual self reliance and independence of character. Living in valleys, and on hillsides widely separated by high mountain ranges, they are from necessity obliged to do all sorts of medical and surgical work, often alone and without aid or assistance. As a result, they become very practical men, who are obliged to both think and act quickly and correctly. Dartmouth College on the east side, and Burlington University on the west side of the State, are both excellent medical schools which draw largely from these mountain villages, and send back many clear practical physicians.

It is also pleasant to note that the practice of medicine has in this State retained something of the old-time chivalry and respect which followed the family doctor half a century ago. The physician in these mountain villages is yet the central oracle and authority, and moves about in a circle of devoted patrons, as both healer and teacher.

EXHIBIT OF THE ILLINOIS STATE BOARD OF HEALTH.

The exhibit of the Illinois State Board of Health in the Section of Hygiene in the Columbian Exposition, consisted of eleven maps and twenty diagrams, showing a graphic presentation of the relations between climate, topography, population, water supply, sewerage, etc., to the prevalence and causation not only

of typhoid fever, but the zymotic or preventable diseases generally. They are the results of an investigation into the epidemic of typhoid fever of 1891, and include the years 1890, 1891 and 1892. There are six mortality maps, and on the margins are explanatory notes, with the death rates per 1,000 of typhoid fever and other zymotic diseases. Map No. 7 is a population map, and on it is presented the influence of density upon life, and to a great extent the conditions under which people live. Map No. 8 illustrates the water supply system of Chicago and the points in Lake Michigan at which water was taken. Maps Nos. 9 and 10 show the sewer system and the contour of the site of Chicago. The contour map shows the ground made by filling, which is mainly in the central part of the city and along the Chicago River. There is also a chart of the water sheds, and tables giving the rainfall since 1870, and showing its effect in polluting the water supply. Also a table giving the amount of sewage pumped from the Chicago River into the Illinois and Michigan Canal since 1857, all bearing upon the causes that affect life. In some respects the exhibit is unique, and in order to be appreciated must be carefully studied, and there is no doubt that there is here laid the foundation which, if properly utilized by the health officials, will result in a decided improvement of the sanitary condition of Chicago.

THE CLOSE OF THE WORLD'S FAIR.

The object lessons that have been exhibited at the World's Columbian Exposition, have been of the greatest value to all the people of this country. Whether one attended the Exposition or remained at home, its effect will nevertheless be felt by all. Those who studied the exhibits carefully will put the lessons in practice, so far as is practicable at their homes, and thus the whole country will be the gainer.

There is one regret, that is that our noble profession, which is at once a science and an art, did not have a separate department in which all that distinctively belonged to the medical profession could have been collected and exhibited.

The JOURNAL has from time to time since July last, given brief editorial accounts of some of the important exhibits of interest to medical men, but we are fully aware that we have merely glanced at some of the more conspicuous ones. Many that deserved notice have not been reached, and others were almost buried in the great mass. We sincerely hope that our brethren in Europe may induce the management to grant them a separate department at the next World's Fair, which we understand is to be held at Antwerp.

A LICENSE TO PRACTICE MEDICINE INCLUDES SURGERY

Many are the devices resorted to for the purpose of avoiding the payment of doctors' bills. In the case of *Stewart v. Rumb*, decided by the Supreme Court of Minnesota, Sept. 8, 1893, just reported, it was contended that a person holding a certificate to practice medicine could not lawfully practice surgery, nor recover for professional services which included the performance of surgical operations. The statute under which this question was raised is entitled, "An Act to regulate the practice of medicine in the State of Minnesota," and the first section prescribes that every person practicing medicine in any of its departments shall possess the qualifications required by the Act. To persons possessing these qualifications, certificates shall be issued by a board of examiners, and these certificates authorize the possessors to practice "medicine and surgery" in that State. The terms, "practice of medicine," in the title of the Act, and "practicing medicine," in its first section, are used, the court says, in the broad and popular sense in which they are generally understood, applied and, in fact, defined. One practicing medicine, practices "the art of preventing, curing, or alleviating diseases, and remedying as far as possible the results of violence and accident." Therapy is the treatment of disease, and surgery is therapy of a distinctly operative kind. A certificate which, in fact, authorizes the possessor to pursue the practice of medicine under the conditions of such a statute as the above, necessarily includes surgery. The statute does not require a license or certificate for each department in medicine. Consequently there is nothing whatever in the point that because surgery is not expressly mentioned in the certificate, the holder thereof violates the law when performing surgical operations.

SOCIETY NEWS.

The Tri-State Medical Society.

Annual Meeting, held at Chattanooga, Tenn.

TUESDAY, OCTOBER 17—MORNING SESSION.

Meeting called to order by President Richard Douglas, M.D. Prayer by Rev. John A. Stevens.

A new constitution was read by the Secretary and made a special order for Thursday morning.

A paper by Dr. J. W. Russey of Chattanooga, was read, entitled,

TREATMENT OF PUERPERAL MASTITIS.

Compression of more general utility than any simple measure, both prophylactic and curative. To be efficient for former purpose, must be used early after labor. The chest binder of Dr. Guitéras a most satisfactory means of applying pressure. If abscess forms, pus should be evacuated early and perfectly. Washing the abscess cavity preferable to drainage tubes. If drainage is necessary, horse hair to be preferred to rubber tubing. Great care should be taken in selecting point for incision, if circumstances admit, on account of scar in cosmetic point of view.

Dr. W. G. Bogart—said that mastitis could be prevented by proper prophylaxis. The breast is liable to injury by

manipulation. He had found that by gentle massage, by which the breast is stained at the same time, that the milk is drawn out. In the early stage, try other treatment, if it does not answer, position, later, if necessary, using with period of drainage and pack with antiseptic gauze.

Dr. C. A. Ravary.—The chief point is the removal of milk, preceding this, the excessive secretion of milk produced by improper diet and the ordinary diet should be used. A liquid diet is especially improper. As soon as there is any hardness of breasts avoid them with warm enemas.

Dr. C. W. Drake, believes in medical treatment; the internal administration of bichlorid of mercury for the revulsive effect.

Dr. Richard Douglas—called attention to the anatomy of the gland. Prof. Dugas is entitled to the credit of originating the only rational treatment—that by pressure. The cause is due to the presence of micrococci. The milk forms a favorable nidus for their development.

Dr. J. A. Goggans, Alexander City, Ala., read a paper entitled,

TREATMENT OF THE DYSRAIES OF THE UTERINE APPENDAGES, AND PRESENTED SPECIMENS OF OVARIES.

These cases all come from pre-existing disease of the uterus, generally of endometritis. The treatment of this condition was given: 1, by local treatment; 2, amputation of the cervix. In all diseases of the uterine adnexa, rest and abstinence from sexual intercourse necessary. The three principal points of diagnosis in disease of the uterine adnexa are: 1, repeated attacks of peritonitis; 2, repeated hemorrhages; 3, pain. Indications for operation: 1, those attending pelvic peritonitis, accompanied by tortuous and distended tubes, which may usually be felt in Douglas' pouch, behind the uterus. This condition may be preceded by the history and symptoms of an abortion, a gonorrhea, or a tubal pregnancy; 2, the physical signs of enlarged and tender ovaries due to chronic abscess; 3, the physical signs of prolapsed and tender ovaries, accompanied by irregular hemorrhages and incapacitating pains; 4, some few cases of dysmenorrhea as the principal symptom, with a possibility of its being kept up by chronic disease of the ovaries and tubes; 5, where hemorrhage is the principal symptom, accompanied by the ordinary signs of grave pelvic disease; 6, in a few cases of general peritonitis, preceded by the symptoms of rupture of a pre-existing pelvic abscess, ovarian abscess, pyosalpinx, or abscess in the appendages developed during the progress of puerperal septicemia.

Dr. Richard Douglas—indorsed the position of the author as to the indications for operation, but each case must be decided on its own merits. Removal of appendages will not cure hemorrhage from the uterus, the proper treatment of which is division of the cervix.

Dr. P. L. BROUILLETTE—was surprised that in the discussion of the subject, electricity had not been mentioned. In his experience many of these cases had been cured by the use of this agent without cauterizing or removing the ovaries.

Dr. H. BERLIN—thought it a mistake to remove the uterine appendages for hemorrhage. Electricity applied with positive pole inside the womb will control hemorrhage by destroying the mucosa if a strong current is used. It would be impossible for the woman to conceive after this.

Dr. BROUILLETTE—objected that the faradic current could stop the hemorrhage.

Dr. BERLIN—said that his experience was only with the galvanic current which was generally used.

Dr. G. W. DRAKE—said that most physicians had not been educated so as to use electricity intelligently. It might relieve hemorrhage by reflex action.

Dr. BROUILLETTE—thought that electricity should be tried before any operation was advised.

Dr. GOGGANS—in closing the discussion, said he was not in favor of removing the ovaries for mere symptoms—only for organic disease. Most of the general practitioners who use electricity fail to make a differential diagnosis. In the cases presented, the conditions show that no cure could have resulted from the use of electricity.

Dr. R. M. HARRIS—presented a case on which he had performed tracheotomy for membranous croup.

Adjourned.

AFTERNOON SESSION.

Dr. R. M. HARRIS, Calhoun, Ga., read a paper entitled, MEMBRANOUS CROUP, WITH REPORT OF CASES TREATED BY TRACHEOTOMY.

Conclusions.—1, membranous croup is almost invariably fatal without surgical treatment, and with medicinal treat-

ment but little can be hoped for; 2, any hope for an expectant plan of treatment is nil, and for the few cases that recover without surgical treatment don't demand a consideration; 3, tracheotomy is a justifiable surgical procedure, and should be performed in all cases where our therapeutic resources have been exhausted and the patient is in danger of suffocation. In hopeless cases it affords a chance for recovery or promotes euthanasia; 4, statistics would be better if infectious diseases were eliminated, as diphtheria, etc.; 5, tracheotomy keeps the patient alive until the pseudo-membrane resolves into a mucopurulent liquid and is expectorated through the tube; 6, in all human certainty, the cases reported would have died without the operation; 7, the importance of after treatment in keeping tube moistened with lime water and the room at an equable temperature; 8, tube should not be removed until purulent nature of sputa ceases, which is about eighth day; 9, a lack of instruments is no excuse for the non-performance of the operation, as a tube only is necessary in addition to general operating instruments.

Dr. J. R. RATHMELL—emphasized the uncertainty of the diagnosis between diphtheria and membranous croup, and the almost certainty of death.

Dr. W. F. WESTMORELAND—thought the paper valuable, as it called attention to the value of surgical interference. The surgeon was generally called too late. Tracheotomy, in itself, is not a dangerous operation. He had used cords, fastened in the edges of the wound and tied behind the neck, and thought this practice resulted more favorably than with the use of the tube.

Dr. H. B. WILSON—while in the Children's Hospital, N. Y., treated twenty-two cases of diphtheria, and all of these died except two, in which tracheotomy had been performed; in another epidemic, out of forty cases, there were but few deaths.

Dr. FRANK TRESTER SMITH—thought the operation of little danger. In the statistics, death is ascribed to the operation instead of the cause for which it was performed. Where tracheotomy was performed for foreign bodies, the statistics are good. The operation adds but little to the danger of the patient.

Dr. H. BERLIN—said that experiments on dogs in which croup had been artificially produced, showed that the effects of early operation were good. There was little danger from the operation itself.

Dr. G. A. BAXTER—read a paper entitled,

TREATMENT OF THE OMENTUM IN HERNIA OPERATIONS,

in which he advocated the removal of the redundant omentum, and reported a case in which a very large hernia consisting only of omentum was removed, weighing four pounds. The omentum was shown, also the patient.

Dr. W. F. WESTMORELAND—thought the omentum could be removed in toto without effecting the patient at all, unless it might be from hemorrhage or adhesions. And if any difficulty in reducing omentum, it should be resected, or if there is any suspicion of that, the vitality is effected.

Dr. E. E. KERR—asked if the tumor was omentum, or a growth from the omentum.

Dr. R. M. CUNNINGHAM—thought the specimen looked like a growth.

Dr. W. F. WESTMORELAND—said that in cases of hernia of the omentum the tissue would hypertrophy.

In answer to a question, the patient stated that the growth had enlarged suddenly.

Dr. H. BERLIN—stated that in the cases where the omentum protruded as here, the structure was changed and it became a lipomatous growth.

Dr. J. A. GOGGANS—agreed with Dr. Berlin as to the pathology of the case. The omentum should be cut off whenever it protrudes.

Dr. RICHARD DOUGLAS—raised the point that the stump should be tied in sections, not as a whole. He preferred silk to catgut. Kangaroo was better fitted for sutures than for ligature.

Dr. BAXTER—in closing the discussion, said that the tumor was composed of areolar tissue, filled with fat. The kangaroo tendon was not too stiff for tying the stump.

Dr. J. R. RATHMELL of Chattanooga, read a paper entitled,

SEROUS AND Watery Discharges During Gestation; Their Source and Significance.

The author believes that the profession has been mistaken in accepting the theory that these discharges were from the amniotic sac. Rupture of the sac is always followed by the expulsion of the fetus. There are two other sources

from which these discharges can come: 1, from the cervix; 2, from the decidua. Cases are related from the writer's observation, illustrating all three sources.

Dr. J. B. COVY—said the discussion of this question was interesting, but not satisfactory. In one case in his experience he thought the discharge from a case of hydrosalpinx. There had been an occasional gush of water after the pregnancy.

Dr. RICHARD DOUGLAS—said that hydorrhea is frequently met with in women who have had syphilis or gonorrhea. When the amniotic sac is opened, it is followed sooner or later by an expulsion of its contents. If the fluid is amniotic, it will contain urine; otherwise not.

Dr. G. A. BAXTER—related a case in which there was a large flow of amniotic fluid following a fall. He had delivered the woman of a dead child, five months later. A partial rupture is not always followed by expulsion of the fetus. He thought a chemical analysis would determine whether the fluid was amniotic.

Dr. GEO. R. WEST—stated that a serous discharge from the cervix might be from a cancerous condition.

Dr. J. R. RATHMELL—in closing the discussion, thought that it might be possible in the early months of pregnancy that the discharge might come from the tubes. None of his cases ever suffered from gonorrhea.

NIGHT SESSION.

A paper was read by Dr. R. M. CUNNINGHAM, Birmingham, Ala., entitled,

RECENT OBSERVATION OF CROUPOUS PNEUMONIA, WITH SPECIAL REFERENCE TO PROPHYLAXIS AND TREATMENT.

This paper was largely statistical, based on an epidemic among the convicts at Pratt Mines.

Conclusions:—1, an unusually severe, general and fatal epidemic of croupous pneumonia at this prison, coming on without apparent cause and ending, practically, abruptly; 2, that more than double the percentage of negroes was attacked when compared with the whites; 3, that it affected alike all ages; 4, that it attacked the robust and strong, the same as those in more or less bad physical condition; 5, that it affected those who worked outside the same as those who worked inside the mines; 6, that an unusually large number was suddenly and violently attacked; 7, the pulmonary tissue involved; 8, the unusually high temperature, fast pulse and respiration; 9, the low mortality considering extraordinary severity of the epidemic, and the character of the patients.

For prophylaxis, disinfection was tried by washing the cells with a solution of bichlorid and steaming the bedding. The epidemic abruptly terminated, and there have been no cases since, the author believes as a result of the disinfection. Treatment consisted in the administration of stimulants and antipyretics in a majority of cases. For shock, a solution of common salt was injected hypodermically. (hypodermolysis) one dram to a pint of sterilized water. This he believes will prevent anti-mortem clots, and is a remedy for shock. Specimens of anti-mortem clots were presented. He concluded strychnin was the best stimulant; baths the best antipyretic. Quinin and antipyrin have no place in the treatment of the disease.

Dr. W. L. NOLAN—could not see wherein filling up the system with a saline solution would benefit the patient.

The statistics show the death rate to be about the same under different lines of treatment.

Dr. G. A. BAXTER—believed the remedies of the past of little value and Dr. Cunningham has made a discovery of value to the world. It was the chlorid of sodium which affected the condition of shock, not the filling the tissues with the solution.

A paper was read entitled,

SOME OF THE DISEASES OF THE FEMALE UTERUS,

by Dr. J. C. LEBLANC of Anniston, Ala. The paper related cases in which relief had been experienced from treatment, and others in which no treatment was of any avail.

Dr. J. A. GOGGANS—could not add anything to the treatment. He had used an infusion of pteris aquilina (brake fern), with good effect. We should look for disease of neighboring structures.

Dr. H. BERLIN—had tried every remedy. The only remedy in some of these cases is to produce a vesico-vaginal fistula.

Dr. RICHARD DOUGLAS—said that in the diagnosis between organic and functional disease, inspection was necessary. Urinary disorders may be produced by abnormal conditions of the surrounding structures. The treatment suggested by

Dr. Berlin is the only rational method. The relief is complete and instantaneous. The diseases can retain the incision partially. The opening is not closed for six months to a year.

Dr. J. B. S. HODGES—related a case in which the operation was a success.

Adjourned.

WEDNESDAY, OCTOBER 18. MORNING SESSION.

Opened with prayer by Rev. C. G. Jones.

Dr. W. FRANK GLENN of Nashville, read a paper on the

TREATMENT OF SUPPURATIVE

He treats the cause of gonorrhea or chancreoid, and makes direct applications to the glands. He advocates rest, the application of ice, the injection hypodermically of 1 per cent. solution of benzoate of mercury, and a compress bandage. When suppuration has taken place, free incision etc. It would be best to excise the gland as quick as it becomes inflamed. After suppuration the case must be treated as a chancreoid.

Dr. R. M. CUNNINGHAM thought it best to remove the gland and if possible get union by first intention.

Dr. J. W. HANDLEY—had not gotten good results from excision.

Dr. R. J. TRIPPE—thought the best thing to do was extirpation of the glands.

Dr. H. BERLIN—said that a clean excision was better than incision with cauterizing, etc.

Dr. GLENN—was opposed to excision except in the early stage. He does not believe in a spirating.

Dr. J. B. MCFREE read a paper on the

DIAGNOSIS AND PATHOLOGY OF FRACTURES NEAR THE ELBOW JOINT.

The elbow is a hinge joint and admits of a variety of motions. It possesses the power of extension, flexion, supination, pronation and limited lateral movement. The bones that form this joint are the lower end of the humerus and the upper ends of the radius and ulna. The humerus has an expanded termination, which forms the condyles; the ulna has the olecranon and coronoid processes; these with the head of the radius form the joint and all are liable to fracture. Fractures near the elbow joint are caused by external violence, (direct or indirect; usually direct, and muscular contractions rarely. Fractures near the elbow joint are diagnosed by the usual signs of fracture, to-wit: Loss of function, deformity, preternatural mobility and crepitation. All of these may not be present, and the diagnosis may be made by discovering the broken fragment in an abnormal position. The pathology is the abnormal relation of the bones of the forearm, solution of the continuity of the bone, formation of callus, excessive or at abnormal points, inflammation of the bone, occasionally necrosis, inflammation and supuration of the soft tissues, resulting in hypertrophy and induration, pressure or laceration of the nerves and blood vessels. As a result, the movements are impaired and the joint is stiff or awkward. Abscesses sometimes result, and sometimes paralysis.

Dr. T. HILLIARD WOOD of Nashville, read a paper on

PATHOLOGY OF THE SEQUELÆ OF PURULENT INFLAMMATION OF THE MIDDLE EAR.

The Doctor spoke of purulent median otitis, as a cause of mastoid periostitis, mastoiditis, meningitis, cerebral abscess, phlebitis and pyemia. He then gave the pathology of each and its symptoms. He urged attention to these sequelæ, that important preventive and curative treatment may be adopted.

Dr. G. C. SAVAGE of Nashville, read a paper entitled,

TREATMENT OF THE SEQUELÆ OF PURULENT INFLAMMATION OF THE MIDDLE EAR.

in which he advocated measures preventive of the sequelæ of inflammation of the middle ear, outlining his treatment: for the relief of pain, the free and frequent use of a solution of chloroform in olive oil, one dram to seven, allowing the solution to remain in the ear ten minutes at a time; when there is a discharge, the use of a warm solution of peroxid of hydrogen, letting it remain in the ear until bubbling ceases, and repeating this as long as there is any bubbling. For mastoiditis he recommended in addition to the above, and if this did not relieve, opening of the mastoid.

Dr. N. C. STEELE—wanted to impress the importance of attending to cases of suppurating ears. Most of them do not live long so that insurance companies will not insure their lives.

Dr. E. L. JONES—emphasized the fact that in the cases of

noble ear disease, death resulted frequently from a poor diagnosis was being made.

Dr. E. B. DAVIS—said that until the discovery of the subject was realized, patients would continue to die. In the thousands annually. He used chloroform in the ear, as well as with chloroform in the ear, and readers that he used it for soil for the growth of the micro-organisms and a good remedy. Peroxid of hydrogen is harmless but of no use.

Dr. W. L. WISSE—said that in mastoiditis the operation was postponed too long. In a certain class of cases, operation is necessary. Abscess of abscess of the brain ever recovered without operation. Without proper drainage the use of peroxid is dangerous.

Dr. R. J. TRIPPE—used chloroform spray in his own person with good effect. He used iodoform, nitrate of silver solution, irrigation and thorough bandage.

Dr. SAVAGE—said that if he had said nothing but to advocate the use of iodoform, he would be repaid for coming and his hearers also.

On motion the report of the Council was fixed as a special order for Thursday at 2 p. m.

AFTERNOON SESSION.

Dr. WILLIS L. WESTMORELAND of Atlanta, read a paper entitled,

TREATMENT AND PROGNOSIS OF FRACTURES ABOVE THE ELBOW.

He flexes the arm at a little more than a right angle, in a position of rest. This is the best position to prevent deformity. In fractures of the olecranon process, it is not best to extend the arm fully. He uses plaster-of-paris bandage.

Dr. G. A. BAXTER—said that there was almost always impairment of motion and deformity. He uses passive motion after a few days, extending the arm at first, later putting it into a flexed position.

Dr. RICHARD DOUGLAS—said that Baxter's position was weak in first putting up the arm in extension, later in a flexed position. Passive motion was a thing of the past. By approximating the fragments, we use the best means to prevent ankylosis.

Dr. R. M. CUNNINGHAM—believes in putting up the fracture, waiting for union and then breaking up the adhesions.

Dr. MCFREE—said that absolute rest was necessary to insure repair of the bone.

Dr. WESTMORELAND—said that ankylosis might be produced by massage in certain conditions. All who put up the limb in extension acknowledged that it was wrong by changing the position. It required more skill than most practitioners possess, to put on a plaster-of-paris bandage properly.

Dr. RICHARD DOUGLAS delivered the President's Address:

RESPONSIBILITIES OF THE ABDOMINAL SURGEON.

As President, he advocated that a committee should select two or three members to write on selected subjects for the next annual meeting. He also thought it would be better if the Society would change its place of meeting annually. He emphasized the necessity of thorough training, cleanliness, proper diagnosis, and realization of the responsibility on the part of the abdominal surgeon.

Dr. W. E. B. DAVIS—thought it criminal for those without experience to open the abdomen.

Dr. C. G. SAVAGE—said this would cut off ambitious young men, as they could not have the experience without operating.

Dr. DAVIS—said he meant surgical experience, not necessarily abdominal surgery.

Dr. W. C. TOWLES—protested that it was not necessary to have experience by operating on the living subject. Post-mortems were of value.

Dr. R. M. CUNNINGHAM—said that this was a specialty and required special skill, special apparatus; in emergencies, the general practitioners should operate, otherwise a specialist ought to be called.

Dr. W. E. B. DAVIS of Birmingham, Ala., read a paper entitled,

THE TREATMENT OF STONE IN THE BILIARY DUCTS.

in which he advocated in those cases when it was difficult to remove the calculi from the common duct without incising the duct, after making the incision if it was very difficult to stitch up the duct, and if the patient's condition would not warrant a long operation, to introduce a glass tube and pack around it with iodoform gauze without attempting to repair the duct. These cases are usually in a bad condition to stand a prolonged operation.

DR. PAUL F. EVE—read a paper on

CHOLECYSTOTOMY.

and advocated the removal of the calculi whenever detected. DR. W. C. TOWNES—said that three cases where he had made the diagnosis of gall stones had been relieved by large doses of olive oil. If medicinal measures did not relieve, operation should be resorted to. He presented a patient on whom he had operated.

DR. J. B. S. HOLMES—advocated operation if medicines failed to relieve. If the tube was occluded between the stone and intestine he would use Murphy's button to produce an anastomosis between the duct and the intestine.

DR. RICHARD DOUGLAS—believes that the operation of producing anastomosis between the duct and the intestine a flimsy procedure.

DR. J. A. GOGGANS—related a case in which floating kidney had been diagnosed, but which turned out to be a case of gall stones.

DR. R. M. CUNNINGHAM—related a case where operation had been advised, but the attacks ceased after the administration of large doses of olive oil.

DR. W. G. BOGART—would operate in case of impaction. DR. G. C. SAVAGE—said that the mistake made by those who used oil was that they did not put chloroform in it.

DR. DAVIS—in closing the discussion, said that these cases do not get well, as a rule, without operation. The operation should be short or the patient will die from the shock. You can never know that the last stone has passed.

NIGHT SESSION.

DR. FRANK TRESTER SMITH—presented a case in which there had been

PROLAPSE OF THE IRIS,

which had been partially reduced by pushing it in with instruments and the reduction completed with the use of es-trin.

DR. J. W. HANDLY of Nashville, read a paper on

TREATMENT ON VARICOCELE.

The writer first speaks of the many methods and devices advanced by the medical profession in the treatment of varicocele, dividing the treatment into palliative and radical. Laid some stress upon the use of a well-fitting, properly adjusted suspensory as a most excellent palliative measure. In milder cases, besides the above, advises sound physiological advice as regards sexual habits and constipation. Mentions other palliative measures only to condemn them. Describes briefly the earliest operations by Vidal de Cassis and Sir Astley Cooper, afterwards giving at length the operations of Keyes and Bennett, the ones now generally practiced.

DR. W. FRANK GLENN—said that these cases were generally neglected, advised operation, unless very small. If left to themselves, atrophy of the testes may result. If a suspensory is used, it should be well fitted. He sees no use in excising the scrotum.

DR. J. A. GOGGANS—thought most of the cases were due to masturbation. Dr. Glenn had made a good point in not ligating all the vessels.

DR. PAUL F. EVE—said that the spermatic artery and vein should not be ligated or atrophy of the testicle would result. He believes in removing the redundant scrotum.

DR. WILLIS F. WESTMORELAND—removes the excess of serotal tissue. He expects union by first intention.

DR. R. M. CUNNINGHAM—had examined several thousand men and had found not more than half a dozen with varicocele.

DR. W. C. TOWNES—thought the condition more frequent among the wealthy, due to upholstered chairs and sedentary habits. Dr. Cunningham's cases were from lower classes. He would give tonics and use a suspensory in cases not demanding an operation.

DR. J. R. BEISER—thought Dr. Cunningham's statistics due to the fact that most of his cases were negroes.

DR. EVE—stated that a United States recruiting officer had stated that out of twenty cases examined in one day, eighteen had enlarged serotal veins. He thought his statement that seven out of ten males had a tendency to varicocele within bounds. All these were not operable cases.

DR. HANDLY—in operating, would prefer local anesthesia unless the patient was very nervous.

DR. L. B. GRADY of Nashville, read a paper entitled,

ETIOLOGY, PATHOLOGY AND PREVENTION OF OPHTHALMIA NEONATORUM.

The etiology, pathology the same as gonorrheal ophthal-

mia or gonorrhea of the urethra, being produced by the gonococci—all of these cases are produced by inoculation. Every abnormal discharged, toward the end of pregnancy, should be regarded with suspicion. These cases are inoculated during the washing. He recommended that the lids be washed by a 1 per cent. solution of nitrate of silver which should be left on the lid twelve seconds, after which the eyes should be washed with clean water.

DR. B. F. TRAVIS read a paper on

TREATMENT OF OPHTHALMIA NEONATORUM.

In the early stage he advises cleansing the eyes with a boracic acid solution and the application of cold water. Later the use of strong solutions (40 to 60 grs. to ounce) of nitrate of silver in the purulent stage.

DR. G. C. SAVAGE—in discussing the above paper, stated that there were cases on record where pus gushed from between the lids when they were first opened. He believed that other fluids than gonorrheal would produce purulent conjunctivitis. Crede's method is effective and apparently painless.

DR. J. B. S. HOLMES—thought the responsibility rested with the obstetrician.

DR. RICHARD DOUGLAS—said that the responsibility went back of the obstetrician; that it rested with those doctors who failed to cure their cases of gonorrhea.

DR. R. M. CUNNINGHAM—called attention to the fact that the negroes rarely were blind from this disease.

DR. W. FRANK GLENN and J. B. COWAN—thought the disease always gonorrhea of the conjunctiva.

DR. N. C. STEELE—indorsed the use of strong solutions of silver, 40 to 60 grains.

DR. J. B. S. HOLMES of Rome, Ga., read a paper on

MOVABLE KIDNEY.

Pressure on the kidney always produces nausea and faintness—this is an important point in diagnosis. If much disturbance, and kidney can not be kept in place with a bandage or an abdominal support, the kidney should be extirpated. The operation was described. We should be satisfied that the other kidney is in a healthy condition.

THURSDAY, OCTOBER 19—MORNING SESSION.

Prayer by Rev. W. J. Trimble.

On motion, that a committee of five be appointed, to whom should be referred the new constitution for revision and amendment, also the recommendations of the President and said committee to report to the Secretary, on the morning of the first day, next year, who will have changes proposed published. Carried.

Article IV of the constitution was changed so as to allow the Society to meet elsewhere.

A motion was carried that none be allowed to vote or have the privilege of the floor who have not paid their dues for the current year.

On motion, the Society reconsidered the vote to have the election at 2 p. m., and proceeded with the election of officers. The following were elected by ballot:

President—J. B. S. Holmes, Atlanta, Ga. Vice-Presidents—James A. Goggans, Alexander City, Ala.; Dan. H. Howell, Atlanta, Ga.; T. Hilliard Wood, Nashville, Tenn. Councilors—W. E. B. Davis, Ala.; G. W. Mills, Ga.; J. B. Murfree, Tenn. Secretary—Frank Trester Smith, Chattanooga, Tenn. Treasurer—W. C. Townes, Chattanooga, Tenn. Recorder—W. L. Gahagan, Chattanooga, Tenn.

The consideration of a new constitution was voted a special order of business for the third day of the next annual meeting, at 9 a. m.

On motion, the Society tendered a vote of thanks to the President for the masterly and courteous manner in which he had presided.

A committee, consisting of Drs. J. B. Cowan, W. F. Westmoreland and W. E. B. Davis, was appointed to draft suitable resolutions of thanks.

AFTERNOON SESSION.

The following committee was announced to revise the constitution: Drs. W. E. B. Davis, R. M. Cunningham, J. B. Cowan, W. F. Westmoreland, W. G. Bogart.

DR. Y. L. ABERNATHY of Hill City, read a paper on the

TREATMENT OF TYPHOID FEVER.

The author claims that it is impossible to diagnose between typhoid and continued malarial fever in many cases. He believes in an aggressive form of treatment, and advocates the use of quinin and mercury in these cases. He also relies on hydrotherapy by the Brand method.

DR. J. B. COWAN—could not indorse the use of quinin.

His sheet anchor is alcohol, using it as coal in a grate, to allow the man to burn this instead of burning the tissues. He gives salicylates in small doses—three and a half grains. He had not seen a case of typhoid fever in fifteen years.

DR. G. T. PIERCE—said that a typical case of typhoid fever was rarely seen. The treatment must be varied according to the type. In perforation, laparotomy should be performed. By using potass. bromid first, he could use quinin.

DR. REEVES—in discussing the paper, formulated typhoid fever as follows: an acute contagious febrile affection derived from an antecedent cause of the disease and depending for its communication from person to person upon the presence of a specific microorganism, which is believed to be of well-known morphological characteristics—a bacillus—and which can be cultivated outside the human body. The disease prevails less frequently in tropical and sub-tropical countries than in the temperate zone, is both endemic and epidemic in its visitations; attacks, preferably, young persons and those in middle life; is of long duration, but varying between ten and forty days beyond the prodromal period, which may cover from one to ten or even twelve days. There is profuse diarrhea, or, at least, a relaxed state of the bowels, with "pea-soup" or "ocher-colored" stools, and at all stages a marked susceptibility to the action of laxative medicine; intestinal hemorrhage in many cases, and in a few perforation of the bowels; epistaxis, either slight or profuse; tympanites, with gurgling produced by pressure over the ileo-cecal valve; dullness of hearing, with mental hebetude, or morbid vigilance; headache, disappearing during the second week; delirium, either mild or violent, with *subulcus tendinum*; rose-colored lenticular eruption during the second week, coming out in crops and disappearing in the same order; fever-curve showing steady elevation of from one to three degrees in the evening with a fall of the same number of degrees in the morning for the first four or six days, and unlike the curve of any other acute febrile or inflammatory disorder; cough and bronchial rales; singular prostration of muscular strength; early heart-failure and a dicrotic pulse. The tongue soon becomes dry, and shows, in grave cases, a brown stripe in the middle, with *sordes* on the teeth and gums; in fatal cases, death occurs during the third or fourth week, with the constant and characteristic lesion of the small intestine involving Peyer's glands; and with enlargement of the spleen. Convalescence is tedious; true relapse is not infrequent, and the disease affords as perfect immunity from subsequent attack as does scarlet fever or smallpox.

Not a New Disease.—Belief in the spontaneous origin of the disease has greatly retarded the discovery and general diffusion of correct knowledge on the subject; for, by parity of reasoning, such faith is without substantial support when the question is studied with the life history of the human race. On the other hand, the doctrine of permanency of original types of contagious diseases has, probably, as remote antiquity for its origin, as stable a foundation for all future time, and as many unanswerable arguments in its support, as the doctrine of the permanency of the different types of the human race—each type with its entirely different capacities, physical and mental, and known to have existed for at least five thousand years.

DR. P. L. BROUILLETTE—believes the cold bath the best antipyretic, prefers using first a tepid bath and reducing the temperature of the water. Quinin must be given in large amount within an hour to get antipyretic effect, as it is eliminated.

DR. WILLIS F. WESTMORELAND—said that tepid baths were less depressant than the cold baths.

DR. R. M. CUNNINGHAM said: 1, we have typical typhoid fever; 2, we have atypical typhoid fever; 3, we have typical malarial fever; 4, we have atypical malarial fever; 5, we have an unknown fever that I call continued. Baths best antipyretics. Whisky and strychnin best stimulants. Four hundred and thirty-four cases observed in four years. Eighty typhoid—ten deaths, eight complicated. One hundred and seventy-eight continued—two deaths, both complicated. One hundred and seventy-six uncomplicated fevers—no deaths. Does not believe in antiseptic treatment. As a routine treatment he uses the mineral acids.

The following resolutions were adopted:

"For five years annually the Tri-State Medical Society has enjoyed the hospitality of the medical fraternity of Chattanooga, a hospitality that is only bounded by their opportunity to share the liberality and magnificent hospitality which particularly characterizes the Chattanooga doctor. There must be something in the atmosphere or water, or more likely in the fact of this city being sur-

rounded by these grand mountains which have the effect to draw out and develop the better qualities and higher instincts that belong normally to every man's heart, and these magnificent surroundings have succeeded in developing a body of medical men that are not only an honor to the profession, but have and are now giving to this beautiful city a reputation that has become national.

The Tri-State Medical Society feels to-day that we have unlocked the cable, and from this day forward we are at one and will have our annual home in Georgia, and then, Alabama, and that we fully appreciate the sensation of a man leaving his paternal home and going out into the world to try its fortune. We fully appreciate the importance of this step, and as we leave the home nest and wander in other lands, our thoughts, our affectionate remembrance and our prayers will center here, and our thanks and gratitude and heart-wishes for the medical fraternity of Chattanooga will ever grow brighter and brighter as the years go by. We assured that in the heart of every member of the Tri-State Medical Society the memory of many kindnesses and splendid hospitality will ever remain a green spot, the memory a thing of beauty and joy forever."

DR. W. C. TOWNES read a paper entitled,

PATHOLOGY AND TREATMENT OF ANKYLOSIS.

This paper is based on the observation of cases seen during a recent trip through the region of the Alps. For treatment, extirpation of the gland is advocated.

DR. J. E. REEVES—said Dr. Townes' paper was of more than common interest, notwithstanding the rarity of the disease in this country, and fully represented the general knowledge on the subject.

The Secretary was voted a salary of one hundred dollars for the current year.

NIGHT SESSION.

DR. C. W. BARBER of Columbus, Ga., read a paper on

THE ELASTIC DRESSING APPLIED TO INCOMPLETE ANKYLOSIS OF THE KNEE.

of which the following is a synopsis:

The elastic dressing applied to incomplete ankylosis of the knee. Report of case. Description of the elastic dressing, with method of using it. Indications of treatment of such a case: 1, arrest the atrophy of the synovial membrane and restore it to its function; 2, break up existing adhesions and prevent the formation of others; 3, restore the tendons of the hamstrings to their normal length; 4, arrest the atrophy of the tendon of the quadriceps and stimulate it to antagonize the hamstrings. Conclude by showing how these indications are met better by the elastic dressing than by an operation or a fixed dressing. Query: If such dressings were more frequently applied in incipient ankylosis, would there not be a less number of cases of complete ankylosis, and still fewer radical operations for same?

DR. R. J. THURTELL—had had good results from breaking up adhesion.

DR. J. B. COWAN—said that many of those patients were neglected, and as a result there were many deformed joints.

DR. WILLIS F. WESTMORELAND—insisted on the importance of prevention. A trivial injury may result in destruction of the joint.

DR. H. BERTIN—related his experience with the

ACTION OF THE GALVANIC CURRENT ON THE UTERINE TISSUE.

The paper contains the results of experiments. A current was passed through the uterine tissue which was then subjected to microscopic examination. In one case the experiment was made on the living subject previous to hysterectomy; in other cases the cadaver was used. He concluded that cauterizing would accomplish the result much more quickly.

DR. GEO. R. WISE—said that according to experiments electricity acted not only at the poles, but also throughout the tissue.

DR. W. E. B. DAVIS—believes that electricity has its place in gynecology, but that many claim too much for it. Cauterizing is preferable, although the same result might be accomplished in many cases by electricity.

DR. J. B. COWAN—thought that current was used in a milder form than to produce necrotic tissue.

DR. W. F. WESTMORELAND—after spending much for electrical apparatus, had succeeded to let it alone in most cases.

DR. G. W. DAVIS—said that electricity had accomplished most by those who had studied the subject. It should not be condemned from the reports of those who did not understand its use.

Dr. J. P. STEWART—thought that there was no doubt of the tonic effect of electricity.

Dr. H. BERLIN—said that he only wanted to prove the microscopical effect of the current and had found necrosis. He had no effect from faradism.

Dr. J. B. COWAN of Tullahoma, Tenn., made an address on

MEDICAL ETHICS.

He spoke of the violation of the code in consultations. It is the duty of the medical societies to lift up the profession. We get legislation to protect the people and to elevate the profession so that the code could operate on the members of it. He called attention to the splendid organization of the profession in Alabama.

Dr. W. F. WISNORELAND—thought the profession had reached that point where the code of ethics as a published document should be abandoned.

Dr. G. A. BAXTER—said that a consultant could steal a patient within the code of ethics.

Dr. J. R. RATHMEL—believed in a written code. The code is a statement of the principles which are the written result of the experience of the profession.

Dr. J. P. STEWART—said the written code was of value to protect us from those who violate it.

Dr. G. W. DRAKE—said that any argument for abolishing the code could apply equally to any written law, even to the Word of God. We object to consulting with irregulars, not on account of their method of treatment, but on account of advertising.

Dr. Y. L. ABERNATHY—stated that we should follow the golden rule. A code was needed for violators of the law.

The following were read by title:

"Report of 'Psychical Science.'" Chicago, August, 1893.

Dr. JOHN E. PERROS, Cullman, Ala.

"Significance of Albumen in the Urine in Pregnancy."

Dr. E. T. CAMP, Gadsden, Ala.

On motion, it was decided to hold the next meeting on the second Tuesday in October, 1894.

Adjourned.

Southwestern Association of Railway Surgeons.—First meeting held in St. Louis, Oct. 26 and 27, 1893.

The Southwestern Association of Railway Surgeons was organized at Walnut Ridge, about 1890, as the Missouri and Arkansas Railway Surgeons' Association, afterwards changed to the Missouri, Arkansas and Texas Association, and finally to the present name, this meeting being the first under its new name. Previous meetings have been held at Walnut Ridge, Newport and Fort Scott, Ark., and one at Springfield, Mo. The organization is on the plan of the National Association of Railway Surgeons.

The meeting was called to order by the President, Dr. F. J. LITZ, and Dr. W. B. OUTTEN for the Committee of Arrangements announced that a feature of the meeting would be the holding of surgical clinics at the different hospitals, in place of occupying the entire time in the reading of papers.

Dr. A. B. SNOW, President of the St. Louis Medical Society, welcomed the Association to the city, and spoke of the importance of railway surgery and the growth of railway surgeons' associations.

The President then read his address. In explanation of the necessity of the existence of the Association, he referred to the underlying principle of all the mechanical arts—namely, the subdivision of labor. The rapid strides which the healing art has made no longer enables even the most brilliant mind to encompass the knowledge requisite to successfully cope with both disease and injury, and the subdivision into medicine and surgery was but the first step in the recognition of the fact that perfection in either means exclusive devotion to and discipline in the one. It is true the general surgeon so-called is the safer counselor and a more successful practitioner of his art than he whose attention is riveted from the first to but a single subdivision of surgery. The latter is apt to forget and overlook those general principles of surgical knowledge which

are the foundation for the successful application of our art. In the treatment of surgical affections the curative factors which determine the pathological change or the traumatic alteration of organs or members have occasioned a difference in the line of action. Tissues altered by disease offer a different resistance to the invasion of wound accidents than tissues whose vitality has been interfered with by injury. The removal of an ovarian tumor is a different kind of surgery from that which effects the removal of a crushed limb. In the one the tissues immediately concerned and the system at large have been prepared by a slow but constant alteration for the invasion of the surgeon's knife, their power of resistance has been increased. The healthy limb, suddenly crushed with its normal power of absorption and its normal nerve supply, which transmits the sudden insult and the unexpected injury with the rapidity of thought to the central nervous system presents a more dangerous field for the exercise of the surgical art.

AFTERNOON SESSION.

The afternoon session was held at the City Hospital, and consisted of demonstrations of surgical cases by local surgeons. Cases illustrating conservative surgery, were presented by Drs. W. B. Outten and W. A. McCandless.

Dr. McCandless also demonstrated a simplified method of applying plaster-of-paris jackets, adapted to the cases of injury to the spine in railway accidents, or when the usual apparatus for extension is not at hand. A piece of toweling, or any strong cloth, is stretched between two firm bodies, a few feet from the ground. Upon this the patient is laid face downward, the long way of the cloth, and extension is secured by his pulling upon the edge of cloth above his head. A plaster bandage is now applied around the body, taking in cloth and all, the cloth above and below the bandage is cut away, and the patient is ready for removal.

An interesting case of a man injured by a train three years ago, was presented by Dr. H. H. MIDD. Six months after the accident a tumor developed on the right side of the body, inside of the eleventh rib, and three inches from the vertebral column. One year later the abscess discharged, leaving a sinus. An operation for supposed necrosis of the rib opened up the sinus. Probing developed the presence of a calcareous deposit, felt about four inches from external opening. At the time of present operation, there was discharged through a drainage tube, a milky substance, found to be the contents of the intestinal canal. A tube was inserted into the stomach, into which air was forced, and a lighted match at the end of the drainage tube was extinguished by the current of air—also colored fluid pouring into the stomach, was almost immediately discharged through the drainage tube, indicating that the sinus was connected with the stomach. The operation consisted in an incision, four inches in length, from a point two inches from median line, downward and outward, parallel to lower costal margin. A soft rubber catheter inserted into fistulous tract, from the external opening, was found to enter the duodenum at about the juncture of ascending and descending colon. The hole in the intestine, large enough to admit two fingers, was closed by suture.

EVENING SESSION.

Dr. W. B. OUTTEN read a paper: "Injuries to Back Without Psychic Elements."

Dr. L. BREMER presented a paper on "Traumatic Neuroses in Court." (This paper will appear in THE JOURNAL.)

SECOND DAY—OCTOBER 27.

The second day's proceeding were devoted principally to surgical clinics at the Post-Graduate and Alexian Brothers Hospitals, and consisted of operation for removal of large lipomatous growths from the neck, by Dr. H. Tuholske, and a gastrostomy and a tracheotomy for stenosis of pharynx by Dr. F. J. LITZ.

The following papers were presented: "Report of a Case of Abscess of the Brain," by Dr. R. L. JONSTON, Rolla, Mo.; "Compression of the Brain," by Dr. J. E. Teft of Springfield, Mo.

Abstract to be furnished.

Officers for the ensuing year were elected as follows: President, Dr. C. A. Smith of Tyler, Tex.; First Vice-President, Dr. E. A. Neely of Memphis, Tenn.; Second Vice-President, Dr. W. T. Jamison of Palestine, Tex.; Secretary, Dr. J. A. Lightfoot, Texarkana, Ark.; Treasurer, Dr. L. H. Callaway, Nevada, Mo.

Place of meeting, Memphis, Tenn.

At a Business Meeting

Society held Oct. 18, 1893, at 10 o'clock, presided over by Dr. S. S. Sweet, who read a paper on "The Quack Nostrum," which was unanimously adopted.

WILLIAMS, Dr. James I., of Chicago, was elected to denounce the society, and read a paper on "The Quack Nostrum," which was unanimously adopted. Dr. Williams, a physician in good and regular standing, was elected a criminal libel, and

WHEREAS, The grand jury of the County of Cook, Illinois, brought against him, for the purpose of punishing him, a resolution, That the President of the County Medical Association, Dr. S. S. Sweet, be elected a criminal libel, and

Resolved, That no person who makes, deals in, or distributes as a cure a quack nostrum, that is to say a preparation the composition of which is kept secret, can be considered a physician in good and regular standing; but his action is *ipso facto* sufficient to work forfeiture of his membership in this or any other county medical society governed by the laws of the American Medical Association.

Resolved, That a copy of these resolutions, duly attested with the signatures of the President and Secretary, and with the seal of the Society be forwarded to Dr. Reeves, and that they be handed to the press for publication.

Signed: Dr. F. S. WILLIAMS, President.
Signed: T. B. SWEET, Secretary.

Southern Surgical and Gynecological Association.

A meeting will be held in New Orleans, La., Nov. 24-25 and 26, 1893. The program, which we have in type, we are compelled to omit this week. It will appear in our next issue.

The Idaho State Medical Society was organized at B. So. September 13, with the following officers, viz: President, Dr. W. W. Watkins, Moscow; Vice-President, Dr. F. H. Moore, Pocatella; Secretary, Dr. C. L. Sweet, Boise.

The Next Meeting of the Fox River Valley Medical Association, will be held in Aurora, Tuesday, Nov. 7, 1893. Excellent papers will be presented on modern therapeutics. Election of officers and other important business.

H. L. PRATT, Sec'y, Elgin, Ill., Oct. 14, 1893.

Iowa and Illinois Central District Medical Association.—The regular quarterly meeting of the Iowa and Illinois Central District Medical Association was held at Rock Island, Ill., Tuesday afternoon, Oct. 31, 1893. A paper by Dr. E. S. Bowman, "Prevention of Tuberculosis," was read and discussed.

G. L. EYERLY, Sec'y.

Suffolk District Mass. Medical Society.—At the first regular meeting of the season of the section for clinical medicine, pathology and hygiene of the Suffolk District Medical Society, held at the medical library, 19 Boylston Place, October 18, papers were read by Dr. George M. Garland on "Malignant Endocarditis," and Dr. G. Lieberman on "A Case of Dysphagia and Dilatation of the Esophagus." The report of the committee appointed by this section to secure from the Legislature improved sanitary legislation was received from the Chairman, Dr. David W. Cheever.

The Hartford Conn. Medical Association held its first semi-annual meeting at the Y. M. C. A. Hall at New Britain, October 26. Dr. A. G. Cook of this city, read a paper upon "Fixture in the Treatment of Fractures Into Joints," and Dr. M. M. Johnson delivered an essay upon "Surgical Diseases of the Kidneys." Dr. Henry Duntrell of New Britain, gave an essay upon the influence of the great industrial establishments on the people from a sanitary standpoint, and Dr. E. P. Swasey of New Britain spoke upon "The Wounds of the subclavian artery and vein."

The St. Lawrence Co., N. Y., Medical Society held its semi-annual meeting at Ogdensburg, October 17. Addresses were delivered by Vice-President Dr. F. F. Drury, Dr. F. H. Bridges, Dr. J. M. Mosher, Dr. R. H. Hutchins and Dr. H. S. Stilwell, Ogdensburg; Dr. John O. Rose, Rochester; Dr. S. W. Close, Gouverneur, and Dr. M. E. Smith, Colton.

The Northwestern Medical and Surgical Society

The Northwestern Medical and Surgical Society held its semi-annual meeting at Chicago, Oct. 18-19, 1893. The program was as follows: Oct. 18, 1893, 10 o'clock, Dr. J. M. Mosher, of Chicago, read a paper on "The Quack Nostrum," which was unanimously adopted. Dr. Williams, a physician in good and regular standing, was elected a criminal libel, and

Reading Medical Association.

The Reading Medical Association held its semi-annual meeting at Reading, Pa., Oct. 18-19, 1893. The program was as follows: Oct. 18, 1893, 10 o'clock, Dr. J. M. Mosher, of Chicago, read a paper on "The Quack Nostrum," which was unanimously adopted. Dr. Williams, a physician in good and regular standing, was elected a criminal libel, and

CORRESPONDENCE.**The First Professional Organization.**

CONNEC. N. Y. M. J., Oct. 20, 1893.

THE first professional organization that ever appeared at an organized meeting in the N. Y. M. J. was the "First Professional Organization," which states that the first organized professional organization was organized in 1774, and was taken by Norway physicians, who met on March 24, 1774, to discuss an advertisement of March 24, 1774, and to prepare a memorial to the General Assembly to regulate the practice of physic. It is stated that their demand was for the appointment of a committee legally authorized to examine and approve candidates, if found qualified, and that "the movement, which was in advance of the age, was negatived in the lower house." It is also claimed that this was "the initiative step in a series of efforts which have since resulted in the permanent establishment of flourishing State and National Associations, which separate the qualified physician from the 'ignorant pretender.'"

This is an interesting historical statement and, so far as it relates to Connecticut, is undoubtedly true. But it is by no means the initiative step or the earliest effort in the colonies to organize the profession or to regulate the practice of medicine. On June 27, 1700, eight years before the Connecticut rally, the following advertisement appeared in the N. Y. M. J.:

"A considerable number of the Practitioners of Physic and Surgery, in East New Jersey, having agreed to form a Society for their mutual improvement, the advancement of the profession and promotion of the public good, and desirous of extending as much as possible the usefulness of their scheme, and of cultivating the utmost harmony and friendship with their brethren, hereby request and invite every gentleman of the profession in the province that may approve of their design, to attend their first meeting, which will be held at Mr. Duff's, in the city of New Brunswick, on Wednesday, the 23d of May, at which time and place the Constitution and Regulations of the Society are to be settled and described."

"East New Jersey, June 27th, 1700."

On the day appointed July 28, 1700, a large body of physicians met at New Brunswick, formed themselves into a Society to be known as the New Jersey Medical Society, adopted instruments, assented and a constitution, and elected a president, secretary and treasurer. Regular meetings were held twice a year, the records of which are in possession of the Society.

In 1774, the Society petitioned the Assembly for an act regulating the practice of medicine, and on Sept. 24, 1772,

the act was passed. This act required an examination in physics and surgery, approved of, and admitted by any two judges of the Supreme Court, taking to their assistance for the examination such proper persons as they should deem fit, and the Court gave a certificate of examination, without which any one (except those licensed by the crown or physicians from other Colonies) practicing in the Colony was liable to a fine. It also legalized physicians' fees.

In 1774, an effort was made by the Society to procure a charter, which was delayed by the Revolution, but granted by the State in 1790. There was an intermission of the regular meetings of the Society from 1775 to 1781, because the local situation of the war rendered it dangerous for members to travel through the Colony, and because, also, many of the members took an active part in the Revolution. As soon, however, as civil government was restored, the Society convened, Nov. 6, 1781, at Princeton. The complete records of the Society have been preserved since its organization in 1766, and the Medical Society of New Jersey claims to be the oldest State Medical Society in the United States, and among the first to secure an act from its Colonial Assembly to legalize and regulate the practice of medicine. The first State law regulating medical practice in New Jersey was passed in 1783. Very respectfully,

E. L. B. GODFREY, M.D.

Cheap Colleges.

SPOKANE, WASH., Sept. 26, 1893.

To the Editor:—My article published in THE JOURNAL of the 23d inst., was not intended as an advertisement of my qualifications, which I am proud to say are as good as can be obtained in the United States, but to call your attention to the false position you are putting our really good colleges by constantly advertising inferior ones. Until within the last two years the German universities would recognize tickets for time spent in some of our best schools, but now they refuse to so recognize time spent in any of them. They say they can not distinguish between the good and the poor schools, we have so many of them. And it seems natural that they should not when THE JOURNAL do not.

I hope to see the day when a "Yankee" M.D. degree will rank with any obtained in Europe and it seems to me that one of the first steps toward attaining that end will be for THE JOURNAL to refuse to recognize in any way, any but our very best colleges and universities. We have in the United States, about one hundred and forty colleges and universities granting the degree of M.D.; probably forty of those have such facilities for teaching medicine as ought to entitle them to recognition anywhere. The others are run for revenue only, or to advertise the faculty connected with them or both, and they should be ignored by the AMERICAN MEDICAL ASSOCIATION and its JOURNAL, or if noticed at all only to call attention to the fact that they are a disgrace to the profession, and that their course does not meet with the approval of the better element of the profession here.

Yours, D. C. NEWMAN.

As this letter related to the business management of THE JOURNAL, and involved a censorship of the colleges, it was handed to one of the Trustees to look over; that officer did not return it immediately, and the matter rested in his hands, and was not returned until the receipt of the following letter when its return was called for by the editor.

The elevation of the city of Spokane above the sea level makes ebullition easy, and our friend seemed to grow excited. He writes:

SPOKANE, WASH., Oct. 25, 1893.

Dear Sir:—In my article published in our JOURNAL of the 23d of September, you chose to slur me by a head line that newspaper men would count as entirely unequalled for and poor taste. I replied at once, but you continue your unprofessional tactics by refusing to publish the reply. You attempt to deceive me by not noticing it among Letters Received, but as the letter has not returned to me, of course you received it. I readily see that to publish such letters as mine would be bad politics, as many of the professors of the second and third class colleges and diploma mills have joined the AMERICAN MEDICAL ASSOCIATION, and are often

elected to vice-presidencies; and as you are evidently in sympathy with these people and running THE JOURNAL for Dr. Hamilton, nothing else can be expected of you. So I inclose stamp for return of the manuscript.

Yours very truly,

D. C. NEWMAN.

American Women are Physically Degerenerating.

WASHINGTON, D. C., October, 1893.

To the Editor:—In THE JOURNAL of October 21, Dr. Edmund Andrews of Chicago, takes up the article of Dr. Cyrus Edson on deterioration of American women, published in the October number of the *North American Review*, and gives us the more cheerful if not the exact status of American motherhood.

With Dr. Andrews the wish is evidently father to the thought; for if we examine the facts as they are presented to us in everyday life, we find there is almost a unanimity of opinion among physicians, nurses and mothers of grown children, that women of the last two decades of years seem to suffer more, become sooner physically exhausted and are slower rallying from childbirth than their mothers before them.

Taking haphazard the names of some of those married within the last ten years, of my acquaintance, one can not but see a picture of suffering and invalidism, which leaves but little doubt that the present *modus vivendi* of lovely women is radically wrong. Is the wrong wrought "in the schools, where by ambition and by rewards for success and disgrace for failure, growing girls are goaded to a disastrous amount of mental strain and over brain work;" or must we go farther back, to the mothers of our present wives and blossoming maidens, when frequent and multitudinous child bearing was more common, and the style of tight lacing and high heels was in vogue; mothers then bringing into the world offspring whose uterine life was spent in a sub-involved tissue and whose narrow confines were restricted and hampered.

Of the names of forty-eight mothers, some primipare, others multipare, all married within ten years, I find there are but twenty who may be said to enjoy as good health as before they were married. Of the remaining twenty-eight, seven died, incident to or following childbirth, five are bedridden, and the remaining sixteen have never regained their former good looks and health.

Our American women are pretty; as proportionately and beautifully formed as ever. They have the courage and will to carry them through long suffering; but too often the reserve physical force soon gives out even with little exertion, and leaves us to terminate a protracted labor as best we can.

JAMES D. MORGAN, M.D.

Ohio Epileptic Asylum.

The following communication has been received, addressed "To the State and county officers and the public:"

I am advised by the Board of Trustees of the Ohio Hospital for Epileptics, that they are about ready to open for the admission of 250 male patients, but are not yet provided with the proper information to enable them to enumerate and classify the applicants for admission.

The probate court of each county has proper blank forms for application, and it is earnestly desired that all who seek the care of this institution shall call upon the probate judge and fill out these blanks and forward to Dr. H. C. Rutter, Manager, Gallipolis, O., at once. Very truly,

W. McKINLEY, JR., Governor.

Is It a Swindle?

Toledo, Ohio, Oct. 28, 1893.

To the Editor:—Some months ago a lady representing herself as the granddaughter of Dr. McDowell, canvassed this and neighboring cities, taking orders for the "Biography of

McDowell." She represented that she needed the money, and most of those who subscribed paid cash. She must have received over fifty orders here, and several hundred each in Detroit and Cleveland, nearly all paying cash. We can not get any clue to her location nor can we get the books. The publisher says that the edition is exhausted and not paid for and of course will print no more.

Considering the possible magnitude of the swindle, I write to ascertain how to check it. If you desire it, can get the statements of those who paid in this city.

Yours truly, Thomas HERRARD,
Secretary, Ohio State Medical Society.

Objects to the Term "Jackass."

DETROIT, MICH., Oct. 25, 1893.

To the Editor:—The scientific language used in the argument by Dr. Solomon Solis-Cohen against Dr. John B. Roberts and his article, "The Similarity between Physicians and Homeopaths," is worthy of remark. His article is illiberal, un-American, and based upon an unscientific principle of thought. A principle of science that has been accepted by all civilization is true; but a principle of science which has not reached its perfection and its acceptance by the whole civilized world is not true, as yet. The paper, as a whole, was more suitable for a political gathering than a scientific society. No matter what ideas a man may have, he is never to be compared to a mule or a jackass. It is ungentlemanly to speak thus of a class of excellent men who are entitled to the respect of those who can not agree with them.

LOUIS EDELMAN, M.D.

Proposed Change of Name.

CHATTANOOGA, TENN., Oct. 24, 1893.

To the Editor:—Apropos of your editorial, "Try a New Name," I would state that the Tri-State Medical Society of Alabama, Georgia and Tennessee will at its next meeting vote on a proposition to change the name to the South-eastern Medical Society. The next meeting will be held in Atlanta on the second Tuesday in October, 1894.

Fraternally,

FRANK TRESTER SMITH, Sec'y.

MISCELLANY.

Pittston, Pa. New Hospital.—A fine Cottage Hospital 88 x 44 feet, was opened October 24, at Pittston, Pa.

The College of Physicians and Surgeons of Richmond, Va., have purchased the Richmond City Hospital for \$18,489.39.

Lowell, Mass., Hospital.—A nine thousand dollar addition is to be built to the Lowell, Mass., Hospital.

Robbed a Hospital.—A patient at the Louisville City Hospital, robbed the hospital October 19, of all the surgical instruments he could conveniently carry away. The thief was caught and most of the instruments recovered.

Rich Legacies for Hospitals.—The New York Hospital and the Presbyterian Hospital are among the residuary legatees of an estate, the proceeds of which, it is estimated, will yield \$200,000 to each of these charities.

Reichenau Consumptive Hospital.—Baron Nathaniel Rothschild's plan of presenting the consumptives of Vienna with a castle at Reichenau has aroused great opposition in that neighborhood, which is a delightful summer resort. The landlords and others fear that the presence of so many sick people will drive away the guests who come there for pleasure. But the chief objection comes from the Emperor's brother, the Archduke Charles Louis, who quarrelled with the Baron some time ago because he declined to sell the castle to the Duke. When the money prince found that the Duke had set his heart on getting possession of the castle he straightway decided to convert it into a hospital.

New Hospital at Rhinelander, Wis.—The Sisters of Charity at Rhinelander, W. S., are to have a new hospital building that will cost \$20,000.

A Dispensary Burned.—The dispensary of the New York Presbyterian Hospital was destroyed by fire October 21.

Change of Address.—Dr. Bayard Holmes to 104 East Fortieth Street, Chicago.

Want a Bacteriologist.—The Board of Health of Syracuse, N. Y., have asked the city council for the appointment of a bacteriologist to verify diagnoses of diphtheria.

Private Fire-Service in a Hospital.—A destructive hospital fire was probably prevented by a private apparatus at the New York Presbyterian Dispensary. The conflagration was started early on a Sunday morning in an underground apartment where turpentine and other combustibles were stored. The private fire apparatus was put in operation in a few minutes. The city fire engines came soon afterwards and with several streams of water pouring into the blazing storeroom, all danger from a spread of the flames was overpast in less than twenty minutes. The total loss on drugs and furniture in dispensary and drug room is estimated at \$3,000. With a loss degree of preparation, and a few minutes longer delay in handling the fire, the loss might readily have been quadrupled. A good private fire service in hospitals or asylums is a "modern improvement" that can not be overlooked or slighted.

Ohio Railway Surgeons.—At the meeting of the Ohio Railway Surgeons the following officers were elected for 1894: President, W. A. Ward of Conneaut; Vice-President, R. M. Ricketts, Cincinnati; Second Vice-President, W. S. Hay, Wellston; Chas. H. Mertz, Toledo, Secretary.

New York Quarantine Commission.—The Board of Quarantine Commissioners met in the Mayor's office October 18, and awarded to Colin McLean additional contracts for the improvement of buildings on Swinburne and Hoffman Islands, to the amount of \$21,000. It also allowed Dr. Jenkins, \$6,281 to pay bills contracted during the cholera scare of last year.

Tri-State Medical Journal.—Dr. James Moore Ball of Keokuk, Iowa, is to be the Editor-in-chief of a new medical journal, to be called the *Tri-State Medical Journal*. The initial number will appear December 1, and reappear each month thereafter.

The Medical Mirror and the Congress.—The *St. Louis Medical Mirror* devotes the entire October number to the proceedings of the Pan-American Medical Congress. Among its other features of interest is a stenographic report of the speeches at the editors' banquet.

A Group of Connecticut Triplets.—A thirteen-year-old marion of Roxbury, has given birth to triplets—one boy and two girls—weighing in all twenty-three pounds. The age of the father is sixteen years. The mother is robust and developed beyond the average of girls of her age. She is the daughter of a farmer and her husband is a farm-hand.

A Venerable Pioneer Physician.—Dr. Frederick Andros, of Mitchell, S. D., claims to be the first authorized practitioner of medicine not only in Dubuque, Iowa, but also in the immense region west of the Mississippi River to the Pacific north of the Missouri River. He is a native of Massachusetts and now nearly 91 years of age.

Sick Men as Bank Assets.—The Metropolitan National Bank of Kansas City, recently sued Mr. Frank E. Tyler of that city and attached his property. It seems that he was President of the Church Charity Association which established All Saints Hospital and had advanced that institution some \$14,707.73, which on demand of the bank, the hospital was unable to pay. The bank therefore has come

into possession of the hospital full of sick, some trained nurses, and the apothecary shop.

Left a Baby for the Doctor, and a Nursing Bottle.—An elderly woman rang Dr. S. H. Blodgett's (Homeop.) doorbell at No. 88 Main St., Cambridge, and without heeding the servant's statement that the doctor and his wife were at the World's Fair, she walked into the office, and leaving a three-weeks-old infant on the floor, walked out again. The woman then went to a drug store near by and left an order to have a nursing bottle sent to Dr. Blodgett's house, after which she disappeared.

Appointment.—Dr. William Townsend Porter, Professor of Physiology at the St. Louis Medical College, has accepted the offer made him in September of the Chair of Assistant Professor of Physiology at Harvard Medical School, Boston, Mass. Early in December Dr. Porter will bid adieu to St. Louis, and assume the duties of his new post.

Dr. Porter has spent most of his life in St. Louis. He was graduated from the St. Louis Medical College in 1855, returned to it as assistant professor of physiology in 1887 and became full professor in 1888.

The Sponge Choking Case Sequel.—In our last issue we referred to a case where the patient had choked to death during a surgical operation at Syracuse, N. Y.

The coroner held an inquest of which the following is the press report:

"The jury was composed of Adam Klink, Maurice Nelligan, Henry Bruns, John Conroy, Charles F. Brunnens, Ludwig Trage, jr., William Hammerle, Edwin Collins, William Schillinger and John Gebhardt.

"Some very pertinent questions were asked during the course of the examination. Jurymen William Schillinger being especially pointed in his inquiries. The question of carelessness hinged upon whether or not Dr. Harding was responsible for the sponge coming off the wire while he was clearing out the patient's throat. Dr. P. M. Totman, who conducted the Kanaley operation, and all who were present at that operation say that no blame can be attached to Dr. Harding. He is a thoroughly capable physician and was attending strictly to his business when the accident occurred. However the jury seemed to think that the sponge was either rotten or insecurely fastened to the wire forceps, and they rather blame Dr. Harding for this carelessness. The verdict in full was:

"We find that Patrick Kanaley of Jordan, N. Y., came to his death while undergoing an operation at St. Joseph's Hospital, accidentally by respiration swallowing a sponge necessarily used at the time by an attendant. While we do not desire to censure the authorities of St. Joseph's Hospital we do call attention to the careless manner in which an assistant physician performed his specified duty."

"Those examined on the stand were Dr. D. M. Totman, Dr. J. H. Goff of Cazenovia, who was present at the operation, Dr. E. V. Crane, senior house physician of St. Joseph's Hospital, where the operation was performed, Dr. Harding and Charles Coville, a medical student.

"The doctors who conducted the operation have concluded that Kanaley must have first swallowed the sponge and then in vomiting raised it so that it passed into his windpipe."

THE PUBLIC SERVICES.

Army Medical School.—In accordance with orders from the War Department, published in THE JOURNAL of July 8 last, the session of the Army Medical School will open at the Army Medical Museum, Washington, D. C., on Wednesday, November 1. The daily order of duties will be as follows: 9 A. M. to 12 M., pathological laboratory; 1 P. M. to 2 P. M., chemical laboratory; 2 P. M. to 4 P. M., lecture in assembly room.

On Mondays, Wednesdays and Fridays, from 11:30 A. M. to 12 M. during November, at the Museum Building, and on Saturdays from 9:30 to 10:30 A. M. at the Hospital Corps School, Washington Barracks, D. C., a practical instruction will be given in litter and ambulance drill and in first aid.

The lecture course will embrace the following subjects: Duties of Medical Officers by Assistant Surgeon General Alden on Wednesdays; Review of the session, from 10:45 A. M. Military Surgery, care of wounded in action, and hospital administration, by Deputy Surgeon General Farnwood, on Thursdays throughout the session, from 2 to 4 P. M. Military Hygiene, by Surgeon Billings, on Fridays throughout the session from 3 to 4 P. M. Military Medicine, by Surgeon Smart, on Mondays throughout

this session from 3 to 4 P. M. It is expected that some of the lectures on military medicine and also lectures on bacteriology will be given by the Surgeon General. The lecture hour from 3 to 4 P. M. on Tuesdays will be reserved for certain auxiliary courses the dates of which have not as yet been announced. These will be of great interest and value to the young officers of the Medical Department. Military law will be the subject of one of these courses to be given by Major George B. Davis, Judge Advocate, U. S. Army. Major Davis was formerly assistant professor of military law at the U. S. Military Academy, West Point, N. Y., and is the author of a highly valued work on International Law. For some time past he has been Chairman of the Board of Publication of the Official Records of the War of the Rebellion. A knowledge of military law and its procedure must be acquired by Army medical officers as they are subject to assignment for court martial duty. The students of the Army Medical School are therefore to be congratulated on having Major Davis as their instructor on this subject. Dr. Robert Fletcher, whose long experience as a teacher of medical jurisprudence in the Columbia University of Washington, D. C., will give value to his course, is expected to lecture on this subject, probably in February. Dr. Fletcher's name is well known in medical literary circles by his connection with the editorship of the *Lancet-Medical*. Prof. C. W. Stiles of the Department of Agriculture, has kindly consented to lecture on human parasites, and Capt. J. C. Merrill of the Medical Department of the Army, will complete the course by an outline of comparative anatomy, giving special attention to points connected with the pathology of the human body. The lectures of the members of his class those venomous reptiles and insects that they will probably meet in the course of their future service in the West.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from October 2, 1893, to October 27, 1893.

Lieut. Col. ALBERT HARTSUFF, Deputy Surgeon General, is relieved from duty at Ft. Omaha, Neb., and ordered to report in person to the commanding General, Department of California, for duty as Medical Director of that department, to relieve Col. JOSEPH R. SMITH, Asst. Surgeon General, on duty on detached service at the same place. Col. HARTSUFF will proceed to Governor's Island, N. Y., and report in person on December 4 to the commanding General, Department of the East, for duty as Medical Director of that Department.

Dr. Benjamin H. Kidder. Medical Inspector U. S. N., has received his promotion to Medical Director.

Marine Hospital Changes. Official list of changes of stations and duties of medical officers of the U. S. Marine Hospital Service, for the five weeks ended October 21, 1893.

Surgeon C. D. FESSENDEN, granted leave of absence for thirty days, Oct. 1, 1893, to October 27, 1893.

Surgeon P. H. BAILLIACHE, detailed as delegate to meeting of American Public Health Association, Oct. 5, 1893.

Surgeon JOHN VASSANT, granted leave of absence for thirty days, Sept. 25, 1893.

Surgeon H. H. HUTTON, detailed as chairman of board to inspect Gulf Quarantine Station, Oct. 17, 1893.

Surgeon J. B. HAMILTON, granted leave of absence for three days, Oct. 4, 1893.

Surgeon J. M. GASSAWAY, detailed as member of board to inspect Gulf Quarantine Station, Oct. 17, 1893.

Surgeon F. W. MEAD, to report station (Washington, D. C.), Sept. 19, 1893.

Surgeon H. R. A. ADEER, to proceed to Way Cross, Ga., for temporary duty, Oct. 4, 1893.

P. A. Surgeon P. C. KALBACH, granted leave of absence for twenty days, Oct. 9, 1893.

P. A. Surgeon S. D. BROOKS, to proceed to Chicago, Ill., for temporary duty, Sept. 29, 1893.

P. A. Surgeon H. T. GOODWIN, granted leave of absence for thirty days, Sept. 27, 1893.

P. A. Surgeon J. O. COHEN, granted leave of absence for thirty days, Oct. 11, 1893.

P. A. Surgeon G. M. GIBBES, detailed as recorder of board to inspect Gulf Quarantine Station, Oct. 17, 1893.

P. A. Surgeon J. F. WERTENBAKER, granted leave of absence for seven days, Sept. 26, 1893.

P. A. Surgeon J. C. PERRY, granted leave of absence for seven days, Oct. 5, 1893.

Asst. Surgeon C. H. GARNER, to proceed to Port Townsend, Wash., for temporary duty, Oct. 2, 1893.

Asst. Surgeon J. A. NYDEGER, to proceed to Way Cross, Ga., for temporary duty, Oct. 3, 1893.

Asst. Surgeon SEYMOUR NORMAN, granted leave of absence for four days, Oct. 4, 1893.

Asst. Surgeon E. K. SPRAY, granted leave of absence for three days, Oct. 7, 1893.

LETTERS RECEIVED.

A. Ayer, N. W. & Son, Philadelphia, Pa.; Atkinson, W. B., Philadelphia, Pa.; B. B. Babbitt, J. C. Philadelphia, Pa.; Brayton, P. B., Syracuse, N. Y.; Bernal, Henry & Co., St. Louis, Mo.; Brainerd, Nellie C., Oswego, Iowa; Baker, H. B., Lansing, Mich.; Bates and Morse Adv. Agency, New York, N. Y.; Bachmann, C. E., Jr., Allegheny, Pa.; Brush, E. F., Mt. Union, N. Y.; Bail, James, M., Keokuk, Iowa; (C) Conkling, G. Glen, New York, N. Y.; Clark, L. S., San Francisco, Cal.; Cincinnati Sanitarium, College Hill, Ohio; Coates, Truman, Ru-selville, Pa.; (D) Dolson, H. L., Ashland, Mo.; Dreier, M. A., New York, N. Y.; Davis, R. C., Ann Arbor, Mich.; (E) Ely, J. S., Barnesville, Ohio; (F) Freidenwald, A., Baltimore, Md.; Felt, Julius, Holbrook, Cal.; (G) Godel, Augustus, New York, N. Y.; Gould, W. H. & Co., Boston, Mass.; (Goss, J. H., Athens, Ga.; (H) Hummel & Parnish, Philadelphia, Pa.; Heath, W. P., St. Louis, Mo.; (I) Ingalls, F. J., Chicago, Ill.; (J) Jeffery, A. F., Denver, Col.; (K) Leck, Brothers & Co., Philadelphia, Pa.; (L) Lloyd, Augustus, Denver, Col.; (M) Miller, A. J., St. Louis, Mo.; Martin, F. H., Chicago, Ill.; Morrison, Plummer & Co., Chicago, Ill.; Montizambert, E., Quebec, Canada; (N) Parsons, F. S., (O) O'Connor, P., Parker, Richmond, Va.; (P) Powell, H. H., Leokan, Pa.; Rogers, S. F., Troy, N. Y.; Rumbold, Thos. J., San Francisco, Cal.; Stokes, W. B., Goldwater, Ky.; Scherer, Otto, Detroit, Mich.; (T) Thompson, R. L., Spokane, Wash.; Tuley, H. E., Louisville, Ky.; (U) Uphill, C. L., New York, N. Y.; Trowbridge, L. S., Detroit, Mich.; (V) Western News Co., Chicago, Ill.; Wright, John, Clinton, Ill.; Warner, W. R. & Co., Philadelphia, Pa.; Winslow, C. E., Altoona, Pa.; N. M.

The Journal of the American Medical Association

VOL. XXI.

CHICAGO, NOVEMBER 11, 1893.

No. 20.

ORIGINAL ARTICLES.

REPORT OF THE COMMITTEE ON SCHOOL HYGIENE.

Presented to the Section on State Medicine, at the Forty-fourth Annual Meeting of the American Medical Association.

BY D. F. LINCOLN, M. D.

CHAIRMAN OF COMMITTEE, GENEVA, N. Y.

Upon the formation of the Committee it was thought best to divide the work among the members, assigning a separate department to each. It has been found in practice, however, that the ground has not been fairly covered by this plan. Long and careful special papers have been prepared and published by some of the members, while others, though deeply interested in the work, have not found time to treat their assigned subjects in a manner which would justify them in publishing results. It has, therefore, seemed best to the Chairman of the Committee to take the responsibility of drawing up a brief but comprehensive statement of principles, covering all the topics; submitting the whole to each member, and presenting the matter to the Section of State Medicine.

It seems desirable in doing this, to avoid statements which are open to reasonable doubt. It is thought that the most useful result can be gained by a simple untechnical presentation of facts omitting discussions, statistics and arguments; with the object of securing the attention of school authorities, teachers, builders, and others interested in education.

A—SITE, DRAINAGE AND SEWERAGE OF SCHOOL BUILDINGS.

1. *Good Light.*—This point has been seriously neglected in many city sites, for financial reasons. The neglect to secure good light has been demonstrated to be an important cause of near-sight in scholars. The desired object can be attained by reserving a tolerably wide strip of land around the school building at the outset, and by municipal regulations restricting the height of neighboring structures. It is suggested that the height of such buildings around schoolhouses should not exceed one-half the distance between them and the schoolhouse; or, that the line drawn from the foot of the school house wall to the upper part of the other house should not form an angle with the horizon exceeding 30 degrees. In small towns the space for play grounds should be much greater—at least a half acre.

2. *Sunlight.*—If possible, the sun should enter every room in the house at some time in the day, but chiefly out of school hours. The play grounds should be placed, if it can be so arranged, on the sunny side of the house. There should be no trees overshadowing the house, since this causes dampness.

3. *Neighborhood.*—Disturbing influences, as the

presence of large bodies of working people, railroads, noisy streets, engine houses, are injurious for various reasons, partly as furnishing undesirable outside-associations. Immorality or filth should not be suggested in the surrounding neighborhood. A main city street is commonly to be avoided. The vicinity of offensive trades, as tanneries, rendering establishments, refineries and gas works, is to be avoided.

4. *Soil.*—A damp soil is of itself a serious objection to a site. The case is worse if the site be low, with poor natural drainage and poor opportunity for artificial relief. If it be necessary to build on a springy piece of ground, a trench must be dug around the foundation to a depth below the cellar floor, and far enough from the building to insure the safety of the walls; in this, drain tile with loose joints is laid, discharging away from the building at some lower point. It is useless to cement the cellar wall or floor for the purpose of excluding water, but cement or asphalt forms a good protection against dampness.

School yards in towns should be so paved (not graveled), and underdrained if necessary, as to become dry within an hour after a rain. Dry walks should lead to the out-buildings.

5. *Out-buildings.*—If privies are employed, they should never be within fifty feet of the main building. They should be separate for the sexes, with entirely separate paths of access, and having a board fence between. Dry earth or sifted ashes should be sprinkled over the contents once a day. The entire contents should be removed once a fortnight. The receptacle must be so constructed that such removal can be effected easily and completely; or it should itself be removable with its contents. An iron trough on wheels, or a metal pail is suggested.

Urinals must not be made of iron, and they had better not be made of any metal. Impervious material, such as glass or oiled slate, is best. Cement is very objectionable from its porosity. Joints between slabs should be perfectly tight.

6. *Water-closets.*—When a supply of water is at hand, water closets are the best arrangement. They may either be single, or may consist of long troughs corresponding to a number of seats. The pan-closet is undesirable, since its inner parts are not freely cleansed by the flow of water. Of the simpler forms of closet, all those which do not furnish a quick and free discharge of water, cleansing the bowl thoroughly and removing all the contents within a few seconds, are to be absolutely rejected. A noisy apparatus is exceedingly objectionable for closets which are placed (e.g. for teachers' use) in the vicinity of schoolrooms; the noise may proceed either from the tank or the basin.

One of the simplest form of apparatus for schools is the long tank of cement or iron placed under the

range of seats. The bottom is covered with a few inches of water, and slopes to an outlet so that by raising a plug the whole contents are quickly discharged into the sewer, after which cleansing is easily effected by a hose and broom. The addition of an automatic flushing apparatus acting spontaneously at fixed intervals has been found desirable.

All closets and urinals in a schoolhouse must have special ventilation by forced draught. No mechanical contrivances or disinfectors do away with the necessity of personal inspection and faithful cleansing by hand.

5. *Plumbing.*—The principles of drainage and sewerage, commonly termed the art of plumbing, are the same for school buildings as for other edifices. It may be stated, that pipes and other fixtures ought to be so placed that they can be *seen* by lifting movable boards, without having recourse to a carpenter, or mason, or plumber to disclose their intricacies.

It should further be understood, that the whole system is under the control and supervision of some responsible and intelligent person, who possesses sufficient plans and drawings of the system, and pays frequent attention to its condition.

B—CONSTRUCTION.

1. *Safety.*—The chief danger is found in old buildings, and in those not originally intended for their present use. In such, we occasionally find conditions which are nearly sure to cause accidents in case of a panic. The staircase is the important point. It must be very strong, wide and easy; not steep, not sharp-angled, not spiral or with wedge-shaped steps; it should have a platform at the turn. It is safer without a well; if balusters are used they must be high. In large buildings a staircase should be placed at each end. Halls and outer doors must be wide, and all doors open outward. Fire-escapes on the outside are at best an undesirable refuge, and in the ordinary forms may be very dangerous to a crowd of frightened children. Discipline and practice in "fire-drill" or quick orderly march from the school, are by far the best safeguards.

2. *The Schoolroom.*—The size of a class room should be governed by the number of pupils it is intended for. If we assume that 50 can be attended to by the teacher, and that 200 cubic feet of space is allowed per head, a room 24x33x12½ will answer well. The oblong shape is desirable. If the dimensions here given are exceeded in length, there will be difficulty on the teacher's part in supervision and on the scholars' part in seeing what the teacher may show or write on the board. A greater depth or distance from the windows than twenty-four feet will impair the lighting.

3. *Illumination.*—The lighting of a room for school work requires a much larger allowance of window space than is needed for dwellings. The windows must be square-headed, and brought very near the ceiling; there must be no projections (cornices, piazzas, Italian shades) to interfere with the free entrance of light. The total amount of window glass on a liberal allowance may equal one-fifth the floor space; it fully exposed to the sky, less will suffice. Roller shades are of most use when the roller is placed at the foot of the window. Light coming wholly from one side (viz., the left hand) if sufficient in amount, is the best for the eyes; if this plan in any case

appears likely to give insufficient lighting, owing to local conditions, windows may be added at the back, possibly also at the right (but in the latter case, at a very high level). Windows in front of the pupils are very injurious to the sight. The wall should be colored of a neutral tint, or with a faint shade of blue or green if liked. The ceiling should be white. It must have no cross beams placed transversely to the light. Blackboards must not be placed between windows.

4. *Miscellaneous.*—The size of recitation rooms must be planned upon the same principle as that of schoolrooms, viz., that of allowing 200 cubic feet per scholar.

It is desirable, where possible, to limit the height of a building to two stories above the street, inasmuch as injury not infrequently results from the excessive strain of climbing upstairs.

Accommodations for hanging clothes should be furnished outside of class rooms, with good provision for ventilation. Enclosed spaces in the halls, open at top and bottom, are suitable.

Cellars or basements must be high, dry, well-lighted and thoroughly wholesome. If there is no cellar, there must be a dry sub-floor space under the whole building.

Dust being a destroyer of pure air and a foe to health, care must be taken to avoid for floors such material as produces dust; if of cement, it must not crumble; if of wood, it must be "filled" so as to be impervious.

C—VENTILATION AND HEATING.

A very large proportion of schools are so poorly provided with ventilating arrangements that they are practically dependent on open windows. To relieve this unfortunate state of things, the lower sash may be raised two inches (less, in stormy weather) and a board placed in front to deflect the air upward. The upper sash (which ought always to be movable) may be lowered an inch. These measures are attended with little risk, and give perceptible, though partial, relief.

Perforations in the sash, window pane, or wall, also give some relief. Such methods may provide sufficient air for five or six persons in a room, but are entirely inadequate for the supply of a whole class.

The attempt to ventilate schoolrooms in cold weather by the windows, in the Northern United States is either very dangerous to health or very ineffective, or both. The amount which can safely be admitted in this way may be one-fifth to one-tenth of what is needed. The existence of ventilating flues or openings does not of itself insure good ventilation. Flues may be too small, or crooked, or partly or wholly stopped up; they may discharge into other rooms or the attic instead of the outer air; they may be unprovided with means for causing the air to rise in them; they may be in many ways badly planned. To enumerate the faults which may be committed would require a treatise.

It ought to be understood by every one concerned in ventilation that large collections of persons require very large amounts of air; that the amount should be calculated, and the size of the flues determined before the house is planned; that true economy requires us to consider the system of heating and that of ventilation as inter-dependent parts of

one and the same problem; and that both should form a part of the original architectural design.

The amount of fresh air to be brought into the building for each pupil should be 2,000 cubic feet per hour for younger children (under 10) and 3,000 for high school pupils. These amounts are calculated from the assumptions that the external "pure" air contains an average of 4 parts of CO in 10,000; and that when the CO has increased under the influence of respiration, to the amount of more than 6 in 10,000, the air may be considered "impure." Dilution, to the extent mentioned above, will keep the air of the room below the point of "impurity," here assumed. The purity required by this standard is such that persons coming fresh from out of doors will not perceive any distinct closeness in the air of the schoolroom.

As regards the relative requirements at different ages, it may be assumed as proportionate to the different amounts of CO exhaled by people of different ages. In the case of children of 8 years, it is about two-thirds as much as in young persons of 15.

If a lower standard of supply is taken (say 1000-1500 c. f. per hour), there will be a perceptible deficiency of purity, which will have to be made up by an hourly opening of the windows on the occasion of recess.

If the cubic contents of a schoolroom equal 200 c. f. per head, the entire air contents of the room will thus be renewed every four to six minutes. It is found by experience that the draught caused by the in-rushing air need not be troublesome in rooms which allow this amount of space per inmate. It is recommended that this be the average allowance of space.

In testing air for CO₂, it is important to take samples from the level of the pupils' heads, avoiding the admixture of the breath. If the condition of the air at that level is satisfactory, the end of ventilation has been gained.

The rapidity with which the air leaves the room may be ascertained by the use of the anemometer. In addition to this test it is desirable to apply the chemical test for comparing the discharged air with that of different parts of the room; for if the supply of fresh air is badly distributed, it may happen that in some parts of the room the currents are comparatively stagnant, and the air will grow more impure than the average of the room.

The animal impurities of the expired air (exclusive of CO₂) are probably, in part, of a poisonous nature. They, perhaps, include ptomaines as results of putrefactive decomposition. They are of infinitely more importance than the CO, which is associated with them; but they can not be conveniently made the subjects of quantitative test. Hence, the CO₂ test is employed, as indicating with *probability* how much the air has been affected by respiration.

The mere removal of foul air, whether by stoves, fireplaces, or ventilating flues, accomplishes but one-half of the duty of ventilation. The other half consists in supplying a quantity of fresh air equal in bulk to that removed. It often happens that no special provision is made for this supply; in this case the entering air is drawn from many sources—out of doors, the halls, the closets, the cellars, and indirectly from many undesirable places. Special ducts, therefore, are requisite for leading the pure outer air in large quantities to the schoolroom.

Such large quantities of air as are required can not be safely introduced without previous warming. But the rapidity with which the air is changed is so great that a high temperature is not required as a rule, heating can be effectively performed with air not hotter than 100 degrees Fahr. If the ventilation is sluggish, the air needs to be made correspondingly hotter in order to keep the room warm; but air thus over-heated is apt to have an odor which indicates that it has been in some way injured in the process. The locality from which the air supply is drawn should of course be such as to avoid impurities—dust, smoke and bad smells.

A system of ventilation which is working well and sufficiently will produce a near equality of temperature in all parts of the room. The difference between the temperature at the floor level and that at five feet from the floor should not exceed 5 degrees.

A system is efficient in proportion as it maintains its activity under widely varying outside temperatures. Ventilation is needed at 10 degrees as much as at 0; but it is much harder to keep up efficient action in the former case. If the system is based on the draught of heated flues, some special means for increasing the heat of the flues will be available for such mild weather.

The relative humidity of air is only breathed in our winter climate is low, compared with that in Western Europe. It becomes of great importance when warmed. It is not, however, proved that the dryness thus obtained is generally injudicial to health, either in schools or hospitals, though some individuals appear to require great moisture. A part, if not the whole, of the unpleasant effect of breathing super-heated air is due to the bad ventilation, and the excessive temperature.

The thermometer placed at five feet from the floor should mark an average of 65 degrees to 70 degrees in our climate. This is considerably higher than is found desirable in Western Europe.

It is to be presumed that the entering air is warmer than that which leaves the room, since it contributes a fraction of its heat for the warming of the walls and windows. If introduced at the upper part of the room, it will therefore fall towards the floor by degrees as it becomes cooled. Hence a level near the floor is a natural one for its exit. The proportion of CO₂ at the upper level of the room is not essentially different, on the average, from that in the lower part, and the level of the orifice of extraction is a matter of indifference as regards that point. If it be our object to get rid of superfluous heat, we should discharge the air from the top; this, however, is not to be considered normal or regular, but only to be applied when heat is excessive, as (for instance) in evening schools with artificial light.

It is possible to apply the above principles to the ventilating of the smallest school house. A single room can be heated with an upright cylinder stove of ordinary construction, having around it an air space enclosed by a jacket of sheet iron. In the floor beneath the stove an opening is made, connecting with a flue led to the outer air, through which there will be a rapid and abundant inflow of pure warmed air. The supply flue may run in two directions, so as to be exposed to different winds, and each point of opening should be guarded with a valve. For the escape of foul air, openings near the floor are made in the brick chimney-flue, which should stand at the

far end of the room. The stove funnel is carried across the room into the chimney, and its heat insures an upward draught. Open grates and ordinary stoves are aids to ventilation, but perform only a small part of the duty required.

"Direct radiation," or the use of steam heaters in the rooms to be warmed, furnishes no supply of fresh air. If ventilation is fully provided for, as above described, direct heating is admissible as *supplemental* supply in exceptional cases; but as a rule its use is destructive of good ventilation.

Effective work can be done either by furnaces or by steam heaters in the cellar ("indirect" radiation). In cases it is exceedingly desirable to provide in respect to the size and power of the status.

In the question of *economy* in ventilation, and the *necessary expense* of good ventilation, much may be said. A great amount of warm air is necessarily thrown away in ventilation. It is estimated that a very perfectly ventilated building, filled with students, expends 50 per cent. more coal than the same building empty and closed, the temperature being the same. This difference would be greatly lessened if we could compare the case of a well ventilated, occupied building with one badly ventilated and occupied; the latter wasting, as it does, a considerable amount of heat by open windows and by the over-heating which often accompanies bad ventilation. It is certain that the additional annual expense per pupil, of the best ventilation, need not exceed the price of one or two cheap lunches. The effect of perfect ventilation, where it has been tried, is, to increase the pupil's power of work about 50 per cent. which is a direct saving to the town that pays for his schooling. To which must be added the gain in public health (which is not easily to be estimated); since a large percentage of school children are suffering at present a perceptible diminution of vigor from the effects of foul school air.

The employment of automatic regulators for keeping school rooms at a given temperature is recommended as both economical and healthful. Modern methods often uselessly overheat the cellar in which the furnaces stand. Waste steam from the boilers ought to be converted to the use of heating radiators. A liberal salary to janitors or engineers may insure a more intelligent control of the fuel.

The available methods for compelling air to move in ventilating flues are practically two: 1, the ascensive force of heated air; 2, fans driven by steam or electricity for forcing air into the room or drawing it out by "suction." For the former method, it is generally desirable to make available the otherwise wasted heat of smoke flues, by causing them to run in the foul-air shaft.

D.—PERSONAL HEALTH.

1. A *minimum* age for entering primary schools may properly be stated as five completed years.

2. The program of daily work for little children should be widely different from that for older ones. A forenoon session may last three hours; but no exercise should last continuously more than fifteen or twenty minutes. There should be a constant change of activity, passive attention alternating with active work; recesses of a few minutes coming very frequently, and recesses of fifteen or twenty minutes at least twice in the session. Adherence to one posture should be required for only a very few minutes at

once. Singing should come in more than once during the session. If an afternoon session of two hours be added, the tasks should be lighter than the forenoon tasks. Two hours must intervene between the sessions. The total amount of task-work and recitation required in primary schools may equal half the nominal period of the sessions.

3. Young persons of both sexes at periods of rapid bodily growth, and especially at that of sexual development, not infrequently require special relief or rest from school-work, which in the case of girls may come at periodical intervals.

As the age increases, the power of concentration and continuous work is strengthened. At the age of 14, five hours of sessions will be equivalent to *four or four and a half* hours of work; to which an hour of home study may rightly be added. The usual length of recitations at this age may be about half an hour; long recitations encourage listlessness. For pupils of full growth (18), eight hours of school sessions and home work is an average *maximum*. This does not exclude the possibility of a greater amount of work for limited periods in exceptional cases among advanced pupils in vigorous health. It is presumed in these estimates that the school has two half holidays or one whole holiday weekly.

4. The attention of teachers and parents should be called to the necessity for wholesome and sufficient meals for scholars; especially, breakfasts and lunches. The health of many children is supposed to suffer from over-study, when the chief cause of the mischief is neglect to eat a proper breakfast; or the substitution of pastry and sweets for plain lunch. The establishment of lunch counters for the sale of hot milk, cocoa and plain food would be very beneficial in the case of many city schools. Lunch is not a superfluity, but a necessity, in cases where long sessions and distant residences keep the pupils away from home five or six hours at a time.

5. The systems of calisthenics in common use—free-hand exercises in full class rooms, for five minutes at a time—serve a very useful purpose as a partial relaxation, but are quite inadequate, considered as a means of bodily development. For the latter purpose, gymnastic training of a more serious kind is very desirable. Its influence is felt in the development of the mental faculties; it adds force and firmness to the moral nature; it furnishes an important correction of those depressant influences of city life, which have a tendency to lower the vitality of millions of our population at the present time. It is hoped that the systematic teaching of gymnastics to all our public school children may soon become an indispensable part of the school course, but it must always be remembered that the more violent athletic sports tend to heart strain and other disabilities that shorten life.

6. The habit of constipation is often acquired as a result of deprivation of bodily freedom, and confinement to a stooping or sitting posture, together with the mental tension of school work and the sense of constraint. In order to avoid this great evil and its frequent attendant, dyspepsia, it is desirable to give recess with liberty of play out of doors, as often as is convenient. This is especially applicable to young children. Retention of urine now and then occurs under too strict school discipline, and may work serious injury. The friendly oversight of a teacher at recess is desirable, often indispensable.

E—EYESIGHT.

The eyes are often affected injuriously by school work carried to excess, or conducted amid unwholesome surroundings. There is a strong tendency to the production of near-sightedness; which can, to a great extent, be remedied by the avoidance of known causes. Among the direct causes of near-sight are—bad light, bad position at work, too protracted work, bad print; and to these must be added, as indirect causes, bad ventilation and heating, poor food, and whatever impairs the vigor of health.

Light in schoolrooms should never strike the pupil in the face while at work.

Excess of light is less common than deficiency, but is also harmful. No desk can be more than twenty feet from the windows of an ordinary schoolroom (supposing the top of the windows to reach the height of about twelve feet from the floor) without impairing the light.

A stooping position, and the wearing of tight neck-cloth, while at work, are injurious to the eyes.

To prevent scholars from taking bad positions in writing, it is recommended that children be directed to sit upright, facing the desk squarely, and be taught vertical writing. Also, that desks be slightly inclined; their front edge to overlap the edge of the seat a little; and the height to be such that the fore arm easily passes over it. Seats ought to support the back and shoulders in reading, without favoring a tendency to lounge. The foot must rest firmly on the floor or on a foot-rest. The average graded school requires three sizes of desks and seats to each room.

The habit of holding work too near the eyes strains them and fosters a tendency to near-sight. For the youngest children, this distance should be not less than 25 cm. = 10 inches; for those of 8 to 10 years, 33 cm. = 14 inches. Badly proportioned desks and seats, especially where they are too far apart, favor this habit.

The eyes should have some rest from tasks every half-hour. Fine embroidery, fine detail in map-drawing, or penmanship, and the use of fine type, must be discouraged.

Such defects as far-sight, astigmatism, and affections of the muscles of the eye, are rather common in school children; they often cause headache and other forms of illness. The remedy lies in the use of suitable glasses, as prescribed by physicians. Test-types may properly be used by teachers to ascertain what scholars have marked defects of sight.

F—SANITARY ADMINISTRATION OF SCHOOLS.

The duties comprised under this head may properly be intrusted to one man in small places; in large towns a division of work will be necessary. The officer upon whom the charge is laid—or in all cases, the chief officer—must be a well-educated physician, with a special and practical knowledge of sanitary science. He should be appointed by the school authorities. He is here designated the medical school officer. It is the duty of this officer to satisfy himself (by personal inspection, if necessary) that all children admitted to school are protected, either by successful vaccination or a previous attack of the disease, against smallpox. He should also formulate, and have power to enforce, in conjunction with the State or municipal health officers, regulations to prevent the dissemination of infectious diseases through the schools.

All plans for school buildings, premises and appliances should be submitted for his approval in sanitary points. Personally or by deputy he should examine all buildings and premises, with reference to the arrangements for ventilation and heating, size and lighting of rooms, furniture, water closets, urinals, drains, plumbing, water supply, safety from fire, and other points affecting health or safety. He should have the right of entrance at all times, and should be armed with ample powers.

The medical school officer should give personal instruction to teachers, of a practical kind, embracing: 1, an explanation of the existent sanitary regulations, with such physiological reasons and comments as may seem called for; 2, explanation of the sanitary arrangements existing in the schools, their practical management, and so much of the theory as may seem desirable; 3, explanation of the structure and use of the eye, and other parts of the bodily frame, with remarks on food, clothing, recess, study and kindred topics, so far as it seems to him desirable and useful to enter upon such considerations.

The said officer has medical authority in cases of immediate exigency, but is not authorized or expected to bestow further medical care as a part of his official duty. The extent to which personal medical inspection of scholars is made, and individual medical advice is given, must vary much with different classes of the population. It is not susceptible of extended adoption at present in America.

THE SCHOTT METHOD OF TREATING CHRONIC DISEASES OF THE HEART BY BATHS AND GYMNASTICS.

Read at the Meeting of the Mississippi Valley Medical Association, at Indianapolis, Oct. 6, 1893.

BY ROBERT H. BABCOCK, A.M., M.D.

PROFESSOR OF CLINICAL MEDICINE AND DISEASES OF THE CHEST, COLLEGE OF PHYSICIANS AND SURGEONS, CHICAGO; PROFESSOR OF CLINICAL MEDICINE AND PHYSICAL DIAGNOSIS, POST GRADUATE MEDICAL SCHOOL, CHICAGO; ATTENDING PHYSICIAN TO COOK COUNTY HOSPITAL, CHICAGO.

We hear much nowadays about the wonderful progress made by modern surgery. In contrast thereto the advances along the lines of internal medicine, particularly of therapeutics, appear insignificant, and their actual importance is likely to be underestimated. Nevertheless, if the history of therapeutics be read aright for the past hundred years, many suggestions will be found that mark the beginnings of new eras in the art of healing. Such an epoch, for example, began with the introduction of digitalis in England by Withering toward the end of the last century. No single drug, perhaps, has rescued more lives from an untimely grave than that incompressible and indispensable remedy. Yet immeasurable as are its capabilities, there are well-recognized limitations to its usefulness. Accordingly many attempts have been made to discover a substitute free from its objections or some means of supplementing its deficiencies. As yet no such agent in the form of a drug has been found. But, startling as the statement may sound, such a means of replacing and supplementing digitalis has at last been devised in the therapeutic method which is the subject of this paper. And the honor of developing if not discovering it belongs to two German physicians, Dr. August Schott, now dead, and his surviving brother Dr. Theodore Schott. Early in this century

patients with heart disease were subjected to a vigorous course of depletion by blood letting and reduction of diet, after the manner of Albertini and Valsalva, in the hope of quieting the excited heart's action and overcoming hypertrophy. But such measures were calculated to weaken rather than strengthen the cardiac muscle, and originated in an erroneous conception of the real difference between cardiac hypertrophy and dilatation. In contrast to this treatment the great Stokes suggested exercise and mountain climbing, as the best mode of inducing hypertrophy of the heart-muscle through increase of its physiological function. Strange to say, his suggestions were but little heeded and indeed became in time forgotten. During the last decade, the recommendation of Stokes was revived and put in practice by Oertel of Munich who, however, supplemented it by the reduction of the dietary and of ingested liquids. Such remarkable results were obtained, and their publication aroused such enthusiasm, that this new method of management was tested extensively.

Further trial of the Oertel method disclosed objections, however. Indeed, along with reports of benefit in some cases, came published instances of not only positive injury, but even death due to the treatment. Opponents arose, foremost among whom were Sommerbrodt¹ and Lichtheim² of Germany; so that now Oertel's method is considered appropriate to but a limited number of cases, those only in which compensation has not been lost. Contemporary with the investigations of Oertel, Drs. August and Theodore Schott were engaged at Bad-Nauheim in studying the effect on the heart and circulation of warm saline and carbonated baths. Their observations and conclusions were first published at the beginning of the last decade. A certain Dr. Beneke,³ also at Bad-Nauheim, had some years previously reported his observations on the effect of the baths in cases of articular rheumatism, and asserted his belief in their efficacy in promoting the absorption of inflammatory products upon the endocardium, and thereby occasioning the cure of cardiac lesions depending on such endocarditic processes. But the condition absolutely indispensable to their absorption was, he declared, that they be of recent origin.

Doubt may be wisely expressed as to the accuracy of Beneke's observations, or, rather as to the validity of his conclusions. It is a well-recognized fact that after a time murmurs and other signs which have led to a diagnosis of some lesion depending on previous endocarditis, occasionally disappear, leaving the organ apparently free from disease. Moreover it is so confessedly difficult, nay even impossible, to determine in every case whether a murmur be organic or inorganic, that it is scarcely hypercritical to suggest an error on the part of Beneke in having mistaken for endocarditic murmurs what were in reality inorganic. Although his observations seem to have been the first⁴ to demonstrate the beneficial rather than injurious effects of warm saline baths charged with carbonic acid in cases of heart disease, they

were, nevertheless, limited mainly if not exclusively to patients displaying supposed signs of previous endocarditis. His work in no wise depreciates the value of that done by the Schott brothers, nor invalidates the claim made by Dr. Theodore Schott that they were carrying on studies wholly independent of Beneke. Furthermore, the latter's work sinks into insignificance in comparison with the extent and variety of the observations of the Drs. Schott. And it may be said with truth that their experience has embraced all forms of cardiac disease which are at all suitable for treatment by baths. Moreover, his extensive experience has enabled Dr. Theodore Schott to determine the indications and contra-indications for the employment of his method. In addition, Dr. August Schott and his brother originated a system of gymnastic exercises against resistance which forms an essential part of their treatment. For these reasons it is customary to characterize this particular form of cardiac therapeutics as the "Schott method." Indeed, it is no more than the just desert of Dr. Theodore Schott and his late brother to attribute to them the credit of having introduced and elaborated a method capable of restoring most cases of heart disease to a state of complete compensation, after the failure of other means, such as digitalis.

DESCRIPTION OF THE METHOD.

1. *The Baths.*—This consists in the administration of warm baths, either simple saline devoid of carbonic acid, or saline containing a large percentage of the gas. The temperature varies according to special indications, between 92 and 86 degrees Fahrenheit, these extremes being rarely exceeded. The duration of the bath is five or eight to twenty or twenty-five minutes, being short at first and gradually lengthened. Simple saline baths are generally given at the commencement of the course, those containing carbonic acid being administered only after the patient's heart has gained strength sufficient to endure them. The initial strength of the baths varies according to indications. In cases of extreme cardiac weakness or of marked anemia, waters deprived by evaporation of all carbonic acid and much of their saline constituents are employed. Gradually and cautiously the baths are strengthened by the addition of salts in the form of what is known as "mutterlauge," which is nothing more or less than the strong solution of salts collected in the process of evaporation just alluded to. At the same time, as the degree of concentration is increased, the temperature of the baths is gradually reduced. At last, after a variable period, as determined by the patient's condition, saline baths charged with carbonic acid, in such a percentage as is indicated for each individual patient are administered. These have a temperature of 30.5 degrees Centigrade or about 87 degrees Fahrenheit, and is that of Spring 7, most commonly prescribed, as it flows into the tubs. Baths are not ordered daily during the whole course, but a day of rest is interposed as often as the physician deems necessary. Dr. Schott generally orders a day of rest after three days of baths. But one bath is taken a day. This is by preference in the morning, but not sooner than one hour after breakfast. Immediately after his bath the patient returns to his room where he partially undresses and lies down, warmly covered, for at least one hour.

¹ Sommerbrodt, "Ueber den Einfluss des Bergsteigens auf das Blut und die Gefässe," Berliner Klin. Wochn., 1883, Dagegen die Heilgebräuenen für die Fieberanstrengung des Herzens, Berlin, K. G. Fischer, 1880.

² Verhandl. des Congresses für Innere Medicin zu Wiesbaden 1883, Lichtheim, "Zur Therapie des Gelenkrheumatismus und der damit verbundenen Herkrankheiten," 1882.

³ Lichtheim, in Von Ziemssen's Cyclopaedia, 1876.

Not only is physical rest advisable after a bath, but during the bath absolute quiet of body and mind is enjoined that the heart may not be subjected to unnecessary strain. Such a course of balneological treatment extends over a period of from five to seven weeks. A month of rest at some salubrious spot is then taken, after which a second course of four to six weeks is advisable in many cases.

2. *The Gymnastics*.—A second factor in this method considered indispensable by Dr. Schott consists in the employment of extremely simple, but systematic exercises of the trunk and extremities. A fundamental principle of these gymnastics is that the patient's movements be restricted by another person, preferably by a trained assistant, styled the gymnast. These exercises consist of movements of extension, flexion and rotation. Movements of the hand and foot apart from the corresponding arm and leg are not practiced. But such exercises as are permitted by the elbow, shoulder, knee and hip joints are carried out, either of the upper extremities in unison, or singly, as in the case of the lower limbs. In addition to these movements of the extremities, the trunk is bent and rotated in such manner as is permitted by the spinal column and calls into play the chief lumbar and abdominal muscles. Space will not permit an extended description of these exercises at this time. It must suffice, therefore, to state the laws that Dr. Schott lays down for the guidance of both patient and assistant. They are as follows:

A movement should never be immediately repeated. Each one should be followed by a short period of repose, and should not be made so rapidly or against such a degree of resistance as to cause acceleration of the pulse or respirations. All movements should be carried out slowly and steadily, without jerkiness, and joints not actually in use during the movement should be kept extended. That the exercises may be carried out in this fashion, the assistant should be carefully instructed, not only how to exert proper resistance, but should be able to bestow intelligent and watchful attention upon the condition of the patient during the séance and at once insist on rest upon any evidence of respiratory or circulatory embarrassment. In some cases the patient resists his own movements by calling into play antagonistic muscles, and is thus enabled to exercise independently of a gymnast.

EFFECTS OF THE BATHS.

That there is a definite effect exerted by saline baths is beyond question, as shown by clinical observation and experiment. Dr. August Schott in the laboratory at Breslau, subjected shaved rabbits to baths in a tub so constructed that by means of a movable partition it was divided into two chambers or compartments. One was filled with plain, the other with saline water, both of the same temperature. The animal was first placed in the plain water bath, and the effects of the blood pressure noted by means of a mercurial manometer introduced into the trachea. Then, little by little, the movable partition was raised, thus permitting the admixture of the salt solution with the plain water, and the effects were again carefully observed. It was thus noted that as the surface of the body became subjected to the influence of the salt solution, the blood pressure rose 5 to 10 mm. with a

10 per cent. salt solution. Carbonated water increased blood pressure 10, 20 and even 30 mm.

From careful and abundant experimentation it has been pretty well determined that the adsorptive power of the skin is quite limited, and that there is practically no absorption of salts in solution in water. Dr. Theodore Schott is of opinion that in case of salt baths the effect is produced through "imbibition" or penetration, not absorption. The salts come in actual contact with the peripheral ends of the sensory nerves residing in the skin, and the stimulation thus exerted is carried upward to the central nervous system, from which centers a reflex influence is exerted upon the heart and blood vessels. But whatever be the *modus operandi*, it is certain that, clinically and experimentally, we observe as a result of these baths a slowing of the pulse with increased volume and strength. At the same time the irregularity, if such have existed, is lessened or even disappears. It is evident, therefore, that the cardiac contractions are increased in vigor and the cavities are better emptied. This permits a positive diminution in the size of a dilated heart. That this is so, can be and has been repeatedly demonstrated, by means of accurate percussion of the cardiac areas, before and after the bath. Proof of this will be given in the following report of the writer's observations. Moreover, the heart sounds become louder; the previously accented second pulmonary sound less accented and the second aortic sound more intense, thus showing a better filling of the arterial system; murmurs inappreciable because of cardiac weakness may be temporarily intensified and rendered audible. This marked and beneficial effect of the action of the heart does not disappear at once, but persists for a considerable time subsequent to the baths.

Subjectively, the patient, on stepping into the bath, experiences a more or less pronounced sensation of chill, according to the temperature of the water. In about a minute this feeling of chilliness is replaced by one of agreeable warmth and well being. The first one or two baths occasion a feeling of weight or oppression on the chest, sometimes most pronounced in the epigastrium. Contrary to what might be expected, respirations are not rendered more difficult and rapid, but are generally slow, full and regular. So long as absolute quiet in the bath is maintained the subjective sensations are agreeable and comfortable. But any exertion, however slight, is attended by increased oppression of the chest, acceleration of the pulse and a sensation of cold in the part of the body moved. These sensations are temporary and quickly subside upon a return to perfect physical rest.

After the bath there is usually a sense of well being, particularly of ease and lightness in the chest. If dyspnea have existed previously, it is now somewhat less. The first few baths are apt to induce some feeling of fatigue and disposition to sleep. Should the initial chilliness continue and debility, insomnia and anorexia appear and persist during a course of such baths, there is some defect, either of temperature, strength, duration or all of these, which demands investigation and correction.

If properly administered these baths occasion gradual and perceptible amelioration of symptoms. One of the most pronounced results which is specially apt to attract the patient's attention, is im-

proved diuresis, indicating lessened renal congestion. Indeed, there is often an urgent desire for micturition during the bath.

EFFECTS OF THE GYMNASTICS.

Upon the heart and pulse these may be said to be similar to those of the baths. The rate of the pulse falls and volume and strength are increased, yet not in so marked a degree as during the baths. If during the exercises a quickening of the pulse results from too great resistance or other faulty procedure, this acceleration is generally but temporary, and after the ebb the quality and rate of the pulse are generally improved. However, accurate percussion demonstrates a diminution of the area of deep-seated cardiac dullness, or an actual lessening in the size of the dilated heart. Auscultation reveals similar improvement in the heart sounds and corresponding changes in murmurs to those mentioned as effects of the balneological treatment. These favorable effects, however, are less enduring than when produced by the baths.

The results of these two modes of treatment are therefore similar in kind, but somewhat different in degree and duration. It is thus plain that they supplement each other admirably; and the gymnastics should form an integral part of this method of treatment.

INDICATIONS AND CONTRA INDICATIONS.

During the past twenty years, Dr. Theodore Schott has treated thousands of cases of chronic cardiac disease after this manner; and his statements are that it is suitable to all forms of chronic heart disease, excepting aneurism of the heart or of the large vessels, and advanced general arterio-sclerosis. In such cases, disastrous consequences would be likely to follow the heightened intravascular and intracardiac blood pressure produced by the treatment. Organic valvular disease forms no contra indication to its employment. Indeed, some of Dr. Schott's most brilliant results have been secured in precisely this class of lesions. Fraentzel, in his recent work on diseases of the heart, expresses himself as opposed to the use of the balneological treatment in cases in which compensation has been lost. Yet Dr. Schott has repeatedly demonstrated most striking restoration of compensation in cases of the utmost gravity that had resisted all other form of treatment. Such utterances as that of Fraentzel are based on either ignorance or prejudice. In a word, it may be stated that with the exception of those lesions mentioned, all cases of chronic cardiac disease are suitable to this method, provided the cardiac muscle retains sufficient integrity to respond to stimulus of any kind. Nevertheless, the powerful stimulation produced by the baths is capable of working great harm, even death, and undoubtedly it was this possibility which Fraentzel had in mind. Hence this method ought never to be employed by those not acquainted with the indications and versed in its details.

Functional disorders, particularly of neurotic origin, are likewise strikingly benefited. Indeed, Dr. Schott claims highly satisfactory results in cases of Graves's disease. Anemic hearts suffering from the so-called "reparable mitral regurgitation," can be completely restored to health, and in a far shorter time than by any other system of therapeutics. It

is specially applicable also to hearts dilated from over strain.

Although suitable to so many cases, and effecting such brilliant results in a very great number of cardiac lesions, it must not be assumed that permanent restoration to health or even lasting improvement is secured in all cases. There is a limit to human ability; and unless the cardiac muscle be capable of undergoing compensatory hypertrophy, neither this nor any other system of therapeutics can effect more than a transient improvement.

As examples of what Dr. Schott has been able to accomplish, two cases may be cited which it was the writer's privilege to examine this past summer. They were cases of patent foramen ovale; one in a girl of 15 and uncomplicated; the other in a boy of 16 and complicated by pronounced mitral stenosis. Both had come to Dr. Schott for treatment less than four years before. In both, all signs and symptoms were present at that time of loss of compensation with relative incompetence of the tricuspid valves, dyspnea, cyanosis, pulsating jugulars, and in the girl, particularly, enormously distended and pulsating liver. Edema was not present. The hearts in both patients were greatly dilated, the pulses feeble and rapid. In both was audible a characteristic rolling murmur of maximum intensity over the body of the sternum, and in the youth there was also a long, rough pre-systolic bruit of mitral stenosis. Both patients had tried the most approved medication, and had been sent to Bad-Nauheim as a last resort. More unfavorable cases could scarcely have been found. A course of balneological treatments had been given during each of three summers, and gymnastics maintained meantime. At the date of the writer's examination, July 28, last, there was every evidence of restored compensation and both patients expressed themselves as feeling well. The boy, particularly, stated he was able to take daily walks of considerable length, and could even ascend a flight of stairs without much discomfort or breathlessness. In both there were signs of the organic lesions, but the hearts had undergone such enormous hypertrophy as to have occasioned protuberance of the sternum and adjacent ribs in a most striking manner. Needless to add, both patients were loud in their praises of the Schott method.

Case 1.—This is the case of the writer. Early in the last decade the writer's attention was drawn to this system of cardiac therapeutics by an article from the pen of Dr. Theodore Schott which appeared in the *Berliner Klinische Wochenschrift*, and which occasioned his resolve to some day visit Bad-Nauheim for the purpose of personal investigation and treatment. Circumstances did not prove favorable to the fulfillment of this design until this past summer. June 24, last, he arrived in Bad-Nauheim and presenting himself at once to Dr. Schott he was examined and subjected to treatment.

The writer is 42 years of age, weighs 147 pounds, and is five feet eight inches in height. Family history is that of strong predisposition to chronic arterio-sclerosis and consequent cardiac disease, on the father's side, but on the mother's no hereditary taint of any kind. Patient had scarlatina at 3 years; gastric fever at 19; typhoid fever at 31; never any articular rheumatism or pneumonia. At 31 years of age, history of cardiac over strain that was repeated several times in the next ten years. Six years ago the opinion was expressed by one of the ablest medical men in this country that the difficulty was an organic mitral affection, stenosis predominating. At the date of Dr. Schott's examination the symptoms were moderate dyspnea and pain in the precordia upon walking; pulse small, very weak and rapid on moderate exertion, but not intermittent; countenance cyanotic and sallow; digestive disturbance pronounced;

urine scanty. On upper abdominal enlargement from passive hyperemia of liver or spleen. Percussion examination revealed all the signs of dilatation of the left ventricle with moderate dilatation of the left apex heart being situated 1 cm. outside of the mammillary line at the fifth intercostal space. Upon auscultation the first sound at the apex was preceded by a short, rough murmur which terminated in a short systolic whiff; the second pulmonary sound was very accented and split; a diaphragmatic-pres-

cardic friction was heard at the apex. There was no cyanosis nor edema. Treatment by means of baths was continued for 25 days. The patient is now well and the heart is again normal.

Chart of Baths and their Effects in Case I.

Date.	Bath.		Pulse Rate.					Remarks.
	Spring.	Nature.	Temperature.	Duration.	Before.	At Bath.	After.	
June 25	NB	Simple.	Cent. Min.					"1. Slight oppression on chest & in epigastrium 2 hrs. in bed; first sound of fair strength.
26	7	-	32°	10		74	64	"2. Pulse good & regular. Slight oppression. Lips slightly cyanotic at end of bath.
27	7	-	32°	10		74	64	"3. Pulse during bath plain, fuller and stronger than yesterday. Less oppression, no cyanosis.
29	7	Water.	32°	11		74	64	"4. Pulse still fuller, more equal. Tension unmistakably greater today. Slight oppression.
30	7	1	32°	12		74	64	"5. Observations of yesterday confirmed.
July 1	7	1	32°	12		74	64	"6. Rate the same. I am astonished at the fullness and strength of pulse at end of bath.
3	7	2	32°	14		74	64	"7. Pulse of good strength but a little irregular in time, increased sense of warmth during bath.
4	7	2	32°	15		84	80	"8. Intermitted several times during fore part but more regular, stronger & full at close.
5	7	2	32°	16		80	70	"9. Bath gave feeling of rest. Pulse was made regular after bath.
7	7	3	31½°	18		76	64	"10. Pulse in bath full, regular & strong. Increased diuresis after bath.
8	7	3	31°	19		70	72	"11. Pulse full and strong; feeling of warmth. Climbed stairs to room.
9	7	3	31°	20		70	72	"12. Feeling rather depressed for past day or two, probably result of gymnastics.
11	7	Water.	30½°	9		72	68	"13. Pulse full and strong as with other baths; pleasant feeling of warmth & with slight oppression.
12	7	-	30½°	9		80	72	"14. P. of good quality. Feel even better than yesterday. Delightful feeling of warmth during bath.
13	7	-	30½°	10				"15.
15	7	-	30½°	12		78		"16. P. slow, full & regular. Epigastric pulsation faint at apex 1 cm. within nipple line.
16	7	-	30½°	14	Sound full.	100	88	"17. Taken every 3 min., remained at 76 from middle to end tension grew greater toward end (By Dr. Herrmann.)
17	7	-	30½°	15				"18. Dr. Herrmann made no observation today.
19	7	-	30½°	16		76	68	"19. P. 60 after 6 min. & until close of bath counted at intervals of 5 min. grew progressively fuller.
20	7	-	30½°	17		68	68	"20. In addition to usual observations (all continued) apex beat grew obviously stronger; epigastric pulsation & experienced in epigastrium.
21	7	-	30½°	18		68	72	"21. Pulse rate of 66 was noted just after waking & fell before bath after 30 min. rest to 60.
23	7	-	30½°	20		68	67	"22.
24	7	-	30½°	20		72	68	"23. Am struck with the regularity & firmness of pulse. Its quality excellent in general & in the first 2 of each full bath past week.
25	7	-	30°	20		72	68	"24. Baths produce feeling of calmness & fullness in epigastrium. No oppression, no cyanosis, no edema.
27	7	Water.	30°	9		72	72	"25. A little irregular in time, full & more than usual strong & full at end of bath after 30 min. rest.
28	7	Water.	30°	20		72	68	"26. After 30 min. became very full, strong & regular. After 20 min. fullness still more marked & less regular throughout bath.
29	7	-	30°	20		72	68	"27. During 20 min. rest, P. 60 in time & fullness. After 30 min. rest, P. 60 in time & fullness. After 30 min. rest, P. 60 in time & fullness.

GENERAL REMARKS.

Careful percussion of the heart before and after may have been due to the bath following the seventh bath, showed slight but unmistakable hearty breakfast. But for two or three days past the contraction of its limits about 1 cm. at right border, gymnastics have caused oppression in the pr-

Sch Bath, July 4. The intermittence of the pulse

and the pulse has been small and weak on exercise.

10th Bath. July 7. I note that venous congestion is becoming less visible, and this bath produced a decided feeling of comfort in the chest. Shortness of breath is greatly improved and the action of the kidneys is remarkably free.

12th Bath. July 9. Notwithstanding the discomfort due to gymnastics for the past week the precordial dullness is certainly diminished at the right, and apex beat is permanently within the nipple line.

13th Bath. July 11. Careful percussion, before

lower border of right ventricle to left of epigastrium; slight accentuation of second pulmonary sound. Pulse 100; not very strong. The rapidity and weakness of the pulse this morning was due to springing suddenly out of bed, and to walking and talking to Dr. Herrmann before the bath.

After Bath. Standing, and before dressing. Right border .5 cm. outside of right parasternal line; and apex 1 cm. within left mammillary line. Auscultation. No murmur at apex. Both sounds are fuller and stronger. Second pulmonary a little more accented; second aortic equally as strong as second



July 7, 1903. Before the exercises. Frequency 68-74, pressure 105 mm.



July 7, 1903. After 15 minutes exercise. Frequency 64, pressure 125 mm.



July 7, 1903. After 40 minutes exercise, with pause of 5 minutes. Frequency 66, pressure 140 mm.



July 11, 1903. Pressure 155 mm.



July 20, 1903. After 5 weeks treatment. Pressure 165 mm., frequency 92.

and after bath, showed a retraction of the right border of 1 cm.

16th Bath. July 15. For past day or two I note marked lessening of all symptoms, and the heart has nearly returned to normal size.

17th Bath. July 16. Dr. F. Herrmann of Charloft, Russia, made the following observations:

Before Bath. Percussion. Right border 1 cm. outside of right parasternal line. Apex, .5 cm. inside mammillary line and in fifth interspace. Auscultation. No audible murmur at apex; first sound distinct; slight pericardio-diaphragmatic rub below

pulmonary; pericardial rub a little more distinct. After walking leisurely back to room and remaining in bed for ten minutes pulse 65 and of good quality.

19th Bath. July 19. Dr. Herrmann examined me again this morning and verified the changes in the heart noted after bath No. 17. Except that the pulse is a little weaker this morning there are no ill effects from my fatiguing trip into Frankfurt yesterday. Dr. Herrmann examined my heart after I got to bed and pronounced the first sound prolonged but free from murmur.

July 21. Am sensible of increased strength of the

heart's action; its rate is not so greatly increased on getting out of bed as formerly, and walking up the gentle ascent to the Concert Garden yesterday produced no shortness of breath, only a slight feeling of fullness in the precordia; pulse rate was not very fast. At Dr. Schott's examination on the 21st he was astonished at the change for the better—pronounced the heart of normal size; the first sound prolonged and free from murmur.

July 25. Examined again by Dr. Schott last evening; found no murmur and heart of normal size; his observations confirmed by myself to-day.

25th Bath. July 27. Bath produced agreeable sensation of warmth, alternating with slight coolness as the current swept up along the body. The heart sounds after bath intensified and clearer. I feel a little bit light-headed. The CO₂ was fanned away from my face to prevent inhalation. Before close of bath a sensation of fullness and pressure in lower part of precordia which lasted during the walk home.

26th Bath. July 28. First sound at apex less prolonged and clearer than it was before bath. Second aortic sound fuller and stronger.

27th Bath. July 29. The day was cold and rainy. Less gas in water than usual, nevertheless felt as if I inhaled gas.

After six baths had been taken, that is, at the end of a week's treatment, the pulse pressure, as recorded by Basch's sphygmomanometer, was 105 mm. of mercury, the normal being about 130. At the end of five weeks, after balneological and gymnastic treatment, the pulse pressure had risen to 165 mm.

The subjoined sphygmographic tracings explain themselves. The first three were taken just before and during the first gymnastic treatment, and were designed to exhibit the influence thus exerted on the blood pressure. It will be seen that tracing No. 3 shows increased vigor of the cardiac contractions, but is far from being a normal tracing. No. 5 taken at the close of the course of treatment speaks for itself and illustrates the improvement in the heart and circulation and confirms the evidence given by the sphygmomanometer.

Since leaving Bad-Nauheim, August 2, the writer has not been able to keep up the gymnastics, and his pulse is not as full and strong now as then. But his heart remains normal in size, his previous symptoms have not returned, and he considers himself in excellent health. He intends, however, to supplement the treatment he has had by another course of baths prepared artificially and to resume the exercises.

Case 2.—July 16. Male; 18 years. American. History: measles as child, also diphtheria. Muscular (?) rheumatism in legs and especially of late across shoulders. Formerly given to much swimming and to holding breath under water until head felt as if "it would burst." Fond of violent exercise. Physical examination before bath, standing.

Percussion. Right ventricular border on right parasternal line; apex beat fifth space close within mammillary line. Auscultation. A pure mitral systolic murmur at apex, accented second pulmonary sound. Pulse 92, regular, soft.

In Bath, Spring No. 7, 3½ C. 2 liters "Mutterlauge." Duration fifteen minutes. Pulse, on getting in 92; pulse, after three minutes, 100, and fuller; pulse, after six minutes, 96 full and strong as before; pulse, after nine minutes, 96, quality still better; pulse, after twelve minutes, 92, tension still greater; pulse, after fifteen minutes, 92.

Examined immediately after bath. Standing. Percussion. Right border 1.5 cm. within right parasternal line. Apex beat 1 cm. within nipple line and impulse stronger. Auscultation. The murmur softer. Second pulmonary sound stronger. Second aortic sound also stronger.

July 26. Bath, after using. Duration 15 minutes. Temperature 35.5° C. Examination before bath. Right border is a shade outside parasternal line. Apex beat 1 cm. inside nipple line. Pulse, strong, regular, 96, full, small and compressible. Pulse, after three minutes, 104, but fuller. Pulse, in bath, six minutes, 96, full, after sitting up, 94, upright. Nine minutes, 96, full, so full and a little irregular in force and volume.

In bath, palpation of apex beat detects a slight thrill and the impulse is more diffused, being extended into the sixth space and is a little less powerful. Pulse, twelve minutes, 92, and full but rather compressible. After bath, Apex beat a little more toward the median line, and a little less pounding. First sound strong and no distinct murmur.

Case 3.—July 21. Dr. Hermann of Charkoff, Russia. Age 31; no history of rheumatism; at 13 measles followed by croupous pneumonia of left apex, resolution; formerly as student drank much beer. Copulent with very large abdomen; except constipation no symptoms. Considers himself healthy but pulse uniformly rapid, 90-96. No dyspnea on exertion.

Physical examination before bath. Apex not visible, but palpable in normal situation. Percussion, normal. Auscultation. No murmurs. First sound at apex a little short and distant. Second sounds of proper relative strength. Pulse, standing before bath 96, soft.

1st Bath. Simple, saline. Regular in rhythm, firmer. Temperature 30.5° C. Time, ten minutes. Pulse after three minutes in bath, 76; after six minutes full and stronger, a little irregular in time; pulse, after nine minutes 76; pulse, after ten minutes 76; on examination after bath, heart limits were the same, except perhaps a trifle retracted on the left side, and the sounds are louder and fuller, especially the second.

2d Bath. July 27. Effervescent bath. Temperature 30.5° C. Time, ten minutes. Pulse, before bath sitting, 88, not very strong; pulse, after getting in, 80; pulse, after three minutes, 72; pulse, after six minutes, 70; pulse, after nine minutes, 70, stronger and fuller.

Pulse grew stronger and fuller, but was occasionally delayed without being intermittent. The movement and speaking increased the irregularity. Doctor says he has never felt so weak in a bath before. He noticed, as also did the writer, a slight burning or warmth of the skin, the burning being particularly marked on the scrotum.

3d Bath. July 28. Effervescent bath. Temperature 30.5° C. Time, twelve minutes. Two hours after breakfast. Pulse, before bath, 92; pulse, after one minute, 70, fuller, irregular in time; pulse, after four minutes, 72, more irregular but full and fairly strong; pulse, after eight minutes, 76, more regular, full and strong; pulse, after twelve minutes, 72, quality same, more regular. No sensation of weakness, that of yesterday being due, according to Dr. Schott, to inhalation of CO₂. Auscultation. Detects no difference in heart sounds to-day.

Case 4.—H. H., male; 21 years. History: thinks he had scarlatina at 5; cholera morbus at 12; measles at 16. No symptoms but constipation and slight flatulence. Physical examination. Apex beat in normal situation and of good strength. Percussion. Size of heart normal. Auscultation. Sounds free from murmur and strictly normal, except undue accentuation of second aortic. Lungs healthy.

First observation July 27, 10 a.m., two hours after light breakfast of coffee and rolls. Bath: plain water. Temperature 30.5° C. Time ten minutes.

Pulse sitting varied 88-94, a little irregular in time; rather small and weak.

Pulse, after three minutes 84, a little irregular; pulse, after six minutes 76, fuller, stronger but a little irregular in time; pulse, after nine minutes 72, full and strong.

Auscultation. After second bath, aortic less accentuated and all heart sounds strictly normal and loud. Patient felt a constriction about the waist, and legs were not quite warm.

2d Bath, 4:50 p.m., two hours and twenty minutes after dinner. Bath, simple, saline. Time ten minutes. Temperature 30.5° C. Before bath, sitting, pulse, 88, fairly full and regular but somewhat soft. In bath, pulse, after one minute 72, and somewhat irregular in time; pulse, after five minutes 64, much fuller and stronger, more regular; pulse, after nine minutes 64, full, strong and regular.

There was no feeling of chilliness of extremities as in morning. Heart sounds after bath clear and strong, and second aortic rather less ringing than before.

3d Bath. July 28, 4:20 p.m. Two hours and twenty minutes after dinner. Thermal salt bath with 3 liters

"Mutterlaenge." Temperature 30.5° C. Time ten minutes. Before bath, pulse 88; in bath, pulse, after one minute, 75; was irregular in time but became full and strong; pulse, after five minutes, 64; pulse, after ten minutes, 64. Bath gave no sensation of chilliness but rather one of warmth and comfort. The heart sounds after bath were loud and clear.

4th Bath. July 20. 4:15 p. m. two hours after dinner. Bath effervescent, 30.5° C. ten minutes.

Before bath, pulse 88, soft and irregular; pulse in bath one minute, 72, still, soft and irregular; pulse, in bath five minutes, 70, weak; pulse, in bath ten minutes, 65, fairly full and strong. The weakness and rapidity of the pulse during middle of bath due to inhalation of CO₂. When that was fanned away from face, pulse began at once to improve,

NOTES ON EXERCISES WITH RESISTANCE.

Case 5.—June 30. Mr. H., age 69 years; occupation, farmer history of alcoholic abuse; symptoms of cardiac insufficiency since last fall. Percussion. Heart greatly dilated on both sides from 2.5 cm. within right nipple transversely to 3.5 cm. outside of left nipple, and on auscultation feeble sounds but no murmur. After exercises for forty-five minutes, right border retracted 2.5 cm. and left border to a corresponding extent. Pulse before 114, not much changed in rate but stronger and fuller.

Case 1, Dr. B. (Continued).—First exercise, July 1. Pulse before 68-74. Pressure 105 mm.; after six minutes, 64, quality apparently better; after fifteen minutes, same, quality better; after twenty minutes 64, pressure 125 mm.; after thirty minutes, 66, pressure 140 mm. Percussion. At twenty minutes, border of right ventricle moved inwards 1.5 cm. Absolute dullness also 1.5 cm. Apex before exercises was 1 cm. outside of nipple, now .5 cm. within.

Second exercise, July 2. Pulse, before, 62; after fifteen minutes, 65; after 35 minutes, 66.

Apex beat before, accurately on nipple line, afterwards 1 cm. inside. Right border (auscultatory percussion) which was 1 cm. further from median line than upon rising at 7 a. m., had returned after exercise to the position of early morning, 1 cm.

Third exercise, July 3. Pulse, before 80; after ten minutes, 62; fifteen minutes, 66, but stronger; after 35 minutes, 68; somewhat fuller and stronger.

Fourth exercise, July 4. Pulse at beginning, 84. After fifteen minutes, 69. Thirty minutes, 72. The exercises to-day have not slowed the pulse below 70, from 84 at beginning, consequent upon climbing the stairs. Neither was the pulse rendered greatly stronger or fuller. I think the resistance to the arm movements has been too great for they produce precordial distress. When resistance is very slight they produce a sense of well being, and a favorable effect on the pulse and action of the heart is at once perceptible. Now after a few minutes rest in bed the pulse is slow, steady, and fairly full and strong.

Fifth exercise, July 5. Pulse, before, 67. Pulse after fifteen minutes, 62. Pulse after thirty-five minutes, 60. When properly adjusted, the exercises give a sense of comfort and well being.

Sixth exercise. Pulse slowed to 64, of good volume. Gymnastics have agreed with me; comfortable feeling.

Ninth exercise, July 9. The exercises to-day agreed with me much better, owing probably to my breathing more deeply and regularly.

Tenth exercise. I have discovered that the fault lay, not with the exercises but with me. I held myself too rigid and thereby put too great a strain on the heart. To-day after I made that discovery the exercises agreed with me very well. Dr. Schott examined my heart this morning, and found the dilatation of the right ventricle nearly gone, the epigastric pulsation entirely gone and a systolic apex murmur in the place of the previous presystolic. The second sound pure and the second aortic sound much stronger; in short the indications of a better filling of the arterial system and lessened venous engorgement.

Seventeenth exercise, July 17. The exercises have been agreeing with me for the last several days. Can put forth considerably more resistance without feeling of discomfort in the least; pulse was rapid to-day before the exercises because of much walking and climbing stairs, but has been slowed and strengthened by the gymnastics to its usual rate, 65.

Eighteenth exercise, July 18. Pulse before, 84. Pulse after fifteen minutes, 81, but fuller. After thirty minutes, 88, but still fuller. Felt comfortable, endured much more resistance, an altogether pleased with the exercises. The quickening of the pulse was due to increased resistance.

Twenty-second exercise, July 23. Before the exercises to-day my pulse was, although not counted very rapid, feeble in consequence of much unwise straining at stool, and I felt uncomfortably oppressed in the precordia. After the exercises the pulse was 96, and considerably stronger and fuller and the feeling of discomfort at the heart was gone, having diminished gradually as the exercises progressed.

The foregoing observations corroborate the statements made, concerning the effects of the baths and gymnastics. In Case 1 it will be seen that the pulse became slowed during bath from two to fifteen, most commonly six to ten beats in the minute. The only exception was in the case of the effervescent current bath, and that was probably because it was too stimulating. In the second case there was no slowing of the pulse although the quality was improved. This patient was not one of Dr. Schott's, and the writer became satisfied from daily observation of that patient that the physician did not keep a sufficient watch of the effects of the baths, but prescribed stronger ones than the patient was prepared to take; or that there was something in his daily habits which defeated the end sought and which should have been corrected. This confirmed me in the belief that patients undergoing this treatment should be carefully and frequently observed, as is done by Dr. Schott, even at the risk of unfavorable criticism. The irregularity of the pulse manifested by the two other individuals with healthy hearts is not easy of explanation, and space forbids any theorizing upon it here. They serve to emphasize the effect of the baths, particularly of the saline as compared with the plain water ones. The effects of the exercises are sufficiently explained by the observations noted down. That the writer's observations were so meager is a matter for regret, but it could not very well be avoided. An attempt was made to record sphygmographic and sphygmomanometrical observations during the baths, but was frustrated by the inability to procure the instruments in time. The assurance was given by Dr. Schott, however, of such observations having been made in times past with the result of confirming the claims here set forth.

It only remains to state that, inasmuch as the treatment can be carried out in this country by baths prepared artificially, and by the training of attendants to give the gymnastics, the writer has established bath rooms for this treatment. Although he does not employ it to the entire exclusion of all medication he, nevertheless, is giving it a careful and extensive trial. Like all other forms of therapeutics it should not be employed indiscriminately, or by one not skilled in its use, or fully acquainted with requisite details as to strength, temperature, duration, etc., of the baths. And although natural waters may be preferable, as they are certainly of less trouble, he believes the results of the method will justify his faith in it, even when carried out by means of artificially devised baths.

Venetian Building, Chicago.

NOTE.—The sphygmographic tracings on page 722 were drawn from the originals, which will account for any inaccuracies which may occur.

PRINCETON UNIVERSITY.—The venerable College of New Jersey lacks little of holding the true status of a modern university. It has lacked a medical department hitherto, but we are informed that a movement is now on foot to establish a medical school in connection with old Nassau Hall.

OUR DIAGNOSTIC RESOURCES IN RECTAL AND ALLIED DISEASES.

Delivered by request before the Chicago Post-Graduate Medical School, Auk 30, 1893.

BY JOSEPH M. MATHEWS, M.D.
LOUISVILLE, KY.

PROFESSOR OF PRINCIPLES AND PRACTICE OF SURGERY AND DISEASES OF THE RECTUM, KENTUCKY SCHOOL OF MEDICINE, ETC.

Before entering into my subject, the Faculty will permit me to thank them very cordially for the honor which this invitation confers upon me. Having been a teacher in a medical college for many years, the compliment is doubly appreciated as coming from another Medical Faculty, and one, too, that is the peer of any and all others. It is fit that the shoemaker should stick to his last, and I have, therefore, selected a subject for discussion to-night that may appear to you as being too simple for the occasion, but my apology is that it is the theme that has interested me, to the exclusion of others, perhaps of greater moment, for sixteen years. Then, too, I hope to interest you to the extent, at least, that you will admit it of sufficient importance to be considered.

OUR DIAGNOSTIC RESOURCES IN RECTAL AND ALLIED DISEASES.

I believe that you will agree with the statement that a diagnosis is of equal importance to the treatment in any and all diseases. Indeed, it is difficult to imagine one treating a disease correctly unless he has properly diagnosed it. What a pity it is that our schools do not give more attention to the teaching of physical diagnosis, and more's the pity that we see, every day, people suffering and dying without a proper diagnosis having been made. Having given special attention for sixteen years to diseases of the rectum, it will not surprise you to hear that in that time I have met with many, very many cases that had not only been diagnosed wrongly, but the treatment in consequence was not only incorrect, but engendered much suffering and distress, if not actually causing the death of the patient. I hope that it will not be inappropriate in this connection to recite a case that has just come under my observation:

A gentleman was referred to me by two well-known physicians of a neighboring State, for examination and treatment of his rectum. After a careful examination, I was able to decide that the patient was suffering from a well-defined carcinoma which began about one inch above the sphincter muscle and extended as far as the finger could reach. He was able, however, to have a daily evacuation of the bowels, as no strictured surface prevented, and that too with but little pain. A colotomy was not authorized, and the growth extended too high to be removed. Under the circumstances he was advised to go home and continue palliative treatment. This he did, but I was soon notified that he had fallen into the hands of other physicians who advised him to go to another city for treatment. Upon his arrival there, he wrote back to his former physicians saying that the surgeon said that he had seven large piles, and that after they were removed he could return home in ten days a well man. The operation was done and he was buried the following Monday.

Either the surgeon's diagnosis was wrong or he greatly deceived his patient. It has occurred to me

several times to operate upon patients for cancer of the rectum where a diagnosis of piles had been given. Generally I have attributed the mistaken diagnosis to the fact that the physician did not make an examination, but in one instance, at least, the physician had ligated a portion of the cancerous mass, mistaking it for a hemorrhoid. It is no uncommon thing for a surgeon who does much rectal work to see cases of hemorrhoids, diagnosed as prolapsus ani, or vice versa; benign ulceration of the gut, designated as malignant, or the reverse; a contracted, spasmodic sphincter, called a stricture; a retroflected womb, made out to be a tumor of the rectum; or an enlarged prostate, called carcinoma. Nor is it a surprise to the surgeon to have cases referred to him as rectal, when in truth the trouble is a urethral or meatic stricture, or it may be a displaced ovary or pus tube. It has happened to me to see three women who had submitted to an ovariectomy, whose symptoms failing to clear up, had their trouble explained by detecting disease in the rectum or flexure. One woman was sent to me to have a large rectal tumor removed, when upon examination it was found that she suffered from a displaced uterus only. I have reported two cases of hypertrophied prostate, diagnosed as piles. It is only necessary to refer to the fact that every day patients present themselves to the family physician for advice, having been informed that it is most important that they have some rectal "pockets" removed, which are slowly but surely endangering their health and mayhap their lives. Nor need I tell you that a great operation has been discovered, invented or found, truly national in character, called the "American" operation, which promises relief to the afflicted of whatever kind.

It is upon the supposition and the fact that these things are true, that I have selected my subject for this paper. True, you may say that such mistakes can only be made by ignorant men or pretenders. If your statement is true, then I will insist that much of your duty lies in the protection that you can or should give your clientele. But my experience has taught me that your opinion is not altogether correct, if I am to anticipate it in the words already expressed. Many in the profession look upon the rectum as a fathomless pit and often let its affections go by without investigation, and many irregulars seeing this have been quick to see the chance and profit by it and enrich themselves. That they have made grave mistakes in practice, we can all attest, but it is our duty to correct the evil and not condone it. The main object, then, of this paper is to try to draw your attention more definitely to the importance of making a correct diagnosis in all rectal and allied diseases. By allied diseases is meant affections of other organs which, by continuity or contiguity with the nerve system as a medium of reflex, show symptoms through the rectum, but which in reality have their seat in other organs. One of the most harassing cases that I have ever met was that of a woman who gave the most pronounced symptoms of neuralgia of the rectum, yet no relief was ever afforded her until the coccyx was removed. You will agree with me that the rectum is the seat of many diseases. Hemorrhoids, both external and internal, affect the young, old and middle aged. Cancer finds the rectum a favorite seat and syphilis attacks it, often completely obliterating

and destroying it. A simple fecal impaction of the flexure or rectum may kill, if not diagnosed, and many have lost their lives from hemorrhage from a capillary pile. Proctitis has often been mistaken for dysentery, and an ulceration (simple) in the sigmoid flexure, called cancer and left alone. You will permit me to try to clear up some of these, at least, in a diagnostic way.

METHODS OF EXAMINATION.

It is not at all necessary to have much paraphernalia, or many instruments, to make a rectal examination. With the finger and a good light, either artificial or natural, all, or most all rectal affections can be made out. Speculae are generally cumbersome and do but little good; besides they are extremely painful to any diseased rectum. Indeed, I can not recall any rectal affection that can not be made out by the finger's touch, except one, when in reach of the finger. The exception is the one most commonly believed to be the most easily diagnosed by the finger. I allude to internal hemorrhoids. Unless hypertrophied and made solid by plastic infiltration during an inflammatory attack, or hardened by atrophic change, they can not be felt when within the rectum, and indeed I have often thought that internal piles that did not protrude, needed but little if any attention, unless it be the ligaturing of a small bleeding tumor that was wasting the body by hemorrhage. If you will run over the list of rectal affections, I think that you will sustain me in the position that by touch alone, they can be diagnosed. Polypi are easily detected; a stricture is readily felt; an ulcer quickly recognized; cancer, self apparent; syphilis, clearly traceable; fistulae, external or internal, clearly seen or felt; an irritable sphincter responds quickly to the touch, and hemorrhage plainly seen; the prostate gland fully within reach, its anatomical bearings easily demonstrated and its pathology made manifest; pressure upon the rectum by a displaced uterus, quickly told; a fallen ovary generally within reach; a prolapsus and seen without difficulty when extruded; an impacted fecal mass just within the sphincter easily felt. Of course, for determining a proctitis or other inflammatory condition in the rectum, a speculum examination is necessary. When natural light is not attainable, the electric small globe is an excellent substitute or the use of head mirror with Argand burner, as used by Kelsey, Cook and others, subserves the purpose well. The position of patient for rectal examinations should be either Sim's, on left side to gravitate contents of abdomen toward diaphragm, or on the back with knees held by Clover's crutch.

ANATOMY OF THE RECTUM.

The anatomy of the rectum must be taken into consideration in a diagnostic way. It is not my intention to enter into a description of its minute blood or nerve supply, but I would call your attention to the fact that it is abundantly supplied with each. Its vascularity predisposes fit to inflammatory changes and its large nerve distribution accounts for many reflexes. I am firmly convinced that if the gynecologist and general surgeon, as well as the practitioner of medicine, would oftener look to the rectum as a source of reflex trouble, many vague troubles would be cleared up and many patients benefited thereby. I do not wish to be

understood as advocating any wholesale or unwarrantable "official surgery," but simply to call your attention to actual diseased structures when they exist. I believe that when there is a structural change or a true pathological condition existing in the rectum, such condition may be the means of reflecting symptoms to neighboring or contiguous parts, but I do not believe, nor can it be substantiated that even if such change is found, it is, or can be, responsible for the many diseases that some hold and are, and that can only be, produced by an actual pathology in the parts affected. Dyspepsia, asthma, eczema, neuralgia, etc., have a true cause, outside of any official conditions, and the short-sighted physician or surgeon who is lured into the belief that operations upon these outlets of the body will be of any benefit, will make a woeful mistake and inflict, perhaps, an irreparable injury upon his patient. In this connection I shall be permitted to insert a letter apropos to the subject, lately addressed to me by one of the leading physicians of Kentucky:

"I write to know what this new surgery is that warrants the cutting out (or off) of several inches of the rectum for some supposed or trivial affection. Two men came to our town a few weeks ago and operated upon a young girl (a friend of mine) who is, or was, in perfect health, save a little rectal irritation. The operation consisted in cutting deep down into the cellular tissues, and removing a ring and attempting to unite the upper and lower segments by first intention. Of course it was a failure. This was done five weeks ago. It is now healing by granulation and a stricture has resulted, for which dilatation is now being practiced."

If this whole subject were not really serious, it would be ludicrous, but inasmuch as unscrupulous individuals are playing upon the innocence or ignorance of the public, and by their pretense inflicting great damage and unknown distress, it behooves us as physicians to warn them at least of the danger. I am glad to add that this uncalled for and outrageous procedure has been, and is being denounced by all good surgeons.

Last Sunday I operated upon a very prominent minister from Texas, the object of the operation being to restore, if I could, a sphincter muscle that had been destroyed by the so-called "American" operation. He told me that he was a subject of asthma and had been advised to go to an institute in Chicago for treatment. The treatment (?) consisted of the removal of several inches of his rectum, and a circumcision. A stricture of the rectum followed the excision and he was anesthetized three times, and that cutting, breaking, etc., was practiced. Upon his discharge, or quitting the institution, he found a perfect inability to control his actions. This gentleman is in a deplorable condition, his occupation gone and he expressing a preference for death to the condition he is in.

In a late edition of the *Journal of Official Surgery*, published in this city and edited by a gentleman of rare ability, I find these remarks: "Official surgery is searching in its action; the effects of the work not only reach out to physical disorders but influence profoundly the state of the spiritual man, as by its aid the lame have been made to walk, the blind to see, the asthmatic to breathe, the dyspeptic to digest, the neuralgic to enjoy a relief from suffering and so on through the list of chronic ailments."

So we are to infer, from so distinguished an authority as the originator of official surgery, that the chronic conditions, wherever found, are directly traceable to the orifices of the body. Our text-books then go for naught, our pathology all wrong, physiology but a myth, and great authorities have written in vain. If you have witnessed the surgery done upon one of the outlets of the body, viz: the rectum, and have watched the results as I have in many cases, you will confess that the remedy is much worse than the disease, even granting that the disease was cured. I speak now more especially of the chronic ailments of the body, said to have been treated by the operation upon the orifice where no actual disease existed. Surely these men do not know of the great amount of harm being done by the disciples of such a doctrine. The official operation, or the so-called "American" operation, upon the rectum, consists in the removal of an inch or more of the mucous membrane of the gut, a modified Whitehead's operation. It is tedious of execution, attended with much hemorrhage, the effort to stitch the membrane to the true skin is often futile and the result in many cases an extensive proctitis, an ulceration, or a decided stricture, not to speak of incontinence, which follows the operation. I have many letters giving these results, and have had scores of cases under my observation suffering from one or all of these calamities. I therefore maintain that the operation is unwarrantable and untenable, and would respectfully call your attention to it for a full investigation. In a diagnostic way, I do not believe that the so-called "pock-ets" or papillæ have any significance whatever, as they have been demonstrated by Prof. Edmund Andrews of this city and other learned anatomists and surgeons, to be the rectal pouches (sacculi Horneri) and are normal structures. If, then, it is objectionable to remove these by clipping, etc., how much more unreasonable it is to remove an inch or more of the normal gut for the relief of chronic affections, as dyspepsia, asthma, etc. Kelsey says in the *Manual* for 1892, that whole opera companies are admitted into this same institution and subjected to the "American" operation for the purpose of improving their voices.

REFLEX IMPRESSIONS FROM THE RECTUM.

No one will deny that impressions upon other organs are received from the rectum by reflex action. This fact has been abundantly attested by the profession and many articles have appeared on the subject lately. It has been upon this hypothesis, doubtless, that the "official surgery" idea originated. That there is some foundation in fact for the theory advanced must be granted, but much false reasoning has resulted in many unwarrantable surgical operations, which have resulted disastrously to the patient.

To have reflex action in any case we must have certain and well-defined conditions. They are viz: a, afferent impressions resulting from the influence of a foreign body, or a pathological state, such as inflammation or ulceration, acting as an irritant upon afferent nerves, either in some part of their course or in their peripheric sites of distribution, whether such sites be situated upon the external surface of the body, or upon some part of one or another of the mucous surfaces within the body. Thus it happens that the determining cause may be associated with painful impressions, though in some in-

stances such impressions may be absent. Worms in the alimentary tract of the body are as likely, or more so, to excite to a spasmodic contraction (general) than an affection of any outlet or orifice of the body. The second essential in producing nerve reflex is, that the afferent impressions (painful or non-painful) produced by the irritant or pathological state, should pass from the nerves conveying through them a related nerve center which, from one or other cause, chances to be in a state of exalted activity, and is, thence, to be reflected along one or other set of afferent nerves, so as to produce effects of this or that order. As afferent nerves are distributed to glands and to muscles (both involuntary and voluntary) reflex phenomena may show themselves in one or other of the two principal directions:

1. By the modification of the quantity or quality of some secretion.

2. By the production of spasmodic contraction in certain muscles, either of the involuntary or voluntary type. Under this process of reasoning, it can be easily comprehended how headaches, neuralgias, etc., can originate from an incoordination of the muscles of the eyeball; or an ugly ulcer in the rectum, especially one embracing the prostate, could make manifest symptoms of cystitis. But it must not be forgotten that the one essential to a reflex action is a pathological condition. Disease, or a change from the normal must exist, such as long continued irritation, congestions, inflammations or ulcerations.

At the meeting of the Ninth International Medical Congress, held at Washington, September, 1887, I had the honor to read before the Section of Anatomy, a paper entitled, "The Anatomy of the Rectum in Relation to the Reflexes." Up to that time, very little had been written on the subject, and the further I have pursued the subject, the more convinced I am of its importance, but we must not lose sight of the fact that our premises and conclusions must be based upon strict anatomical and scientific grounds. I will not bore you by attempting to give the anatomy of the rectum, but will make it suffice to say that a diagram of its nervous distribution is easily studied, its anatomical relations plain to understand and its pathology quickly recognized. With these to guide us, a diagnosis based upon a clear understanding of disease can be made out. I therefore regard the anatomy of the rectum, in relation to the reflexes, of the very greatest diagnostic value. Especially should it be borne in mind that, 1, disease and local irritation must exist in the rectum; 2, there must be an afferent nerve fiber; 3, a trans-ferring center, and 4, an efferent nerve fiber, forming a reflex arc.

From the nerve supply of the rectum, it can be easily seen that pain would be manifest over the sacrum and coccyx in rectal disease. If disease is limited to the lower part of the rectum, the patient will complain of pain at the end of the coccyx. If disease is in the central part of the rectum, the pain will be in the center or lower part of the rectum, and when the disease is in the upper part of the rectum, the reflex will be in the upper part of same, in the innominate arch, etc. The location of the reflex, therefore, will indicate the part of the rectum involved, demonstrating that the nerves to any part of the rectum and to the posterior surface of the vertebral column opposite these, are given off from the

same point in the spinal cord, bearing the same relation as the nerves to a muscle and the skin over it.

Bearing in mind these facts, and also recognizing that by contiguity as well as continuity of structure, we can get a reflex impression, many vague conditions can be cleared up in a diagnostic way. In the male we are to remember that the prostate gland, bladder, urethra, inguinal gland; and in the female, the bladder, urethra, uterus, vagina, ovaries and tubes, are especially affected by pronounced rectal disease.

In this connection I will call your attention to the external sphincter muscle, as a factor to be considered in making a diagnosis of rectal disease, and also of its importance in a reflex way. My attention to this muscle as a factor in constipation, was first called by Dr. Rich. O. Cowling, deceased sixteen years ago, then Professor of Surgery in the University of Louisville. He believed that many cases of chronic constipation could be relieved by the free division of this muscle. He, however, had never practiced it. Upon his suggestion, I tried the plan upon a few patients that would permit it and reported the favorable result to one of the medical societies. In the operation for internal hemorrhoids, I always precede it by a free division of the muscle. Many cases that have suffered from the constipated habit have been relieved by the operation, and I have attributed the relief more to the division of the muscle than to the removal of the hemorrhoids. It can be readily seen how this muscle could in a mechanical way interfere with the act of defecation, and in a physiological way prevent the peristalsis of the bowel which it greatly controls. It frequently becomes hypertrophied by the inflammatory process, and hence is not only easily irritated itself but irritates, when in this condition, all the other contiguous parts. The nerve supply of this muscle is greater than that of any other muscle of the body, which accounts for its great disposition to reflex action. The nerve supply coming from three different sources gives it a clear relation to all the neighboring parts. I have known a simple spasmodic action of the muscle to give rise to symptoms closely simulating proctitis, proctitis, cystitis and in a few cases urethritis, not to speak of reflected back ache, thigh ache, etc.

Children often suffer from a constipated habit, accompanied in many instances by extreme pain. The cause of such condition is often overlooked, and we are much indebted to Dr. Morton of St. Joseph, Mo., for an article entitled, "Fissure in Infants," as an overlooked cause of distress in the infant. The fact that such cases frequently existed was attested by Drs. Jacobi, Sadtler and myself, and the importance of their detection is shown in this valuable paper.

THE IMPORTANCE OF RECOGNIZING DISEASE IN THE SIGMOID FLEXURE.

For a number of years I have been investigating disease in the sigmoid flexure, and have recorded much of my experience in my book on "Diseases of the Rectum, Anus and Sigmoid Flexure," recently published. Much depends upon the early diagnosis of such cases. From its anatomical construction and situation, it is easily seen that disease there would be much more serious than in the rectum. Total obstruction can much more readily take place and the results prove much more disastrous than from like disease in the rectum. Any pathological condition, from a simple congestion to a malignant

growth, may affect the flexure. If early detected, a congestion or an inflammation, can be easily abated, and yet if left alone or undetected, result in structural change such as ulcerations, strictures, etc., which renders the chance of cure very slim. The sigmoid has been successfully removed for cancer. But the success of treatment of disease here, either benign or malignant, depends entirely upon an early recognition.

I shall not enter into detail to prove that the flexure is a common seat of disease, but will take it for granted that it is acknowledged. Nor will I but simply suggest that it is but too infrequently treated, for to this fact, too, you will attest. Of the importance of an early diagnosis and treatment, I am sure you are convinced. The books are singularly silent as to both. It is a very common thing for all irritation in the flexure, either from congestion, inflammation or ulceration, with its coincident discharge and symptoms, to be diagnosed as diarrhea, dysentery, chronic catarrh, etc., and treated generally per mouth, when a proper recognition of the trouble would reverse the order of treatment and by a few injections into the flexure would relieve. I will make it suffice for illustration to give you the last case of the kind that has fallen under my observation:

Mr. J., aged 28, of full, robust habit was referred to me by his attending physician with the statement that the patient was suffering from a diarrhea, or dysentery, which he was unable to control after a treatment of four months. Upon questioning the young man, who was a civil engineer, he related that his trouble began about five months previous while out on the road, not violently at all but as a moderate looseness of the bowels, accompanied with some straining at stool. The discharge had never been watery but had always contained some mucus and blood. Although it would appear that this was characteristic of dysentery, he had never had an abnormal temperature nor had his appetite been interfered with, though he had not indulged it. In four months he had lost forty pounds of flesh and was growing weak. He complained of pain in the left side over the flexure, which was aggravated by pressure. An examination of the rectum revealed but little, yet as a rectal bougie was introduced into the flexure, pain was excited at its point, a disposition to tenesmus, and a desire to go to stool. The proper local treatment was given the flexure and the trouble disappeared in ten days.

I shall make it suffice to give the classification of disease found in the flexure, with the most important points looking to its proper diagnosis. There are two points that I would especially call your attention to in considering inflammation of the intestine: 1, the surface of the membrane will be more or less covered with a viscid, glairy mucus, containing pus and imperfectly formed epithelial cells, which may frequently be voided in the form of complete coats of the tube; 2, it is unusual for a chronic inflammation of the intestine to exist in adults without coincident ulceration. These two points will aid us materially, especially in differentiating between benign and malignant troubles of the intestine.

The following pathological conditions are found in the flexure: 1, congestion; 2, inflammation; 3, simple ulceration; 4, specific ulceration; 5, malignant ulceration or growths; 6, stricture, either malignant or non-malignant; 7, tuberculous ulceration. It is

of the utmost importance to diagnosticate each of these, and yet it will often prove to be a difficult thing to do. For instance, if a simple ulceration be mistaken for a malignant one, the proper cure or treatment is not likely to be afforded and, vice-versa, if a malignant ulceration is mistaken for a benign one, time is given for such inroads as would render an operation useless.

Again, it is very necessary to recognize the difference between a *specific* ulceration, and that which is either benign or malignant, in order that the constitutional symptoms could be rapidly met. You will permit me, therefore, to devote a little time to giving what I consider some essential points in differentiation:

Congestion.—A distinction should be made in a pathological way between a congestion of the flexure and an inflammation, for the former can be relieved, when recognized, before the phenomena of inflammation has taken place. In other words, as soon as the irritation, which causes the distension of the blood vessels is removed, a normal condition is immediately assumed, when, if the inflammatory product is already thrown out, time must be given for its re-absorption. The symptoms attending a simple congestion of the flexure are very like those of an ordinary colitis, the only difficulty being to decide what part of the colon is affected. Very often a discharge of mucus alone, with or without a disposition to tenesmus, accompanied with slight pain over the flexure, is our only guide. A very simple local treatment quickly relieves these cases. I have seen patients discharge as much as six ounces of mucus a day from this simple condition.

Inflammation.—When a congestion has existed for a sufficient length of time to allow of plastic change, the condition is much more serious and difficult of cure. The symptoms are more marked, viz: those of reflex such as pain in the back, colicky pains in the stomach and bowels, often a localized sensation over the left inguinal region, a great amount of flatus, diarrhea, sometimes constipation, straining at stool caused by the feces passing through the inflamed flexure. The discharges often assume a dysenteric character, though not so apt to as when the flexure is ulcerated. These patients count themselves invalids and are often treated for chronic dysentery, though no rise of temperature is apparent. The most frequent cause of this condition is constipation, as the physiology of defecation will demonstrate. After the re-absorption of the watery constituent of the fecal mass takes place, the remaining dry mass acts as a local irritant which brings about the structural change with the coincident symptoms.

Simple Ulceration.—It requires but a step from the inflammatory stage for the changes of ulceration to take place. Indeed, whenever an abrasion takes place in the mucous membrane, the process rapidly advances. It is a much more serious condition than either of the other two, for it represents in ratio the third state of the inflammatory act or, more properly speaking, is the degenerative stage of the plastic deposit. As a result, not only do strictures form when an effort at repair is made, but the tissues may give way and perforation take place. It invites impaction and the reverse may be true, that impaction may be the cause. My experience is that impaction oftener takes place in the flexure than in the rectum and is much more dangerous.

The symptoms attending the ulcerative process in the flexure are plainly visible. In the congestive or simple inflammatory stage, the reflexes are perhaps mild; they are now well marked; the pain was slight; it is now well established; the discharge was principally mucus; it is now mucopurulent and bloody; the actions then infrequent; now frequent. There is great straining at stool and after each action a feeling of exhaustion; the desire for an evacuation constant but often nothing passes except large quantities of gas. The bowel never feels emptied; an uneasiness always in the abdomen. This condition of affairs leads the patient and often the doctor to suspect malignant trouble, as a rapid waste of flesh takes place and a bad color results, or perhaps a chronic catarrh is diagnosed and the ordinary treatment given which accomplishes no good. By proper and careful local treatment of the flexure, the disease yields rapidly and kindly.

Malignant Ulceration.—The rules laid down for diagnosing cancer are generally so explicit that the student thinks there exists but little difficulty in coming to a quick and correct conclusion, but the surgeon of experience admits that it is often a difficult problem to solve. The so-called infallible symptoms fade away as observation leads one to consider them. The disposition to bleed; the peculiar burning, or radiating pain; the odor which by some is said to be pathognomonic, each and all of them may be found absent, and the verdict after all has to be made up by the study of the clinical facts in the case. Even the reliable aid of the microscope on which many rely, will be found futile in the effort to decide the knotty question. Heredity, which many have so earnestly advocated and which is so generally believed to play its part in the affection, will be found of but little value to us in forming an opinion, and yet it is a life and death issue literally that faces us. If, then, these difficulties surround us in making out a malignant growth, when the trouble is plainly in view, how much more difficult is the problem when malignant disease is located in the sigmoid flexure and away from sight. That it is a favorite site for cancer no surgeon denies, and with the examples set us by such men as Bull, Lange and Bacon, we realize the necessity of an early diagnosis, in order that the flexure can be removed, for upon surgical treatment alone can any hope of a cure be based, when cancer exists in the flexure. The symptoms of malignancy in cases of this kind are very vague and misleading. The very best surgeons have made mistakes in this direction. It has not been many months ago since a gentleman in an interior town of Indiana consulted me for some supposed bowel trouble, and I gave the opinion that the disease was in the sigmoid flexure and would be the cause of his death. This opinion was concurred in by Dr. G. J. Cook who had seen the case some weeks prior. A short time thereafter, he consulted one of the most eminent surgeons in this country living in Chicago, who assured him that no such condition existed and that his trouble was largely imaginary. The patient died in a short time and an autopsy revealed a cancer of the flexure that had perforated into the cavity. The following cut represents the tumor removed by an autopsy made by Dr. Cook which verifies the opinion of Dr. Cook and myself in the case:

I contend that by palpation and the ordinary external methods of examination, a tumor can not be

diagnosed in the flexure in a person who has a large abdomen if, indeed, it can in the ordinary sized abdomen, and that, granting a tumor *could* be made out, no significance could be attached that would indicate its nature except upon suspicion. As apropos to this subject, let me, at the risk of tiring you, relate a case that I saw with two able physicians not long ago:

The patient was an able-bodied German about 40 years of age, suffering from a total obstruction of the bowels. From the history of the case, his phy-



Malignant tumor found in sigmoid flexure.

sicians had ruled out *acute* obstruction or intussusception, but they were unable to locate the point of obstruction. I suggested the administration of an anesthetic, and that I might be permitted to introduce my hand for diagnostic purposes. This was agreed to, and when the man was fully anesthetized two fingers were first introduced through the sphincter, then four, and finally the whole hand, the muscle plainly giving way. Pushing my fingers to the entrance of the sigmoid, I detected a well-formed cancerous growth which filled the flexure and nearly obstructed the opening. An immediate laparotomy was advised and was done. The two points which I wish to impress are: 1, that it was impossible to make a diagnosis here by external means; 2, that by the introduction of the hand it was quickly determined. In many cases, therefore, I believe that this procedure should be practiced. When we remember that

cancer in the sigmoid may be so insidious as to be fatal without presenting but few, if any, of the ordinary symptoms of the disease, often the only symptom being obstruction, I believe that the introduction of the hand is the only means by which a correct diagnosis can be effected. It might be suggested that the rectal sound tube, etc., might accomplish the same purpose, but when it is remembered that an obstruction in the flexure can occur from other conditions, as impacted feces, foreign bodies, etc., it takes the *feel* or touch to determine the question.

Tuberculous Ulceration, and Stricture of the Rectum.—I know of no disease or condition of the rectum that is more serious or that calls for a more decided diagnosis than does ulceration with consequent stricture. Much has been written on this subject and many of the points involved are yet mooted. In the general address on surgery, before the AMERICAN MEDICAL ASSOCIATION in 1891, which I had the honor of delivering, this was the theme selected. As my views expressed in that paper have received some criticism you will permit me here to make some reply, as the questions involved are mainly diagnostic ones.

It is no difficult matter to diagnosticate a stricture of the rectum; in the vast majority of cases it can be felt, for it is generally within reach of the finger. But granting that the upper part of the rectum is strictured and not the lower, instruments can be used for the detection, which is, however, seldom necessary. But it is a very difficult matter to tell the cause of said stricture, or to diagnosticate between the conditions set down as causes of this trouble. I did not in that article, nor do I wish now to appear dogmatic, but you will, I hope, allow me to express an individual opinion, even if it does differ with some of the authorities. The article objected, first, to the classification of stricture as given by some authors; as for instance I believed that "spasm" as a cause should be ruled out. If such condition ever exists which is to be doubted, it was merely from irritation and had no pathology of stricture in fact.

2. That congenital stricture should be classed as atresia, for the idea to be conveyed in writing of stricture is to deal with a pathological change of tissue.

I said that although it is frequently stated that dysentery is a common cause of stricture of the rectum, I had never seen a case of sufficient worth to convince me of the truth of the statement or, indeed, that it was a cause at all. To substantiate this belief, the following statements were adduced: Prof. John A. Ouchterloney, a distinguished pathologist and teacher, in discussing the subject said: "I call to mind a dead-house experience extending over many years. During the war I made postmortem examinations upon hundreds of cases who died of dysentery, the most malignant form of the disease as all will attest whose observations extend back to war times, and I can not remember to have ever seen a stricture of the rectum as the result of dysentery. In the two hospitals to which I was pathologist, there were eleven hundred and fifty beds and we sometimes made as many as five or six postmortems a day. After the close of the war I was for many years pathologist to the City Hospital, but in all my dead-house experience I never saw a stricture of the rectum caused by dysentery."

In dealing with dysentery as a so-called cause of stricture, I said that an ideal case for a pension would be when a soldier could show a stricture of the rectum, the result of dysentery contracted during war, and incidentally remarked that the Pension Office was singularly silent on that point. After writing my address, I noticed in the "History of the War of the Rebellion" that Surgeon-General Woodward said: "Stricture resulting from dysenteric ulceration seems to have been much rarer than might have been supposed, and that no case has been reported at the Surgeon-General's office, either during the war or since. That the Army Medical Museum does not contain a single specimen, nor had he found in the American medical journals any case substantiated by postmortem examination, in which this condition is reported to have followed a flux contracted during the Civil War."

Again, if dysentery is the common cause of stricture that some say it is, why is it that it is not more commonly met in people who have suffered with the disease in warm climates where dysentery is very common, indeed often epidemic, but how many cases of stricture of the rectum have ever been reported in this class by physicians who have had the opportunity of watching their cases for years? It might be suggested as a point in the etiology of stricture that dysentery does not, as a rule, expend its force in the rectum, but in the colon. If this be true, why is it that we do not have the report of cases of stricture in the colon, the result of dysentery? Whenever the effect of inflammation is expended in the intestines, it affects mainly the mucous membrane and not the submucous tissues. I submit, then, that these evidences are quite sufficient in my opinion, to make us careful in forming a diagnosis of stricture, especially in regard to its cause; as not only the treatment depends upon it, but also the life of the patient perhaps.

In the classification of stricture of the rectum, given by some, it is claimed that tubercle plays a prominent part. That we meet with tuberculous ulceration of this portion of the gut must be admitted, but it has not been my experience that a coincident stricture follows. The disposition of tuberculous tissue everywhere is to break down, and before the capacious rectum is filled by such deposit as to constitute a stricture, it will have assumed the ulcerative stage and given way. The only way that such tissue could originate a stricture, in my opinion, would be by cicatrization and such cases are rare, to say the least of them. In no instance have I ever seen a stricture of the *bronchi* from tuberculosis, and yet we recognize this as a favorite seat for tuberculosis. I regard the disease of but little diagnostic value in stricture of the rectum. The tubercle bacillus can, of course, be detected by the microscope.

Syphilitic.—By all odds the most common cause of stricture of the rectum is syphilis, not caused by direct inoculation or the extension of chancreous pus into the rectum, as formerly believed by some, and still believed by a few, but by a gummatous deposit, constituting a rectal syphiloma. Indeed, so well convinced am I that this is the method in which syphilis shows itself in the rectum that I have doubted whether chancreous pus ever caused a stricture of the rectum. Granting that such might originate a stricture, it could only occur by infecting the region of the anus and constrict by cicatrization of the sore.

This would not be a syphilitic stricture, but a tumor in fact. There is, as a point in time, so close must be affirmed that the constriction is due to a secondary, not primary, cause. My table of cases demonstrates that as much as 50 per cent. of strictures are due to syphilis. Dr. Strauss, an eminent surgeon of St. Louis, says that the hospital reports of St. Mark's agree with this statement, he having lately examined said statistics.

Cancer is, undoubtedly, the second greatest factor in producing stricture of the rectum. I have never said, as has been attributed to me by one authority, that outside of syphilis and cancer, there could be no other cause of stricture of the rectum, for in my book on diseases of the rectum, I distinctly say that any irritation sufficiently long continued as to excite to a marked proctitis, especially with ulceration, might eventuate in a stricture, and cite several cases. But I did affirm, and do now reiterate, that these cases are rare compared with syphilis and cancer as causes. I did *not* say that if a case presenting did not have cancerous stricture, that it was of necessity syphilitic origin. What I did say was, that in a case presenting, if the question involved was whether the stricture was caused by cancer, and if it was decided that it was not malignant, then that ninety-nine times out of a hundred, it would prove to be syphilitic. Why? Simply that there is no stricture produced by other causes than syphilis, that resembles in the least a cancer stricture. Certainly then, trauma, simple inflammation or even dysentery do not in the least resemble a malignant or cancerous condition, while syphilitic stricture is so closely allied to cancer in its clinical aspect that it is often mistaken for it. Hence I said that if it was decided not to be cancer, in the majority of cases, it would prove to be syphilitic and not a stricture from other causes, which is far from saying that if stricture was not cancerous, it was syphilitic. Therefore, I deem it of the utmost importance to be careful and positive in your diagnosis of a rectal stricture, for if the condition be diagnosed malignant, when benign, you have greatly wronged and terrorized your patient; if a diagnosis of syphilis has been made when the stricture is due to other causes, I quite agree that a stigma may be passed upon an innocent person, but if you should diagnose a syphilitic stricture as a simple one, you will have undone that which might wreck the life of a good man or an innocent woman. But I would rather err on the side of truth and if the truth hurts, you have but done your duty. No man believes in sentiment more than myself, but when sentiment comes between deception and truth in the prosecution of my professional duties, sentiment must get behind.

If I have given you any one point in your diagnostic resources of rectal and allied diseases, that is worthy of your consideration, and that may be of benefit to one single afflicted person, I am fully repaid.

FOUNDS A STATE MEDICAL LIBRARY.—Dr. Robert Battey of Rome, Ga., has presented to the State about 1,000 valuable medical works from his private library, asking that they be made the nucleus of a medical reference library in the State Capitol in Atlanta, the State's need of which he has often realized during his professional career.—*Atlanta*

RECENT OBSERVATIONS IN COLOTOMY, WITH CASES IN LONDON.

Read in the Section on General Surgery at the Nineteenth Annual Meeting of the Mississippi Valley Medical Association.

BY J. RAWSON PENNINGTON, M.D.

1003 COLUMBUS MEMORIAL BUILDING, CHICAGO, ILL.

FORMERLY ASSISTANT TO THE CHAIR OF SURGERY AND DISEASES OF THE RECTUM, KENTUCKY SCHOOL OF MEDICINE.

Having had an opportunity recently, of seeing quite a number of colotomies performed at St. Mark's Hospital, London, I thought it would not be amiss to record my observations of some of the most important cases which I deemed worthy of consideration.

In the preparation of the patient, if time allow, and it is practicable, the bowels are relieved by means of purgatives and enemas, as this frequently obviates the necessity for the immediate opening of the gut. From twelve to twenty-four hours prior to the operation, the same preliminary preparation of the skin is made as for other abdominal incisions and an antiseptic dressing applied over the field for operation. Whenever there are no contra indications, chloroform is the preferred anesthetic, not that it is considered safer than ether, but because of many advantages afforded during the operation, for with it there is greater muscular relaxation, less frequency of respiration and tendency to cough than with ether, hence, the work is facilitated to that degree. Again there is not so much hemorrhage from the small arteries and veins. Mr. Richard W. Lloyd, the anesthetist, said to me, that he preferred ether, but that in abdominal surgery, he had often commenced with ether and found it necessary to change to chloroform. Whenever ether is given, Clover's small apparatus is used for its administration, and, as a rule, it is preceded by a few inhalations of gas. For chloroform, from fifteen drops to a drachm is sprinkled upon a piece of folded lint, about the size of a closed sheet of note paper, which is then held six or eight inches above the face during several respirations, and gradually brought nearer, until it forms a kind of dome over the mouth and nose, the edges falling lightly over the face, more chloroform being sprinkled upon the lint from time to time, previously to its being turned over. Patient's chest and legs are covered with blankets, over these a mackintosh and over this sterilized towels.

Left inguinal colotomy being the most frequently performed, I shall treat of it first. In this operation an incision two inches long and about one inch to the inside of the left anterior superior spinous process of the ilium and parallel with Poupart's ligament, is made through all the abdominal structures down to the peritoneum. All bleeding being stopped, the peritoneum is then divided and secured with a clip on either side, to prevent its being pushed away, and a small flat sponge, having a string attached, is now thrust into the abdominal cavity, to keep the intestines out of the way, and to catch any blood that might escape into the abdominal cavity while the parietal peritoneum is being stitched to the skin. The sponge is then withdrawn and a loop of the sigmoid is brought out through the opening and, when advisable, continuing to pull the intestine out from both the upper and lower angle of the incision until each end is made taut. A needle threaded with carbolized silk is then passed

through the mesentery one-half inch behind the bowel, midway between the upper and lower angle of the incision, back through the mesentery, then through a fold of skin, on the outer edge of the opening, and tied. (Allingham.) Cooper, Edwards and Goodsall pass the mesenteric suture through the skin, parietal peritoneum, mesentery, parietal peritoneum and skin, then back through the same structures and tie. The prominent piece of gut, outside of the abdomen, is next made fast to the skin by five or six sutures, care being taken not to pass them through the mucous membrane of the bowel. The gut is then dusted with iodoform, green protective applied, and over this gauze, then a large pad of cotton and a broad, many-tailed flannel bandage completes the dressing.

The patient is then placed on his back in bed and, if there are no contra indications, with his head low and a pillow placed under his knees. Opium is given if pain is very great, or severe diarrhea begins. A soda and milk diet is given for the first day or so, and, if the patient is very weak, a little whisky is allowed. After the bowel has been incised, fish, toast, etc., is added. On the second or third day, or earlier if necessary, after the operation, an incision one inch and a half or two inches long is made in the intestine to permit the gas to escape, and on the following day an aperient is given. In about a week or fortnight, the bowels having been well emptied, patient is again chloroformed and the supplementary operation completed, which consists in removing the excessive gut.

Case 1.—R. C., age 28 years, admitted into St. Mark's Hospital May 6. Been troubled with constipation ten or twelve years, married for two years and has a nursing child nine months old; heart, lungs and kidneys healthy. Two years ago first noticed that there remained after stool a sensation as if the bowel had not been completely emptied, and frequently observed blood mixed with the excrement. This condition of affairs has continued to grow worse, and for the last six or eight months she has been annoyed with a constant desire to defecate and at each action passes mucus, blood and liquid feces only. Pain in the rectum and bearing down pains in the pelvis are very severe with each motion. She appeared very much emaciated. Examination revealed a cancerous mass in the rectum, painful to the touch, with a crater-like opening, involving the uterus, vagina, and almost occluding the lumen of the bowel.

May 9, Mr. Cooper performed left inguinal colotomy. May 11, The dressings were removed and the gut incised, May 12, Aperient given, May 13, Bowels acted through the colotomy opening. May 15, All sutures removed. May 17, Patient chloroformed and Mr. Edwards cut away the excessive portion of the intestine, about one-fourth of an inch above the incision. No clamp being applied, the hemorrhage was very profuse and difficult to control. Bowels acted from the upper opening. June 3, Patient discharged, relieved, and well pleased with the result.

I report the above, somewhat in full, because it serves to illustrate the usual course and result of the average case of inguinal colotomy.

Case 2.—Miss B., age about 18 years, schoolgirl. June 13, Left inguinal colotomy performed by Mr. Allingham for stricture and ulceration of the rectum. On pulling out the sigmoid it was found to be twisted upon itself. The mesentery being quite long, twenty inches of the gut were pulled through the opening and fixed outside of the belly wall. In this instance, the mesenteric suture was left rather long, to serve as a kind of guide in opening the gut. Usual dressing applied; bowel opened on the third day, and on the tenth, applied his clamp and completed the supplementary operation.

This was a case in Mr. Allingham's private practice, which he kindly invited me to see, and the huge amount of intestine removed (twenty inches) makes

it one of special interest. He recommends that where patients are likely to have a long lease of life, to remove all the intestine that can be drawn through the inguinal opening, but when the patient is very much exhausted from malignant disease, and not likely to live long, to be content with pulling out sufficient bowel to make a good spur; and from observations made in the out-department at St. Mark's, I am inclined to believe that the method of Mr. Allingham is to be preferred to that of those who advise pulling out the intestine from the upper angle of the incision and passing it in again at the lower, for in those cases in which the proximal and distal end of the intestine had been pulled out, until no more could be made to protrude, no prolapse or hernia was seen, but when this precaution had not been carefully taken, hernias and prolapses were frequently observed, and they are a source of constant annoyance, trouble and discomfort to the patient. Doubtless this supplementary procedure increases to a certain extent the seriousness of the operation, but if the patient's life is to be prolonged for a number of years this possible hernia must be prevented, or his future existence will be a very unhappy one indeed. Right inguinal colotomy is performed in very much the same manner as that of the left, except that the incision is usually made a little lower down and rather nearer to Poupart's ligament.

Case 3.—S. S., age 64 years. Constipation for twenty-five or thirty years. For the last six years has had occasional pain in the right side and groin. Two years ago noticed that blood was mixed with her motions. She now complains of incessant teasing diarrhea, great straining, and never obtaining relief during defecation. Examination revealed a movable tumor, with elevated edges springing from the left side of the rectum, which the finger passed well beyond. May 9, Mr. Cooper began left inguinal colotomy. Failing to find the sigmoid, cold water was injected into the rectum, when it was noticed that it passed into the right iliac fossa. The water was withdrawn, the opening in the left side closed, and an incision made in the right inguinal region, where the gut was readily found which was, presumably, the misplaced sigmoid. Patient was very restless during the night following the operation, retching, vomiting and complained of severe right abdominal pain.

May 10. Dressing removed, gut being very much distended; was immediately opened and a great quantity of flatus escaped. May 11. Supplementary operation performed. This colotomy was done preparatory to an excision, but being so well pleased with the result she refused to have anything further done, and was discharged June 10, relieved.

This case is of special interest: 1, because of the abnormality of the sigmoid; 2, because some authors maintain that, prior to an excision of the rectum, a preliminary colotomy is an important factor and very necessary to the welfare of the patient, while others would excise at once.

Lumbar colotomy is not nearly so frequently performed in the Allingham school (if I may be allowed the term) as the inguinal operation; however, it is done whenever indicated. The following case, because of the completeness of the obstruction, the great distension of the intestines, and the necessity for the immediate opening of the gut, was considered a typical one for the operation:

Case 4.—Patient, age 52 years. Average weight less than ten stone. On admission into St. Mark's was found to have a large cancerous mass, completely blocking up the rectum. Abdomen greatly distended, having a "doughy-like" feel, and outlines of the intestines could be seen and mapped out over it in several places. He measured thirty-six and one-half inches around the abdomen at umbilicus; four

and a half inches above the umbilicus, thirty-seven and one-half inches; umbilicus to ensiform cartilage, eight and one-half inches; umbilicus to pubes, seven and one-fourth inches. Mr. Edwards who performed left lumbar colotomy in this case, made an incision three inches long, parallel to the last rib, and midway between it and the crest of the ilium; the center of which was rather more than half an inch posterior to a point midway between the superior spinous processes of the ilium. Bowel was stitched fast in the incision and opened at once, when a large basin of liquid feces were removed. Motions continued to pass through the opening and in eight days all distension gone and sutures removed. Discharged in six weeks, relieved.

Transverse colotomy is very rarely performed. Allingham, Bennett and Turner each reporting one operation.

Case 5.—B. D., age 32, was admitted into St. Mark's Hospital under the care of Mr. H. W. Allingham, who diagnosed his trouble as one of dysenteric stricture of the rectum, the extent of which could not be determined. Patient had the appearance of having been a very strong man. He resided in one of the tropical regions, and gave a history of having had a number of attacks of dysentery, which, he said, had weakened and reduced him very much in flesh. No history of syphilis could be obtained. Apart from the symptoms caused by the stricture he complained of pain and soreness in his bowels, and pressure over the pelvic region elicited pain and tenderness. Mr. Allingham began the operation of left inguinal colotomy, but in coming down on the colon found it so bound down by adhesions, near to the middle and posterior wall of the pelvis, that it was impossible to pull it up into the incision. He, therefore, closed the opening and did the transverse operation, having ascertained through the first opening that the colon was fixed too far away to do a left lumbar operation. In this case the final incision was made one inch below the umbilicus and a little to the left of the median line, and here the transverse colon was so matted down that it could not be brought far enough into the opening to make a good spur. However, it was stitched fast into the incision, the result being a fecal fistula instead of an artificial anus. In about six weeks he operated upon him again for the fistula and slight contraction of the opening. Small incisions were made in the right, left and dependent sides of the orifice, the mucous membrane of the posterior part of the colon brought forward and stitched into the incision on the left side, hoping that it would unite and serve to direct the motions out through the opening. This gave way, however, and the purpose of the operation was defeated.

In submitting this case I am aware of the fact that it is a mooted question as to whether or not dysentery is a cause, or at least a frequent cause, of stricture of the rectum. Therefore, I desire to state in this connection that Dr. Woodward, U. S. Surgeon General during the late war, recorded no case of intestinal stricture resulting from dysenteric ulceration, and there is no specimen to be found in the Army Museum. While Dr. Joseph Ewart (Art. on Dysentery, Quain's Dictionary of Medicine) states that "if the ulceration involves a large portion of, or the whole circumference of, the mucous membrane, the subsequent contraction may produce dangerous narrowing of the caliber of the gut or stricture of the sigmoid or rectum." Mr. Cooper and Mr. Edwards in their book on "Diseases of the Rectum" state that "ulceration due to dysentery is another cause of stricture of the rectum, though opinions differ as to the frequency of such complication," and that, "in fatal cases of tropical dysentery, the morbid changes are sometimes found to extend from the cecum to the anus, and to be most severe in the sigmoid flexure and rectum."

Dr. Matthews, in his "Treatise on Diseases of the Rectum," says: "I have many times seen patients who gave a history of having had dysentery, and were treated for a long time for the affection; but a close scrutiny of the case revealed the fact that the so-

called dysentery was caused by an already existing stricture and ulceration, the rule here being reversed, that dysentery was the result not the cause." Again, he says: "The sloughing in these cases occurs from the gut *above* the rectum," and further: "I must confess that in searching for this as a cause, the road to a conclusion has not been plain enough for me to put dysentery in the list as a cause at all for *stricture* of the rectum."

These are the words, not only of the pioneer rectologist of America, but of a distinguished author and teacher, and one whom we honor for having done so much by his indefatigable perseverance, energy, close observation and contributions to elevate and place this very important branch of surgery alongside the other recognized and legitimate specialties of medicine and surgery.

In closing, I desire to state that my endeavors will not have been in vain, if some of the ideas or hints herein contained should prove to be of some little use to you; also that I have to thank Mr. Cooper, Mr. Goodsall, Mr. Edwards and Mr. Allingham for their kind consideration, attention and interest shown me, and for the many opportunities afforded for examining and observing cases of cancer, and other diseases of the rectum, under their care. I am, also, greatly indebted to the House Surgeon, Mr. Ryall, for numerous other privileges granted me in the hospital and out-patient department.

SYPHILIS INSONTIIUM: A PLEA FOR THE RESTRICTION OF SYPHILIS, AND A SUGGESTION FOR THE PREVENTION OF ITS SPREAD.

Read by title in the Section of State Medicine, at the Forty-fourth Annual Meeting of the American Medical Association.

BY L. DUNCAN HULKLEY, A.M., M.D.

NEW YORK.

"Syphilis of innocents" has long since ceased to be the subject of satirical remark, and syphilis itself has long since ceased to be regarded as a purely venereal disease. Syphilis stands to-day as one of the most important diseases affecting the human race, and its study has occupied the thought and activity of observers almost more than that of any other malady, while its literature probably exceeds that relating to any other single disease.

The advances which have been made in the knowledge of the cause, manifestations and results of syphilis during the past fifty years are very great, and have done much to limit its extension by innocent means, and have also served to rob the disease of much of the terror with which it has been surrounded in earlier times. But with all the advances in our knowledge of the disease, and with all our present acquaintance with its pathology and our power of control over it therapeutically, syphilis stands to-day a menace to the public health which has not yet received the attention that its importance merits from sanitarians and jurists.

All are more or less familiar with the agitations which have from time to time arisen, especially in Europe, in regard to the restriction of the spread of syphilis; and the excitement caused by the discussion of, and final repeal of "The Contagious Diseases Prevention Act," in England in 1886 is still fresh in the minds of many. It is foreign to our immediate

subject to discuss the arguments for or against any of the legislative enactments which have, from time to time, been made in various countries in regard to the regulation or control of prostitution, one of the chief incentives thereto being to prevent the spread of syphilis. But I can state, without fear of contradiction, that those who are most acquainted practically with syphilis realize strongly that some measure of control of the disease has been effected where stringent measures of inspection have been carried out, although all realize that at the best but a moderate control over it has been effected, even under the best systems thus far devised and executed, more or less perfectly.

As before stated, with syphilis in its relation to prostitution we have nothing to do in our discussion this evening, except so far as it may touch our subject of the "syphilis of innocents;" we approach the subject of the restriction of the spread of syphilis solely from this aspect, and argue for the control of the disease by health authorities wholly on behalf of the vast army of innocent sufferers from a disease which is absolutely preventable, provided the absolutely proper measures could be and were absolutely carried out. The proper measures for its restraint will never be instituted until the public is thoroughly alive to the relative frequency and importance of syphilis as a non-venereal disease, and the rights and claims of those who may be innocently infected thereby. The further elaboration of this subject will be our task this evening.

The subject of marital syphilis, which has been so elaborately and fully discussed by Langlebert,¹ Fournier² and others stands prominent in connection with the innocent acquiring of the disease. This has been so fully elaborated, and marriage is such a well-recognized factor in the spread of syphilis that we will not dwell long upon it here. While men occasionally contract the disease in lawful wedlock, even indeed from wives who have acquired it in nursing or in other innocent manners, it is principally the wives who suffer from the sins of their husbands, before or after marriage, and on them falls a large share of the burden of "innocent syphilis."

In a study on syphilis in females made by Fournier³ five years ago, after a very careful analysis of his cases, he came to the conclusion that fully 25 per cent. of all females affected by syphilis acquired it perfectly honestly, in lawful marriage relations; and he stated that he believed the proportion would be much larger if the data of his notes had been more perfect. Ricord, in commenting on the statement of Fournier, said that his experience bore this out fully, only that the proportion was placed far too low. It is to be remembered that these figures related to Paris, and that fully one-half of the patients from whom Fournier drew the figures related to the *demi-monde*; among those who were married, after excluding a number of doubtful cases, he found that in 75 per cent. the disease was unmistakably traced to the husband.

In looking over my own notes of syphilis in public and private practice I should say that, as far as I can learn, fully 50 per cent. of all syphilitic females have acquired the disease in a perfectly innocent manner, while among the married females I have seen with

¹ Langlebert, *Le syphilis dans ses rapports avec le mariage*, Paris, 1875.
² Fournier, *Syphilis et mariage*, Paris, 1880.
³ Fournier, *Archives de dermat. et de syph.*, 1887, p. 737.

syphilis, in private practice, I am perfectly confident that the percentage of innocent victims is very much larger than even the highest figures of Fournier, and should place it over 85 per cent.

Surely then, from the aspect of marital syphilis, there is some reason for the plea that something should be done to prevent the wholesale infection of these innocent victims. It is impossible to form any estimate of the amount of mental and physical misery which has been thus inflicted in the marriage relations.

But if this aspect of our subject seems dark, and cries aloud for relief, that of *hereditary syphilis* is still darker and utters a yet more urgent plea.

The literature relating to congenital syphilis is very large, and it would seem that little was to be said after the elaborate works of Diday,⁴ Hutchinson,⁵ Kassowitz,⁶ Parrot,⁷ Mauriac,⁸ Fournier,⁹ and many others, and we will but briefly touch upon this most important branch of our subject, which is more or less familiar to all.

We will first consider for a moment the effect of the syphilitic poison upon the viability of children born of syphilitic parents. I can not do better than refer to some very striking tables given by Sturgis in an appendix to Diday's book,⁴ page 265; they are from the records of births of syphilitic children at the Moscow Hospital, Russia, from 1860 to 1870, inclusive. During these years there were 2,002 births, and 1,925 deaths, or 71 per cent. The same writer quotes statistics from the births occurring in the wards of Prof. Sigmund of Vienna, where, of sixty-one births fifty-nine are either still-born, or die within three months. Kassowitz¹⁰ gives the percentage of still births of syphilitic parents at 33.6, and that of infants dying within six months at 24.3, a rather more favorable rate than that presented by other writers. The limits of our article prevent a further elaboration of this subject or a presentation of further statistics.

It must be mentioned, however, in this connection, that it is now a well-recognized fact that just as syphilis can *diminish* the viability of the product of conception, and so be a most frequent cause of abortion, even in the very earliest period of utero-gestation, so it is also a very frequent source of sterility, both in the male and female: of this, abundant proof could be adduced.

If, therefore, the effect of syphilis were limited solely to a destruction of life in the newborn, or in the products of conception, there would be a strong reason for the introduction of measures to prevent a spread of the dire disease. But, alas, this is but a very small share, indeed, of the ills wrought by syphilis in connection with generation. One feels almost like wishing that the effect of the disease might end there, that all the children of syphilitics might fail of life, rather than be born with the inheritance which often proves such a curse.

Tarnowsky¹¹ has recently given us the data concerning three families, in which there were a total of

twenty-two births; of all these there came only one healthy adult man. Of thirteen who survived some years, eight were incapable of self-support, from mental or physical defects, and the other five were weakly, nervous, and totally unfit for further procreation. He states that the families in which this occurred belonged to the intelligent class of society, with no other cause than the syphilis for these disastrous results of conception. He quotes, further, from Tschistjken the case of a man, who had severe syphilis in early life, destroying the palate, of whose nine children two were idiots, one was deaf and dumb, and one had died in infancy. The works of Hutchinson, and many others besides those already alluded to, give abundant testimony to the direful effects of syphilis on the progeny of those thus affected, which can be abundantly corroborated by all of us who have had much to do with the disease.

Thus the army of innocents swells in size and pleads for the restriction of a disease, which, it is now believed, may be inherited even to the third generation. What the later effect of syphilis may be, in the production of some of the conditions commonly known as scrofula, and in inducing race degeneration can not now be answered positively. But any one who has seen the shattered lives of some syphilitics can readily understand that such individuals would not be apt to produce particularly strong and vigorous offspring. So that from the standpoint of our national life there should be some check put to a disease which we know has decimated tribes of Indians, and has wrought havoc unspeakable in the Sandwich Islands and elsewhere.

But this is not all. We have not yet touched upon one of the most interesting portions of our subject, and one which pleads equally loud with the others for the restriction of the spread of syphilis: this refers to the *extra-genital* communication of the disease, or the acquiring of it by means wholly disconnected in any manner with the sexual act. This is a vast subject, which has been greatly developed of late years and one which may well occupy the serious attention of every physician and sanitarian.

Syphilis occupies a peculiar and unique position as a disease. Although belonging to the class of chronic affections, whose effects may extend over many years, its virus is one of the most energetic and quickly and surely operative of any known; cases are on record where external wounds, which have been exposed to the contagion of active syphilitic lesions, were washed and disinfected almost immediately and yet where the infection took place.

The individual with syphilis, then, is not only in danger of communicating the disease in marital relations, and almost sure to do so, and is also most likely to transmit more or less of the taint to the offspring, if they survive, but is also himself or herself a constant menace to society, by virtue of the contagious character of the disease, in some of its manifestations, even for a long period of time.

While our present argument is based entirely upon the non-venereal or innocent transmission of syphilis we can not forbear mentioning a single illustration of the harm which it is possible for one unrestricted individual to accomplish, in prostitution. Tarnowsky¹² states that one syphilitic woman who had come under his observation, had succeeded in

⁴ Hutchinson, Diseases of the Eye and Ear Consequent on Inherited Syphilis, London, 1863.

⁵ Kassowitz, Die Vererbung der Syphilis, Wien, 1876.

⁶ Parrot, La Syphilis héréditaire, etc., Paris, 1886.

⁷ Mauriac, Syphilis tertiaire et Syphilis héréditaire, Paris, 1886.

⁸ Fournier, La Syphilis héréditaire tardive, Paris, 1886, and L'hérédité syphilitique, Paris, 1891.

⁹ Diday, Syphilis in Newborn Children, etc., Syd. Soc. London, 1889.

¹⁰ Kassowitz, loc. cit. p. 122.

¹¹ Tarnowsky, Prostitution und Abolitionismus, Hamburg und Leipzig, 1890, p. 164.

¹² Tarnowsky, cited in N. Y. Medical Record, March 9, 1889, p. 270.

contaminating no less than 300 men within a period of ten months; this represents merely the primary transmission of the disease, the later effects, which must have followed, on others, can hardly be imagined.

The duration of the contagious period of syphilis has never been fixed with any accuracy, and varies somewhat, as is known with the character and faithfulness of the treatment, and its duration. During the first year it can be most easily propagated; it is also abundantly contagious during its second year, and even up to the fifth year many cases are reported where the disease has been conveyed to others; how much later this is possible can not be determined with certainty, but instances are on record up to the seventh year or even later. What a fertile source of disease, then, is a single syphilitic individual, if for even two years he is capable of infecting others whenever a proper opportunity occurs! Any one who has had much to do with venereal clinics, and has seen how utterly reckless many of the patients with syphilis are, and how little they can be made to appreciate the dangers to which they expose others, even in their every-day family and industrial life, will fully appreciate the plea for the restriction of the disease.

Although syphilis has not yet spread in this country to any degree commensurate with that observed in some other lands, it will serve to illustrate our subject to quote from some recent reports from certain districts in Russia, where, as is well known, the disease will often be found to affect a large percentage of the population; much the same is true of Portugal and some other countries where syphilis has long been rife.

According to Ostroumoff,¹⁸ syphilis prevails endemically in 90 per cent. of the villages of the Novgorod government, North Russia; the district just east of St. Petersburg. It is spread mainly in a non-sexual way, through infant feeding, family life, etc.

At a meeting of the Saratov Society of Medical Men, it was reported that the proportion of syphilitic patients (infected chiefly in a non-venereal manner) amounted to from 8 to 10 per cent. of the total number of patients coming under observation; the statement was made that: "An almost universal syphilization of the Government's population is to be expected in the near future."

Of 2,765 cases of syphilis reported at the general meeting of the Piarzan Society of Medical Men, Russia, in but 26 per cent. was the infection through coitus; in 5.4 it was from inheritance, in 2.2 per cent. from suckling, and in 63.3 per cent. it was from family life.

It is needless to give more illustrations, although literature is full of accounts of the extensive spread of syphilis through whole communities. After considerable research I have compiled a table of no less than one hundred and fifty episodes which could be called epidemics of syphilis; in many of these instances no figures are given, but only the statement that "a large number" were infected, but taking the lowest figures of those actually mentioned the total amounts to over 3,000 victims.

Happily, owing to increased knowledge of the disease, these instances of the extensive spreading of syphilis in special localities are becoming more and more rare, but a study of the literature of the

subject shows that individual instances of the transmission of syphilis by innocent means are multiplying greatly, and that there is a real danger from unrestricted syphilis. Some of these peculiar dangers we will now study.

Coming now to the special consideration of the third division of our subject we will consider more particularly the extra-genital transmission of syphilis.

The methods by which non-venereal syphilis may be acquired are innumerable, and relate to almost every conceivable circumstance and surrounding of life. As each new case, or series of cases, is reported, it becomes more and more probable that the number of instances in which syphilitic infection has thus occurred is far greater than is commonly supposed.

With a poison so virulent, and capable of being transported and introduced in so many different ways, endowed with the possibility as far as is known, of being preserved for an indefinite period, the only wonder is that cases of non-venereal syphilis are not even more common than they are now known to be. When the conditions for its entrance are present, namely, a solution of continuity of surface and material from a person in an active stage of syphilis, are present, it will be seen that inoculation rarely fails to take place on any and every portion of the body.

Of the two methods of communicating the disease, the *immediate* and the *mediate*, the former is by far the more common, and is the mode in which most cases of venereal syphilis are acquired. Mediate transmission, while much less frequent, is, in one sense, much more important, because of its insidious character; the source of infection often being unsuspected, until long after the disease has become fully developed in the victim. A large number of cases of innocent syphilis occur through mediate infection, although very many are also caused by immediate transmission, as in kissing, biting, in the infection occurring between nurslings and infants, etc.

The limits of this article forbid any full consideration of the topic of the extra-genital transmission of syphilis, but in order that the far-reaching danger of the disease may be rightly understood, the principal features of this branch of our subject must be presented.

For convenience of study we have divided the acquiring of syphilis by innocent means into three main classes of cases:

1. *Syphilis economica*, which relates to the extension of the disease by family and industrial relations;
2. *Syphilis hyphotrophica*, where the disease is communicated in connection with the nutrition and care of infants; and
3. *Syphilis technica*, where inoculation takes place from, or in connection with bodily service, principally that relating to the care of the sick.

Under the first class there are a vast number of separate data, relating not only to the ordinary utensils of common life, cups, spoons, pipes, etc., but also to various articles of clothing, towels, sponges, syringes, etc., likewise to tooth brushes, pins, etc. Among the industrial pursuits in which syphilis has been communicated may be mentioned, glass-blowers, assayers, weavers, musicians, conductors, housemaids, cooks, laundresses, furriers, upholsters, druggists, artificial flower makers, clerks, cashiers and others.

Brephotrophica syphilis has furnished the largest

share of cases, and must ever be an object of the greatest interest. Fournier¹ has said most forcibly: "Nothing is so dangerous to its surroundings as a syphilitic infant. The thousand caresses which relate to its bringing up, the kisses and caresses given to it serve as the origin of ready and frequent contamination. To speak only of facts observed by myself, I have on my notes a dozen instances of contagion of this sort. Thus for example, a grandmother, aged 65, was infected by her little granddaughter whom she fed with a spoon, touching the spoon each time to her own mouth before giving it to the child; the virus was certainly thus transmitted from the lips of the infant to her own. I have also had under my care a young woman who was infected by her own infant who had contracted the disease from a wet nurse."

"My learned colleague, M. Hillaird, has related to me the following: a young man with syphilis married prematurely, and shortly infected his wife. Their child soon showed signs of hereditary syphilis and infected its nurse. The child being then committed to the care of its maternal grandparents inoculated both of them by means of a nursing bottle; they were in the habit of putting the nipple in the mouth, tasting it before giving it to the baby, and both acquired chancre of the lip." Literature is full of instances of brephotrophic infection, many of them much more striking than these.

The third subdivision relating to *syphilis technica* is also most interesting, and furnishes a very large number of instances of syphilitic infection in connection with body service. The cases fall under the three heads of 1, the operator, the victim; 2, the operator, the syphilitic; and 3, the operator, the medium.

Hundreds and thousands of physicians and accoucheurs and midwives have been inoculated in the honest practice of their calling, as probably all present can recall one or more instances with which they have been acquainted. Vaccination has furnished large numbers of cases of innocent syphilis in times past, and among other modes of propagating the disease may be mentioned tattooing, circumcision, skin-grafting, cupping, breast-drawing, wound-sucking, cleansing the eye with the tongue, as also the use of dental instruments, the Eustachian sound, minor surgical operations, etc.

But all this brief and hurried mention of the modes of infection conveys but to a very slight degree any idea of the real facts in regard to this branch of our subject, as it has been developed to the writer during a study of the subject for the past ten years. The amount of material collected has exceeded all expectation, many times, and together makes a mass of evidence of the dangers attending the disease which can not be gainsaid or neglected. In the digests of literature which have been prepared, appear records of many thousands, or even tens of thousands of cases where the individual has contracted the disease as innocently as would be the case in regard to small-pox, yellow fever, or diphtheria.

From what has preceded it may be readily understood that syphilis is a disease which presents no little danger to the public health, and to that of every individual. While undoubtedly an exaggerated idea of the perils connected with it might possibly be obtained, there is little danger of error in this direc-

tion. No amount of reasoning or argument can do away with the facts which are known with regard to the disease, and which may be proven from the very highest medical authorities.

Syphilis is now one of the principal diseases which affect the human race, and is undoubtedly on the increase, owing to the utter want of sanitary control over it in the larger part of the world. Unfortunately, owing to the same reason there are but few reliable data showing its relative presence in different parts of the world. Something may be learned from the army reports, but in most instances this source of information is not available, inasmuch as reference is usually made only to "venereal diseases," and not syphilis specifically.

4 East 37th Street, New York.

THE BEST FORM OF CYLINDER TEST AND VARIABLE PRISM, WITH A NEW PHOROMETER.

Read in the Section on Ophthalmology, at the Forty-fourth Annual Meeting of the American Medical Association.

BY EDWARD JACKSON, A.M., M.D.

PROFESSOR OF DISEASES OF THE EYE IN THE PHILADELPHIA POLYCLINIC; SURGEON TO WILLS EYE HOSPITAL.

We are all familiar with the Maddox rod or cylinder test. Doubtless many have used it in connection with some form of rotary prism, and Dr. Prince of Springfield, Ill., has combined the two in a convenient phorometer. But both the cylinder test and the rotary variable prism are capable of development into forms of greater practical value. The cylinder test belongs to that class of tests for heterophoria in which binocular fusion is prevented by dissimilarity of the images; the one image being distorted by a very strong cylinder, the Maddox glass rod, placed before one eye.

The line of light seen by the eye before which the rod is held, varies in length with the diameter of the rod employed, and the distance at which it is held before the nodal point of the eye. In the forms that I have seen, the rod being of small diameter, the line is comparatively short, unless the rod be held very close to the eye, closer than is convenient in practice.

Mr. Maddox has proposed (*Ophthalmic Review* 1893, p. 39) the use of several pieces of a rod one-eighth of an inch in diameter placed side by side and their ends fixed with sealing wax. With such an arrangement, however, we do not obtain a single continuous line, but a series of short lines which together constitute a broken line. The reason for this, is that where the complete rod is employed, the light does not pass through the margin of the rod, on account of the obliquity of the surface in this part, but only reaches the eye through the central portion.

The rod, as it has been commonly supplied in this country has consisted of one-half of a glass rod of about one-fourth of an inch in diameter; or of a concave cylindrical surface, having about the same curvature, ground out from a plate of glass. The concave cylinder must always be inferior to the convex, because with the former the length of the line diminishes as the cylinder is moved from the eye, occupying the full width of the rod or cylinder surface only when it is placed at the nodal point of the eye; while with the latter, the line occupies the full width of the cylinder surface when placed at its

¹ Fournier, *Syphilis et Marlage*, Paris, 1880.

focal distance in front of the nodal point of the eye and, it being needful in all cases to place the cylinder some distance in front of the eye, it is only with the convex cylinder that its full width becomes available.

The part of a cylinder that can be used for the purpose of the test is, however, always considerably less than one-half of the complete rod. Take the case of a plano-cylinder with the flat surface placed towards the source of light, and the convex surface towards the eye; assuming the rays to be parallel and to fall perpendicularly on the plane surface, the refraction is all at one surface.

The deviation produced in a ray increases as the position of the ray is removed from the center according to the law of the sines. The sine of the angle of refraction being equal to the sine of the angle of incidence multiplied by the index of refraction of the glass. This increase of deviation continues until a point is reached, where the sine of the angle of refraction becomes the sine of 90 degrees. That is, until the light passing out of the surface becomes tangent to it, beyond which no light can emerge. If the index of refraction be that commonly possessed by optical glasses, a little over 1.53 the angle of the incidence that gives emergent rays tangent to the surface, is about 40° , $50'$. Therefore 81° , $40'$ is the largest segment of a cylinder that can be of any possible use for this purpose. In order, however, to reduce the thickness of the glass I have chosen to use only 60 degrees of the circumference of the rod.

If the cylinder be placed so that its principal focus lies at the nodal point of the eye, the whole angle subtended by it will be occupied by the streak of light that we desire to obtain. If it be removed farther from the eye, the streak will still occupy the whole width of the glass, but this will subtend a smaller angle. On the other hand, if it is brought closer to the nodal point than its focal distance the angle subtended will remain about the same, or diminish slightly on account of aberration, the line no longer occupying the full width of the cylinder. It follows, therefore, that the most favorable position for the cylinder is that at which its focus will fall on the nodal point of the eye.

As commonly employed in the cylinder test, the rod is placed about fifteen or twenty mm. or a little more from the nodal point. Hence the cylinder that can be used to best advantage is one that has that focal distance. I have, therefore, chosen the segment of a rod or cylinder of 10' mm. radius, employing a portion of it, 10 mm. long by 10 mm. wide. Such a cylinder gives a line of light double the length obtained where the ordinary quarter inch rod is placed in the same position.

The weakening of the cylinder used makes it applicable for the test to be presently referred to, at the distance of ordinary near work.

The other portion of the instrument that I to-day present, is the Rotary Variable Prism. Suppose we have a prism placed in a certain position, which we will call the primary position, and then rotate its base in the plane bisecting its refracting angle. In the primary position, the full effect of the prism is produced in a certain direction, as this is departed from its action is in some other direction, but we may regard it as replaced by two components, one exerted in the primary direction, the other perpendicular to

it. The relation of these components to each other, and to the original power of the prism is the relation of the cosine and sine of an angle to each other and to radius. That is, the component in the direction of the primary position diminishes as the cosine of the angle of departure from that position. The component perpendicular to the primary position increases as the sine of the angle of departure from that position. This is illustrated in the accompanying Fig. 1.

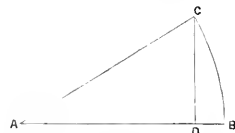


Fig. 1.

Thus we have two variable components; one in the direction of the primary position, the other perpendicular to it, either of which can be used for the purpose of the variable prism. So far as I know, the variable perpendicular to the primary position and increasing as the sine of the angle through which the prism is rotated, is the one that has always been employed.

It is liable to these objections that, starting from zero its increase is at first most rapid, gradually becoming slower and slower, until at the perpendicular it ceases. This necessarily arises from its relation to the sine of the angle. Its disadvantages have doubtless occurred to every one who has used the rotary prism. Where the greatest delicacy and exactness is desired, delicacy and exactness are most difficult to obtain; with the strong prismatic effects when more rapid change would be convenient, the increase is slowest. On the other hand, the diminution of the cosine of an angle and the corresponding diminution of prismatic effect in the direction of the primary position is slow at first and then increases in rapidity, reaching its maximum when the angle reaches 90 degrees. On this account the component diminishing with the cosine is decidedly superior to the one that has heretofore been employed. Its application will be referred to presently.

Whichever component is used it becomes necessary to get rid of the other unless the other can, from the nature of the case, be disregarded. The ordinary method of eliminating the undesired component is by using two prisms and causing them to revolve in opposite directions, so that the undesired component of one prism shall just neutralize that of the other, and the net result be the sum of the components of both prisms in the desired direction.

In combining the variable prism with the cylinder test it is, however, quite unnecessary to resort to any means of getting rid of the undesired component. This will always be perpendicular to the axis of the rod or cylinder and in the direction of the length of the line, so that a slight shifting in this direction merely brings a slightly different part of the line opposite the light image of the other eye. The combination, therefore, of two rotary prisms with the cylinder test is unnecessarily complex. The single rotary prism perfectly answers the purpose.

If it is desired to use the positive component (the increase of prismatic effect perpendicular to the primary position and proportioned to the sine of the angle of rotation) the primary position must be with

the base parallel to the axis of the cylinder, so that all its effect is produced in the direction of the line of light perpendicular to that axis. Then as rotation is made either way, there is developed an increasing prismatic effect in the direction of the axis of the cylinder and perpendicular to the line of light; which prismatic effect carries the line of light to the light image, as seen by the other eye. This effect, as has been pointed out, of course increases most rapidly at first and more slowly later.

If, however, it is desired to use the other component, the prism must be placed with its base perpendicular to the axis of the cylinder, so that it will exert its effect in the direction of that axis. It must be borne in mind that the variable must start at zero. To utilize the diminishing component, therefore, the prism in its primary position must be neutralized by a fixed prism. Then as the rotary prism is turned, the variable prismatic effect diminishes leaving unneutralized the effect of the fixed prism. The more the rotary prism is turned from its primary position, the more the effect of the fixed prism is felt. This effect increases as the cosine of the angle diminishes.

In using the combination of rotary prism with the Maddox rod, the fixed prism may be ground on the rod as is done in the instrument presented. Then, when the rotary prism is in its primary position, the prismatic action of the rod is just neutralized; as the rotary prism is revolved, the prismatic action of the rod comes more and more into play until at 90 degrees the rotary prism exerts no influence in the direction of the axis of the rod, and the full prismatic effect of the rod is attained.

Revolving the rotary prism still farther, the cosine of the angle of rotation begins to increase, but in the opposite direction, so that the effect produced by the rotary prism is now added to the prismatic effect of the rod, until finally at 180 degrees the prismatic effect produced in the direction of the axis of the rod is equal to the sum of that of both rod and prism.

For this purpose, I have chosen a rotary prism of five centrads, with an equal effect of the rod. It will be noticed that, leaving zero, the index has to sweep through a space of over 18 degrees before the first quarter centrad of prismatic effect is produced, and almost 37 degrees before one centrad is reached. Continuing, the change becomes more rapid until we reach five centrads, the full effect of the rod, at 90 degrees. Passing on, the change again becomes slower until the maximum of ten centrads is reached at 180 degrees. Precisely the same effect is produced and in the same direction, whichever way the prism is rotated from the primary position. With such an instrument, the lowest degree of heterophoria can be measured with most minute accuracy. Of the scientific advantage of this there can be no question, and my experience indicates it is of practical value.

On the other hand, the employment of the simple rod or cylinder and the placing of the rotary prism perpendicular to it, allows one to produce a prismatic effect either way in the direction of the axis, so that when this is placed horizontally, either exophoria or esophoria can be measured without altering the position of the instrument or, in the same way, right or left hyperphoria when the axis is vertical.

I have had this combination of cylinder test and variable prism mounted, so that it could be used in

the ordinary trial frame or in a handle held before the eye. With the cylinder test it is unnecessary to have any leveling instrument, since the images are not displaced, but their fusion opposed by their dissimilarity.

Before leaving this subject it may be worth while to note that to use the variable component proportioned to the cosine for the ordinary rotary prism, such as Risley's, it is only necessary to place the primary position of the rotary prisms where they will act together instead of neutralizing each other; and then to neutralize them both in this position by introducing a third prism of double strength; thus instead of using two rotary prisms of fifteen centrads each, to use two rotary prisms of seven and one half centrads and neutralize them by one fifteen centrad prism. It seems to me that this modification of the rotary prism will make it a much more satisfactory instrument, especially for the lower degrees of deviation.



With the forms of rod test heretofore employed, the great strength of the cylinder made it impossible to use any test object except a point of light and, therefore, practically precluded the use of a rod test for ascertaining the balance of the ocular muscles at the near working distance. The weaker cylinder that I have adopted allows the recognition of a dim, but very characteristic streak when a black dot upon white paper is looked at, at the ordinary working distance, so that the instrument is as applicable for testing the balance of the ocular muscles at the near point as at a distance. It furnishes a ready practicable means of measuring heterophoria at the reading distance, or for testing the balance of the ocular muscles in different portions of the field of vision, something of which I have often felt an urgent need.

One may properly hesitate about asking the attention of the profession to a new device, but the present instrument seems to justify itself because it does the work more exactly; because it has wider range of application, and because it is at the same time more simple and less expensive than its predecessors.

SELECTIONS.

Report of the Surgeon General of the Army.—We give below a synopsis of the Report of the Surgeon General of the Army for the fiscal year ending June 30, 1893. The report begins with a statement of the disbursements from the appropriations made by Congress for the support of the Medical Department of the Army. It then discusses at length the various points which are here briefly outlined:

Army Medical Museum.—The total number of specimens received during the fiscal year was 1,038; total number of specimens in the Museum June 30, 1893, 32,265. The Museum is represented at the World's Columbian Exposition at Chicago by a display of specimens including models of hos-

pitals, of a railway train for transportation of wounded, and of hospital steamers; also a series of pathological specimens illustrating tuberculosis and tumors, a series of ninety sections of human embryos, a series of 346 photo-micrographs and a series of microscopes illustrating the history of the instrument, with other apparatus.

Library.—There were presented to the Library during the year, 633 books and 7,981 pamphlets and journals. Total number of books now in Library, 110,653; of pamphlets, 173,100.

Volume XIV of the Index Catalogue, including from "Sutures" to "Universally," forming a volume of 1,016 pages, has been completed and is now in the printer's hands.

Providence Hospital.—933 patients were admitted for treatment during the year, the average number treated per day having been 104.

Army and Navy General Hospital, Hot Springs, Arkansas.—Thirty officers and seventy-five men were admitted during the year. Sixty per cent. of these affected with rheumatism were returned to duty. Three times as many men could be treated in the course of the year as are received.

The commanding officer recommends that electric light be introduced in place of gas, and that increased accommodations be provided for officers, in both of which recommendations I fully concur.

Medical Officers.—The following changes occurred during the year:

Deaths: One deputy surgeon general with the rank of lieutenant colonel; one surgeon with the rank of major.

Retirements: One surgeon general, with the rank of brigadier general; one assistant surgeon general with the rank of colonel; one assistant surgeon with the rank of captain. (Capt. James A. Finley. Act of Feb. 8, 1893.)

Promotions: One deputy surgeon general with the rank of lieutenant colonel, to be assistant surgeon general with the rank of colonel; three surgeons with the rank of major, to be deputy surgeons general with the rank of lieutenant colonel; two assistant surgeons, with the rank of captain, to be surgeons with the rank of major; four assistant surgeons, with the rank of first lieutenant, to be assistant surgeons with the rank of captain.

Appointments: One deputy surgeon general with the rank of lieutenant colonel, to be surgeon general with the rank of brigadier general; James A. Finley, late captain and assistant surgeon to be assistant surgeon with the rank of captain, Feb. 13, 1893, with rank from Nov. 10, 1879. (Act of Feb. 9, 1893); twelve assistant surgeons with the rank of first lieutenant.

Resigned: One assistant surgeon with the rank of captain; one assistant surgeon with the rank of first lieutenant.

Commission Vacated by New Appointments: One deputy surgeon general, with the rank of lieutenant colonel.

Vacancies: There are now five vacancies in the Medical Department.

The establishment of an Army Medical School in the city of Washington, D. C., was authorized by General Orders No. 51, A. G. O., June 24, 1893, for the purpose of instructing approved candidates for admission to the Medical Corps of the Army in their duties as medical officers. The course of instruction at this school will extend over four months and will be given annually, beginning on the first day of November. It is believed that great benefit will be derived by supplementing in this way the college courses of the young men accepted for appointment.

Hospital Corps.—The authority of the Secretary of War, given in General Orders No. 25, 1892, to enlist from civil life into the Hospital Corps, and the Act, approved July 13, 1892, raising the pay of Hospital Corps privates from thirteen to eighteen dollars per month, have greatly benefited the Corps by enlarging the sphere of selection and offering better inducements to good men to enter its ranks.

There were in service June 30, 1893, 122 hospital stewards, 79 acting hospital stewards and 585 privates, 58 of the last serving with the companies of instruction, and 527 on duty with troops and at military stations.

A comparison of the men trained in the companies of instruction, with the members of a detachment locally selected and instructed, is generally to the advantage of the former. As to promotion by competitive examination, there is no doubt that this system has had a marked effect in elevating the standard of proficiency, bringing the intelligent, able and ambitious men to the front and giving to the Corps as its non-commissioned officers its most efficient and capable members. It is considered that in the education of the Corps greater benefit has been derived from

drills, which are practical object lessons, than from lectures. Only the men ambitious of promotion have benefited from lectures. Company bearers have shown but little interest in their special work. A satisfactory equipment for the Corps is a matter of some difficulty, as its members may be sent on field service at one time with an infantry and at another with a cavalry command. This, however, will be settled satisfactorily in progress of time.

White linen or cotton duck is recommended as the most suitable wear for men occupied in ward or dispensary duties.

HEALTH OF THE ARMY.

During the past year the health of the Army has been excellent. Perhaps at no time heretofore has the Surgeon General been able to invite attention to a better record of health and consequent efficiency, and this although the rates have been materially increased by an undue proportion of sickness among the Indian companies.

The admission rate per thousand of strength was 1,270.42 as compared with 1,364.78 during the previous year and 1,459.65 during the preceding decade. The lowest recorded admission rate, 1,247 in 1887, is practically the same as that now reported. The number and duration of the cases were equivalent to a non-effective rate of 39.00 as compared with 42.01 during the previous year and 43.41 during the preceding decade. The non-efficiency may be expressed also by the statement that each officer and man of the Army was on an average sick for 14.5 days during the year, as compared with 15.3 and 15.9 days respectively during the previous year and each of the years of the previous decade. The number of men discharged for disability was 18.35 per thousand of strength as against 17.23 (the lowest annual rate to which these discharges have been brought) in the previous year and 30.70, the average of the ten years preceding. The death rate from all causes was 6.44, comparing favorably with 8.05 and 8.75 respectively for the previous periods already mentioned, as well as with 6.33 for the year 1889, the lowest annual death rate hitherto reported. Excluding deaths from injury the deaths from disease were equivalent to a rate of 4.36 per thousand of strength, as against 5.03 and 5.81 respectively for the previous year and decade, and against 3.95 for the year 1889.

As causative of non-efficiency, injuries take first place in the records of the past year, having occasioned 8.12 of the total of 39.00 constantly on sick report per thousand of strength. Venereal diseases take second rank as a disabling cause, 5.33 men per thousand of strength having been constantly under treatment on their account. Specific febrile diseases, respiratory and digestive diseases and rheumatism (including muscular) had each a non-effective rate of 3.3.

The absolute number of discharges for disability, which gave the rate of 18.35 per thousand of strength, was 493, of which 67 were for rheumatism and diseases of the bones and joints, 58 for injuries, 53 for consumption, 53 for venereal diseases, 44 for epilepsy and insanity, 44 for diseases of the heart and circulation, 27 for diseases of the eye, 14 of the ear and 21 for hernia.

The absolute number of deaths was 173, of which 56 were caused by violence, 20 by consumption, 17 by pneumonia, 15 by diseases of the nervous system, 13 by typhoid fever, 13 by diseases of the heart, 8 by diseases of the kidney, 6 by influenza, and 3 by alcoholic poisoning.

Health of the Military Departments.—The admission rate was highest, 1,515.30, in the Department of the East; but all the other rates found their maximum in the Department of Texas; death rate from disease 7.43, from all causes 11.48; discharge rate for disability 27.98; rate of non-efficiency 54.25. The latter department must therefore be credited with the least satisfactory record. The Department of the Columbia had the lowest admission rate, 722.73, non-effective rate 27.88 and death rate from all causes 3.67; but the Department of California had only 1.34 deaths from disease and the Department of the Platte 12.32 discharges for disability per thousand of strength present during the year.

Of the posts having had records during the year, three had the admission rate over 2,000 per thousand of strength, Fort Hamilton, David's Island and Columbus Barracks; four ranged from 2,000 to 1,900, Fort Barrancas, Washington Barracks, St. Francis Barracks and Fort Reno; three from 1,900 to 1,800, Fort Marcy, Mount Vernon Barracks and Fort Supply, and two from 1,800 to 1,700, Forts Monroe and Ringgold. Of the posts having the highest non-efficient rates three reported 70 and over per thousand of strength, Columbus Barracks, and Forts Barrancas and Ringgold; four ranged from 70 to 60, Forts McIntosh, Reno, Yates and Clark; and nine from 60 to 50, Forts Payard, Sam Houston, McPherson,

Jackson Barracks and Forts Marcy, Canby, Custer, Wayne and McHenry. The causes of the high rates at most of these posts have already been indicated briefly. Excluding the recruiting depots, arsenals and smaller posts, Fort Barrancas may be regarded as presenting the worst record. In 1889 and prior years this post had rates rather lower than the average. Since that year they have been unusually high, mainly caused by diarrhea, alcoholism and diseases of the integuments.

Exclusive of the smaller posts and arsenals those posts having the best admission rates were Fort Spokane with 518.52, and Forts Washakie, Missoula, Niagara and Sherman, with rates ranging from 600 to 700. The best non-efficient rate, 15.48, was reported from Fort Mackinac. The rates ranged from 20 to 25 at Forts Washakie, Wadsworth and Missoula, Benecia Barracks and Forts Warren and Huachuca.

Cholera.—In anticipation of an invasion by this disease, on account of its prevalence at some of the European ports largely concerned in the shipment of immigrants to this country, medical directors and post surgeons were duly reminded, by means of a circular on preventive measures, of the precautions requisite for the protection of our military stations. Fortunately, however, the imminence of the danger subsided by the gradual extinction of the disease at the quarantine of the port of New York, and it became evident that several months would probably elapse before similar threatening conditions would recur. Influenced by the circular from this office, medical directors on the return of warm weather again notified their subordinates of the importance of giving special attention to local sanitary conditions.

Typhoid Fever.—One hundred and fifty-one cases, of which fourteen were fatal, were reported. Isolation, disinfection and a careful supervision of the water supply checked the progress of the disease, so that only at a few posts were there more than one or two cases. Fort Reno had twenty-three; Madison Barracks, nineteen.

Influenza.—Of this disease 1,793 cases were reported, the largest number at any one post having been 141, one fatal, at Fort Custer, Mont. Many posts reported no such cases, but these had usually an increased rate for catarrh and bronchitis. A total of six deaths was ascribed to this disease.

Malarial Diseases.—were not unusually prevalent. Washington Barracks and Forts Sill, Myer and Clark had high rates. The water supply at the two last named posts is believed to be concerned in the prevalence of autumnal fevers; efforts are being made to improve these supplies. Fort Brown, Texas, continued free from malarial fevers during the year.

Veneral Diseases.—Columbus Barracks had the highest rates; admission 292.72 and non-efficiency 18.54 per thousand of strength. The improvement noted in last annual report has not been kept up at this recruiting depot. A fall in the rate to 266.20 in 1891 from 380.46 in 1890, and 462.44 in 1889, suggested hope for the future which is not sustained by the rates now recorded. Fort Ringgold, Jackson Barracks and Fort McPherson follow Columbus Barracks in the relative frequency of their cases, 208.97, 198.11 and 195.48 respectively; but Fort McIntosh takes second place in order of non-efficiency with a rate of 15.47, while Fort McPherson and Jackson Barracks follow with 13.67 and 12.16.

Alcoholism.—The rates compare favorably with those of the previous year.

Suicide.—Twenty-two cases are reported.

Influence of Age, Arm of Service, Nativity and Length of Service on Liability to Disease.—During the year some interesting observations were made on the influence of age, arm of service, nativity and length of service on the susceptibility to disease. Men from 30 to 50 years of age are less liable to become sick than younger or older men. The economy of enlisting young men and of limiting the period of service to ten years is by no means sustained by these observations.

The Indian prisoners are well cared for at Mount Vernon Barracks, Ala. Improved sanitary conditions are manifesting their influence in lessening the prevalence of diarrhea among the children and consumption among the adults.

THE SANITARY CONDITION OF THE ARMY.

Quarters.—Great improvements have been made during the past few years in the character of the quarters provided for the Army; and the officers of the Quartermaster's Department are entitled to great credit for their earnestness and intelligent efforts to have all work of this nature carried out in accordance with advanced sanitary views. Never-

theless, it appears to me that when any important work of construction, alteration, or repair is under consideration it would be well to have on record the views of an officer of the Medical Department on any sanitary questions involved. In many instances the medical officer has a special knowledge of the locality in its sanitary bearings that is too valuable to be overlooked. I desire, therefore, to urge the recommendation, made on several previous occasions by my predecessors in office, that the plans of all buildings hereafter to be constructed, of alterations to be made, or of sanitary improvements to be instituted at our military posts be submitted to a board of officers, one member of which shall be a medical officer. The construction and improvement of our military posts are matters of so much importance as to merit their consideration by boards of officers before commencing work on plans drawn up by an individual. Moreover, on account of sanitary considerations connected with the selection of site, construction of barracks and other post buildings, with their heating, lighting and ventilation, drainage, sewerage and water supply, the Medical Department should be represented on such boards. It is better to build well from the first than to have to make alterations in a completed structure, for these are always expensive and seldom satisfactory. The approval of a board before final action is taken would tend to eliminate mistakes and lessen the need for future changes.

The buildings at a few of the posts are old, dilapidated and leaky. The makeshift sanitary arrangements at Fort Keogh should not be permitted to continue unless the post is likely to be abandoned in the early future. Among its many needs are roomy and well ventilated quarters for the troops. The best of the officers' quarters at Eagle Pass, that occupied by the commanding officer, is not so good as the quarters ordinarily provided for a non-commissioned officer at any other post. The quarters of the men have ample space and good ventilation, but the roofs leak and the walls have to be propped to prevent them from falling outwards. All the occupied buildings at Fort Custer are old, with the exception of one set of quarters and the guardhouse. The barracks, particularly, are much dilapidated; they cannot be kept comfortable in winter. As the abandonment of Fort Whipple has been in contemplation for some time few repairs have been made to the buildings and the post presents a worn and dilapidated appearance. The buildings are wooden, decidedly overcrowded, and ventilated only by the doors and windows. With few exceptions all the buildings at Fort Yates are old and poorly adapted for the purposes for which they are used; but they are in as good sanitary condition as it is possible to have them in view of the uncertainty as to the continuance of the post. The barracks are loose-jointed and cold in winter, permitting the entrance of cold winds and snow. Storm doors and double window sashes were provided on the recommendation of the post medical officer. Damp, cold and unventilated casemates continue to be occupied as quarters at Forts Warren, Wadsworth and Adams. These are not only undesirable but unhealthy. The quarters occupied by married enlisted men at some of our posts are wholly unfit for occupancy. Those at Fort Yates are described as wretched. Casemates are occupied at Fort Warren where, from the chill dampness and bad air the children are anemic and shows signs of rickets. At Fort Grant these quarters are in bad repair and crowded to the point of indecency. At Fort Vancouver they are reported as scarcely habitable, built on ground honeycombed with disused privy pits and cesspools. At Fort Missoula the old log huts thus occupied should be destroyed, as also some shanties owned by a civilian and rented to married soldiers. The best of these, constructed by the soldiers for themselves and families, at Fort Du Chesne, are of logs, but most of them are of scrap lumber eked out with condemned canvas and old coal oil cans, the rooms without flooring, smelly, damp and dark. Sanitary improvements can not be instituted at the expense of the occupants, and at present there are no means of effecting them in any other way. Quarters like those at the posts mentioned are breeding places for disease; and as garrisons become larger the problem of quarters for the married soldiers is likely to become more complex. I recommend a return so far to former methods as to provide public quarters for a limited number of married men in each organization, all others being strictly prohibited from having their families at the post. A provision of this kind would be regarded as a privilege awarded to deserving soldiers, and would permit the whole of these huts and shanties to be destroyed.

In reporting on the severity of the winter season at some

of our northern posts, medical officers have criticised the allowance of fuel. Captain Clendenin, at Fort Brady, has represented that an officer exposed to all the rigors of a severe winter has to expend from twelve to eighteen dollars per month for fuel to keep his quarters comfortably warm, while his more fortunate comrade stationed in milder climate, is exposed to neither the inclemency of the season nor to the expense of protecting himself and his family against it. I commend this subject to the consideration of higher authority.

Some medical officers have called attention to the practice of flushing the floors of quarters, dormitories, dining halls and other occupied rooms for the purpose of cleaning them. This is an unsanitary practice which should be prohibited by commanding officers. Floors when lightly stained and waxed can easily be kept clean, dry and wholesome.

Disposal of Garbage, etc.—The usual method is to collect in closed barrels or galvanized iron pails and transport to a dumping ground in the vicinity of the post. For convenience, ground near the inhabited area is selected, and the accumulations of years become so extensive as to be a nuisance and a reproach. Ashes and cinders may be utilized on roads or in filling, and if not required for such purposes their deposit is not injurious. Stable manure also can generally be used upon gardens; but there is at every post much unavoidable solid waste that should be destroyed and a crematory of moderate size should be built at all the modern and permanent posts. Where the reservation is small and surrounded by civil communities it is imperative to dispose of the wastes in this way. There need be no uncertainty as to the efficiency of garbage crematories; they have proved successful in many instances.

Water Supplies.—The subject of water supply has been agitated earnestly during the past year at many of the posts, with the result in most instances of carrying out or instituting improvements. The water wagon is now practically a thing of the past. It exists only at Fort Du Chesne and Eagle Pass. At the former it brings water from the Uintah River; at the latter from the hydrants of the neighboring town.

Food.—The food supply has been reported ample in quantity and of excellent quality. The few exceptional cases in which some article of the supply is made the subject of unfavorable criticism serve merely to emphasize the excellence of this provision for the well-being of the soldier. Moreover, most of the references to inferior quality have their origin in the naturally poor condition of Western beef cattle at certain seasons.

Clothing.—Medical officers generally appear to be satisfied with the clothing of the men, as unfavorable criticism has been exceedingly rare. Those stationed at Camp Eagle Pass and Key West Barracks desire a lighter quality of woolen underwear for the men. J. Y. Porter, M.D., attending physician at the latter station, holds that his long professional experience in that climate has demonstrated the necessity for wool as a texture for underwear; but the articles should be of light weight, otherwise they will be uncomfortable and irritating. He considers that "feather weight" all wool undershirts and drawers would not be any more expensive of purchase than those now furnished, and would more decidedly conduce to the health and comfort of the men. He thinks it likely that if light woolen articles are not provided the men will purchase for themselves the cheap gauze stuff, which does not possess the property of preventing rapid evaporation from the body when bathed with perspiration, and which consequently tends to the production of those diseases that arise from chilling of the surface.

On the other hand, the post surgeons at Forts McPherson and Brady take exception to the drawers issued, as lacking in the necessary warmth for winter wear. Colonel B. J. D. Irwin, Assistant Surgeon General, characterizes the issue at Fort Brady as unsuitable, inasmuch as it is too light for winter and too rough for summer wear, the drawers and undershirts especially so; and Captain P. Clendenin protests against the use of cotton drawers at this post. "The underclothing should be of wool and of good quality to protect a man on guard duty when the temperature falls at night to 30 degrees F." It is understood that thick woolen drawers are now supplied to the troops in Northern Dakota.

Habit, etc.—*Athletic Exercises, etc.*—The habits of the men are generally reported good. At some posts, as Fort Huachuca, reference is made to the evil influence of low games bordering on the reservation, where drunkenness

and prostitution impair the morale of the men. Similar resorts in cities near military stations do equal harm to the troops. The remarks submitted in presenting the data relating to the prevalence of venereal diseases and alcoholism, give a statistical expression to the habits of the men in this view of the question. The habits of men of the Indian companies are reported as bad, by all the medical officers that have been connected with them. They are represented as dissipated, quarrelsome and dirty.

Bathing Facilities.—At a few posts the facilities for bathing continue to be somewhat defective, but much has been effected of late in bettering them. The poorest arrangements are probably to be found at Camp Eagle Pass, where the bath-house, a hospital tent pitched in an arroya, is furnished with only one tub. Some barrels are arranged to give a shower, and this is preferred by the men to the tub. In summer, scarcity of water, and in winter the coldness of the weather, prevent regular bathing at this post. Some of the men are therefore wanting in respect to cleanliness of person, and skin diseases are said to have resulted.

Laundry Work.—The laundry work of the men is usually carried on by the wives of married soldiers living in or near the garrison, or by laundries in the neighboring civil communities. A laundry for the depot of Jefferson Barracks is managed by the Depot Quartermaster, and its charges fixed by the Council of Administration. This method of doing the laundry work is to be recommended, particularly in view of danger from cholera or specific febrile diseases.

Post Exchange.—Medical opinion, at first generally in favor of the institution as tending to lessen the frequency of intoxication, appears of late to doubt the soundness of its earlier conclusions. Many medical officers now consider that the comparative infrequency of absolute intoxication is offset by the facilities afforded to young men to indulge in beer drinking. They are of opinion that old men habituated to the use of distilled liquors will not be satisfied with beer, but will get whisky at other places than the Post Exchange, while young men who would not leave their barracks for intoxicants of any kind are led into bad habits by the ease with which beer may be obtained and the official sanction given to its use.

Recruiting.—Number of applicants accepted, 9,585, or 38.3 per cent. of the 25,012, the total number; rejected on primary examination 58.3, and declined 3.4 per cent. Diseases of the eye were the most prolific causes of rejection, having been found to a disabling extent in 8.5 per cent. of the applicants. The average age of the men accepted for service was 25.39 years, height 67.43 inches, weight 145.35 pounds, measurement of chest at expiration 34.16, at inspiration 37.02, expansibility of chest 2.86 inches.

Of every hundred of these recruits 68.3 were native Americans, white 57.6, colored 8.6, Indian 2.1. Of the foreign born men 9.4 came from Ireland, 9.2 from Germany, 3.1 from England, 2.2 from Canada, 1.6 from Sweden, and lesser percentages from other countries. About two hundred and fifty different callings or occupations were recorded on the enlistment papers by the recruits accepted during the year.

Recommendations.—The introduction of electric light into the Army and Navy General Hospital, Hot Springs, Ark., and an increase of the accommodations for officers at that hospital.

White linen or cotton duck as the most suitable wear for men occupied in ward or dispensary duties.

The reference of all plans for the construction or alteration of buildings or of other sanitary improvements at military posts, to a board of officers in which the Medical Department shall be represented.

The disease of casemates as living and sleeping rooms.

The providing of suitable quarters for married enlisted men of the Army.

A consideration of the want of equity in the present method of heating the quarters of officers.

A prohibition of the practice of flushing barrack floors with water for the purpose of cleaning them.

The construction of crematories for garbage at all permanent posts, particularly when the reservation is small and surrounded by civil communities.

The establishment of post laundries at large posts to obviate the necessity of sending clothes to various localities in neighboring cities or other civil settlements.

Blank Applications for membership in the Association, at the JOURNAL office.

101
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE, \$5.00
PER ANNUM IN ADVANCE.
SINGLE COPIES, 10 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
536 N. WABASH AVE., CHICAGO, ILLINOIS.
F. J. BERMAN, LONDON AGENT, 11 ADAM STREET, STRAND, LONDON.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Dunglison, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues and subscription for THE JOURNAL. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

All members of the Association should send their Annual Dues to the Treasurer, RICHARD J. DUNGLISON, M.D., Lock Box 1274, Philadelphia, Pa.

SATURDAY, NOVEMBER 11, 1893.

REPORT OF THE SURGEON GENERAL OF THE ARMY.

SURGEON GENERAL STERNBERG'S Report for the year ending June 30, 1893, has just been made public; but there will be some delay in its issue on account of the preparation of engravings to accompany CAPTAIN LA GARDE'S paper on the "Effects of Gunshot Injury with Small Caliber Projectiles." The report is a valuable one, not only as a record of the statistics of sickness and death, for the year, in the Army, but as representing the various conditions at military posts which tended to increase or limit the spread of disease among the garrisons. Under the heading of "Sanitary Condition of the Army," the condition of barrack buildings as to air space, ventilation, heating and lighting, the subsoil drainage and the disposal of garbage, waste water and excreta are considered, particularly of such posts as have been the subject of criticism on any of these points. Water supplies, also, are fully discussed and the connection between this important sanitary provision and the health of the garrison is shown in several instances that are full of interest for the health officer and practical sanitarian. We refer to another page of this issue of the JOURNAL for a synopsis of the SURGEON GENERAL'S Report.

MEDICAL COLLEGES AND STUDENTS.

All the medical colleges in the United States are now in operation, with the exception of eight. The number of students in this city is about the same as last year, while there is a slight decrease elsewhere, the result, no doubt of the financial panic of the last six months. In looking over the Announcements for the sessions of 1893-94, it is gratifying to observe, not alone the improvement in their general appearance, but the more dignified and professional tone that pervades them. There is less advertising of the

superior attainments and qualifications of members of faculties, of unrivaled equipment and facilities for instruction, of the unparalleled growth and success of institutions, etc. It is also notable that the requirements are yearly becoming more stringent, and more in accord with the growing intelligence of the age. The number of schools requiring four annual courses of lectures is increasing; the same is also true with those requiring three courses, so that the two course schools are beginning to be the exception. It is also noticed that the equipment of many of the schools has been improved during the past year, and the facilities for clinical instruction much increased. The outlook in this country is hopeful, and the stigma that has hitherto rested upon American medical education promises to be soon removed.

KEELEYISM DISSOLVING.

The *London Lancet* and the *Medical Press* denounced Keeleyism and the gold cure over a year ago as quackery of the worst stamp, and followed it up in several issues with very strong condemnations of this scheme. As a result a suit for libel was begun, KEELEY giving bonds for the costs. These actions for libel were telegraphed all over the country as news, and the inference made clear that this so-called great discoverer of bichlorid was going to defend his reputation, and work for humanity, and legally show his claims as one of the few immortals. Timid editors who had ventured a doubt as to his claims and methods, hesitated and became silent. A few medical editors grew more defiant and kept up a steady fire, but some of the wiser ones withdrew all notice, finding opposition as good an advertisement as praise.

The lawyers for KEELEY very adroitly tried some new plans, one of which was to have the testimony of the discoverer of bichlorid taken by a commission, and thus avoid a troublesome cross-examination. This was refused and they carried the case to a higher court, where it was decided that the plaintiff in these actions must appear in person.

Such examination should be in open court, and would necessarily cover a large field of science, morals and ethics, and sundry other allied topics. After a prolonged consideration it was ascertained that the great discoverer of bichlorid was so overwhelmed with medical and business interests, that he could not appear in this little matter, so the suit has been abandoned, and the costs are extracted from the bond, (the law so wisely provided for). We extend congratulations to our esteemed brother editors of the *Lancet* and *Medical Press*, for this event. For no one could predict the result had the plaintiff been able to come over and appear in this suit. In this connection our friends will be interested to hear that this somewhat startling scheme of curing inebriety in three weeks, by a secret specific, has reached such

proportions as to actually explode; or, more accurately, to lose coherence and break up into a multitude of similar schemes, each one claiming to have discovered the real cure and true method, and denouncing the others as impostors.

In this little city of Chicago, there are six distinct "gold cures," and probably more, all differing, and all claiming cures numbering into the thousands. Our English brethren will see at once that the business of curing inebriety in this country is far more important than punishing editors for skepticism and doubt.

By-and-by, when these modern benefactors, with their patent stamping out and curing processes, have used up all the material in this country, they may go over to London, and our friends may have another chance to express themselves. In the meantime, the dissolving process of rank charlatanism will go on, dying from the ignorance on which it is founded. No truth in science is ever sustained by secrecy, or suits for libel, or built up by the assertions of irresponsible persons.

The medical press had made elaborate preparations to defend their suit, and had gathered a collection of facts relating to Keeleyism and its founder, which they promise to publish in the future. This material will probably find its home in the British Medical Library, and in the next century furnish data for a history of the quackery of this age, the same as data of "Berkinism" a century ago is read with such curious interest now. A fact rather startling in this abandoned suit, is that much of the expense of gathering facts against the plaintiff are considered costs of the suit and must be paid out of the bond which he gave. This is unfortunate to men of uncertain reputation, who appeal to the law for help and defense. The presence of the gold cure quackery and the consumptive cures, now so widely advertised, is additional proof of the need of a public analyst who shall examine and control the proprietary medicines offered for sale. In Germany and France all medicines of this character are examined and registered before they can be sold. This will be done in this country at an early day, from necessity and as a sanitary measure.

HEALTH OF THE MILITARY DEPARTMENT OF THE MISSOURI.

The annual report of COLONEL B. J. D. IRWIN, Medical Director, Headquarters Department of the Missouri, Chicago, Illinois, for the fiscal year ending June 30, 1893, has just been published. The posts in the department are Forts Brady, Mackinac and Wayne, Michigan; Fort Sheridan, Illinois; Forts Leavenworth and Riley, Kansas; Forts Reno and Sill, Oklahoma Territory, and Fort Supply, Indian Territory, Camp Oklahoma, Oklahoma Territory,

was abandoned during the early part of the year. The mean strength of the Department was 3,344 men; admission rate 13.03 per thousand of strength; non-effective rate 37.4 per thousand; death rate 3.59 and rate of discharge for disability 19.14; average number of days' sickness for each man of the mean strength, 13.7. These rates are all somewhat lower than the corresponding rates of the army as a whole, and considerably lower than the rates of the Department for the previous year. Fort Sill, as in former years, leads in the number of cases of malarial fevers, 145; Fort Riley following with 94 cases, while Fort Reno reports 34 cases of typhoid fever, as against only 5 cases last year. Fort Sheridan reports the largest number of cases of diarrhea, 118, as well as of diseases of the respiratory system, 97. Four cases of cholera morbus are reported from Fort Reno, two from Fort Sheridan and one from Fort Wayne. Fort Brady shows the largest percentage of cases of alcoholism with Forts Mackinac and Wayne next in order. Forts Mackinac, Brady and Leavenworth appear as the healthiest posts in the Department; Forts Reno, Sill and Supply as the most insalubrious.

There are now in the Department, twenty-three medical officers: one Colonel, IRWIN; five Majors, TILTON, BROOKE, GIRARD, BROWN and TURRILL; nine Captains, GARDNER, CORBUSIER, APPEL, BANISTER, CARTER, GORGAS, WYETH, IVES and CLENDENIN; and eight Lieutenants, GLENNAN, SNYDER, BROOKE, WARE, BREWER, NEWGARDEN, STRAUB and KENNEDY. Two new hospitals were completed during the year. One to accommodate from forty to sixty patients at Fort Sheridan, Illinois; the other to accommodate from twelve to sixteen patients at Fort Brady, Michigan. They were constructed by the Quartermaster's Department of the Army, and have recently been occupied by the invalids of the garrisons of those stations. Concerning the hospitals, COLONEL IRWIN observes that as he has not had opportunity to examine them since their transfer to the Medical Department, he is unable to pronounce upon their condition or fitness for the purpose for which they were designed, but he has reason to believe that they will prove most desirable and valuable for the sick. The manufacture of ice has been carried on during the whole year at Forts Sill and Reno, Oklahoma Territory, and at Fort Supply, Indian Territory, during the greater part of the year. The scarcity of water at Fort Reno has recently caused the discontinuance of the ice product at that place, much to the inconvenience of the whole garrison, ice having now to be procured from Kingfisher, at much trouble and increased cost to those able to purchase it. The extreme heat of that region and the bad character of the water supply taken from the south branch of the Canadian River render the use of ice an absolute

necessity to those obliged to live at that station. Much time and money has been expended in useless efforts to secure for that post a supply of good potable water. Little progress has been made during the year in boring the artesian well, and it is questionable if success will result, as the depth to which it is to be driven is limited to fifteen hundred feet, twelve hundred of which have been bored without finding more than one indication of water and that is said to have been a saturated solution of gypsum.

There were no active campaigns by the troops in the Department during the year; but companies from posts in the territories were frequently sent into the field to expel intruders from Indian lands and reservations. In such cases, when practicable, the troops were provided with medical officers, detachments of the hospital corps, ambulances and medical supplies.

THE MAN WITH TWO TONGUES.

"Nay, said I, the gentleman is wise; certain, said she, a wise gentleman; Nay, said I, he had the tongue; that I believe, said she, for he swore a thing to me on Monday night, which he forewore on Tuesday morning. There's a double tongue; there's two tongues."—*Mock Talk About Nothing*.

We are accustomed to read curious accounts of wonderfully scientific discoveries, and extremely skillful surgical operations in the columns of our esteemed contemporaries the lay press, and occasionally a blood-curdling account of some new reptile or sea monster, a living calf with three heads, or a feathered freak with three legs; but it has been reserved for a reporter of one of the New York dailies to report the actual discovery of a man with two tongues, a condition which has always been figurative in literature rather than real. The following is the paragraph:

"The Tenderloin District has developed a freak of nature puzzling to physicians. WILLIAM SENNER of 237 West Thirty-First Street, an apparently healthy printer, with a wife and family, has grown a second tongue. It is located just below the tongue he was born with, and is quite well developed and natural in its appearance. Several physicians who have examined the growth think it is superinduced by constant pipe smoking. Mrs. SENNER says it is a punishment for using profane language. An examination will be made to-day by physicians for the purpose of deciding upon an operation."—*New York Press*, October 28.

We have no doubt that the physicians are very, very much puzzled, but it is all owing to the failure of the reporter to enlighten them.

The reporter having written up this remarkable case seems to have failed to embellish it as might have been easy to one of his expansive imagination. He might, for instance, have stated as a probable cause of this new growth, that the patient, like the PROPHET JOSHUA, "saw a tongue of gold and coveted it," and that the mental impression was so strong upon him that the new tongue immediately sprouted, or he might have said that MR. SENNER had been attending the theater, and become so affected by the words of the Fairy in "Midsummer Night's Dream:"

"You spotted snakes with double tongue, sung in sweet soprano; or have been overcome by the deep bass of the tinsel DUKE of YORK in "King Henry VI," shouting in staccato: "This knave's tongue begins to double," accompanied by a threatening gesture of the dual sword.

It is apparent that our reporterial friend singularly failed in etiology. He has also left us doubtful whether MR. SENNER considers with JUVENAL that "the tongue is the vile slave's vilest part," and knows that he can never, never become a deacon, for according to TIMOTHY, "deacons must be grave and not double tongued," or whether MR. SENNER would rather have two tongues, so that he might on a Sunday twilight on a visit to his sweetheart, wag both tongues at once, and like ROMEO hear "how silver sweet sound lovers' tongues at night."

The reporter might also have indulged the play of his fancy by suggesting the treatment, and discuss whether, like CORIOLANUS, it were better to "pluck out the multitudinous tongue," and afterwards to supply its place according to the suggestion of AMBROISE PARE by the manufacture of an artificial tongue of wood, or whether he would accept it as an additional charm, and say with HESIOD that "the best treasure among men is a frugal tongue, and that which moves measurably, is hung with most grace."

HOW VALUE OF PROFESSIONAL SERVICE MAY BE PROVED.

In a suit to recover the value of professional services, witnesses of proper knowledge and experience may be called to give their opinions under oath as to the value of such services, says the Supreme Court of Colorado in the case of Bourke vs. Whiting, decided Oct. 2, 1893. But such opinions are not conclusive upon the jury; nor is it absolutely essential that expert evidence should be produced in such cases. The jurors have the right, when the nature and kind of services performed are shown in evidence, together with the time and circumstances of performance, to exercise their own judgment in determining the value of such services; and, if parties submit such an issue to the jury without expert testimony, they will not afterwards be heard in complaint.

A PERSONAL HYGIENIC EXHIBIT.

The most prominent feature of an exhibit in the Section of Hygiene in the Columbian Exposition, was that of a large photograph of the chief of the quarantine over which he presided. It is also admitted by certain newspapers, and as well by the modest individual himself, without the slightest effort to conceal the matter, that GEORGE FRANCIS TRAIN and himself are rivals in claiming credit for saving the World's Fair.

CORRESPONDENCE.

Minnesota State Board of Health and Vital Statistics.

OFFICE OF SECRETARY AND EXECUTIVE OFFICER,
RED WING, MINN., Nov. 6, 1893.

To the Editor:—I beg to report that a case of confluent smallpox has appeared in the person of a boy, Elmer Rogers, age 11, and unvaccinated, in the town of Featherstone, Goodhue County. He is a resident, and at the time of exposure was traveling from Virginia through Pennsylvania, Indiana, Ohio, Illinois to Minnesota, so that it is difficult to say where, in those States, he took the infection. I was called by the family Friday the 3d of November and found a well-marked case of confluent smallpox, the eruption having begun on Monday four days before. The attending doctor supposed the disease chickenpox. A careful list was made of all persons who had visited the family since the preceding Saturday. I visited, vaccinated and put under observation all who had been exposed since Sunday. There are four other members of the infected family whom I vaccinated with fluid lymph from our vaccine station. The house is roomy, isolated, and the patient well cared for.

I, to-day, vaccinate all who desire it, in that, and adjoining towns.

Very respectfully,

CHARLES N. HEWITT, M.D.,
Secretary and Executive Officer.

Personal Ethics for Visiting Foreigners.

To the Editor:—As Mr. Ernest Hart, editor of the *British Medical Journal*, has upon several occasions while in this country, delivered addresses on the code of medical ethics, would it not be in order for him to take up the subject of personal ethics?

MEDICS.

NECROLOGY.

Dr. Kerlin, Superintendent of the Pennsylvania Training School for Feeble Minded Children, died October 22.

Dr. Isaac Simpson Hughes.—Dr. Isaac Simpson Hughes died November 2, at Springfield, Ill., aged 49 years.

Dr. Eli J. Henkle of Baltimore, Md., died November 1, aged 53 years. He was in political life in the Maryland Legislature and in the Federal Congress during the greater part of twenty years. After leaving the Forty-fifth Congress he again entered upon the practice of medicine, becoming highly popular and successful.

Dr. William B. Towles.—Resolutions were adopted by the Medical Faculty of the University of Vermont at a special meeting held in New York, Oct. 26, 1893.

Dr. William B. Towles, late Professor of Anatomy in the Medical Department of the University of Vermont, died September 15.

The Medical Faculty, holding its first meeting since his decease at this time, and desiring to make some expression of its feeling with regard to this lamentable event, passed suitable resolutions.

Alfred Ludlow Carroll—In Memoriam.—The members of the Council of the New York State Medical Association deeply mourn the loss of their beloved, erudite, scholarly and gentle colleague, Alfred Ludlow Carroll, M.D., who has labored so well and so assiduously for the Association, for the profession and for the people, as a wise counselor, as the editor of the Association's Transactions, as a prolific contributor of useful material, as a promoter of the honor, dignity, and

advancement of medical science, and as one of the foremost sanitarians in the land.

The Council has therefore resolved that their high appreciation of the noble qualities and of the scientific accomplishments of their late gifted and lamented colleague be recorded in this volume of Transactions, and in the medical journals, and that a copy of the above be transmitted to the family of the deceased.

E. D. FERGUSON, M.D., Secretary.

Done by the Council, Nov. 4, 1893.

Dr. Alfred Ludlow Carroll of New York City, died October 30, in his sixty-first year. He was a man of that fine fiber that finds its expression in artistic and literary labors. He was an early contributor of satirical bits of drawing for the weekly press, commonly touching on the foibles of society, and while yet a young practitioner served as editor of the *Medical Gazette*, from 1868 to 1871, an able weekly journal, but long since defunct. He studied medicine under the late Dr. Valentine Mott, and obtained his medical degree at the University Medical Department in 1855. He practiced in Staten Island from 1871 to 1889; his earlier and later years having been passed in New York City. He was among the sanitary pioneers of New York and an ardent supporter of the American Public Health Association. He was a charter member of his State Medical Association, contributing freely to its important discussions. His membership in the AMERICAN MEDICAL ASSOCIATION dates from 1880, since which time his face has been frequently seen and his voice heard at the annual conventions. He was health officer of Coney Island, Staten Island, and for many years prominent in the management of the S. R. Smith Infirmary and Hospital. He was a corresponding member of the British Medical Association and many other important societies.

Dr. John Scott Taylor.—The death of Dr. John Scott Taylor, which occurred on the first of October, 1893, recalls one of the saddest life histories in the medical profession. Gifted by nature with a kind heart and active brain, he commenced his life work with unusual promise, and before the shadow came that darkened forever his career among men, had done duty that placed him high in the esteem of those who knew him.

A Scotchman by birth, an adopted son of this country, he served during the entire war of the Rebellion successively as Post Surgeon, Medical Director, and Chief Operator of his Division, and gained high testimonials from official sources.

He graduated at Lind University before the war, and after its close he returned to Chicago to establish his home. But his health had suffered during those four active years, and despite the efforts of his friends and physicians, Drs. Byford and Patterson, now dead also, his mind gave way. He lingered twenty-four years in an insane asylum, having outlived his associates only to die there.

He leaves an estimable widow and a talented son to mourn with us his loss to the world.

H. T. B.

Sir Andrew Clarke Passes Away.—LONDON, Nov. 6.—Sir Andrew Clarke, the well-known physician, died at 4:30 o'clock this afternoon. He suffered a stroke of paralysis several weeks ago.

Sir Andrew Clarke, Bart, M.D., was born Oct. 28, 1826. He was educated first at Aberdeen and afterwards at Edinburgh. For two years he assisted Dr. Hughes Bennett in the Pathological Department of the Royal Infirmary and was Demonstrator of Anatomy to Dr. Robert Knox in the final course of lectures delivered by that celebrated anatomist. For four years Dr. Clarke had charge of the Pathological

Department of the Royal Naval Hospital at Haslar, where he delivered lectures on the use of the microscope in practical medicine. In 1854 he took his degree of M.D. at the University of Aberdeen, settled in the metropolis, became a member of the Royal College of Physicians of London, and was elected on the staff of the London Hospital. In 1858 Dr. Clarke was made a Fellow of the College of Physicians, in which he held the offices of Croonian and Lunnellian Lecturer, Counselor and Examiner in Medicine and Censor. He had been also Lettsomian Lecturer and President of the Medical Society of London. Dr. Clarke originally intended to devote himself exclusively to the cultivation of pathology, but turned by the force of circumstances from the course on which he had entered he was long occupied in the work of a practical physician. He was the author of numerous essays, lectures and reviews, the professional portion of which refers for the most part to diseases of the respiratory, renal, and digestive organs. He was created a Baronet in 1883. He was senior physician and lecturer on clinical medicine to the London Hospital; an F.R.S., and LL.D. of Edinburgh and Aberdeen (causa honoris), and consulting physician to the East London Hospital for Diseases of Children. He held the offices of President of the Metropolitan Counties Branch of the British Medical Association and President of the Clinical Society. Dr. Clarke was Mr. Gladstone's physician, and much speculation has been indulged as to the effect of his death on the Premier's health.—*Press Dispatch.*

ASSOCIATION NEWS.

Change of Date of Meeting.—Official Notice.—In order to enable the State Medical Societies to send instructions as to their action upon the matter referred to them by the AMERICAN MEDICAL ASSOCIATION at its recent meeting at Milwaukee, and for other reasons, the time of meeting of the Association at San Francisco, has been changed from the first Tuesday in May to the first Tuesday in June, 1894.

WILLIAM B. ATKINSON,
Permanent Secretary.

JAS. F. HIBBERD,
President-Elect.

How can it be Accomplished?—It is not only feasible but possible that the AMERICAN MEDICAL ASSOCIATION should in the near future be the grand central organization of the medical profession of the United States, and yield an influence that only a central body can, even as much as the British Medical Association does in Great Britain.

There are too many societies under big sounding titles, which ought to be consolidated under some of the various sections of the AMERICAN MEDICAL ASSOCIATION. We can not and do not believe that the medical profession, as a mass, want a half dozen national societies, for by so doing, all lose influence and power, not only in the profession but out of it. It seems to us that the members of the AMERICAN MEDICAL ASSOCIATION are not active enough in doing missionary work in this direction among the members of the profession outside of this Association's limits. If an earnest effort were made in this direction we feel confident that a different feeling would be created, and a wider sphere of usefulness would be opened to the only real national medical association of the United States.—*New England Medical Monthly.*

SOCIETY NEWS.

Executive Committee of the Congress of American Physicians and Surgeons.—A meeting of the Executive Committee of the Congress of American Physicians and Surgeons was recently

held at the house of the chairman, Dr. Landon Carter Gray, there being present Dr. A. L. Loomis, President of the Congress; Dr. H. P. Bowditch, representing the Physiological Association; Dr. D. R. St. John Roosa, of the Ophthalmological Association; Dr. Abram Jacoby of the Pediatric Association; Dr. P. A. Morrow, of the Dermatological Association; Dr. Jas. B. Walker of the Climatological Association; Dr. R. W. Taylor of the Genito-Urinary Association; Dr. W. T. Lusk of the Gynecological Association; Dr. F. J. Shepherd of the Association of American Anatomists; Dr. L. McLane Tiffany of the American Surgical Association; Dr. Wm. H. Welch of the Association of American Physicians, and Dr. Landon Carter Gray of the American Neurological Association. A local Committee of Arrangements in Washington was appointed as follows:

Dr. S. S. Adams, (Chairman) representing the Pediatric Association; Dr. John S. Billings, the Surgical Association; Dr. H. C. Beyer, the Physiological Association; Dr. S. O. Ritchie, the Otological Association; Dr. S. C. Busby, the Gynecological Association; Dr. W. W. Johnson, the Climatological Association; Dr. J. Atkinson, Baltimore, the Dermatological Association; Dr. Wm. H. Welch, (Baltimore) the Association of Physicians; Dr. I. C. Ross, the Neurological Association; Dr. Samuel Theobald, the Ophthalmological Association; Dr. D. W. Prentiss, the Genito-Urinary Association; Dr. Frank Baker the Anatomical Association.

It was arranged that the following subjects should be discussed by the Congress at its next meeting in Washington in the latter part of May, 1894:

The Climatological Association: "Sewer Gas;" Genito-Urinary Association: "The Surgical Kidney in its Clinical Aspects;" Dermatological Association: "Leprosy in the United States;" Laryngological Association: "Intra-Nasal Surgery;" Gynecological Association: "Conservative Treatment of the Female Pelvic Organs;" Neurological Association: "The Effects of Infectious Processes on the Nervous System."

One Association is yet to select a subject for discussion.

Dr. W. H. Carmalt, of New Haven, Conn., resigned from the sub-committee deputed to take charge of the organization of the Congress, and Dr. Wm. H. Welch of Baltimore, was appointed in his place, so that the committee now consists of Dr. A. L. Loomis, President of the Congress; Dr. Landon Carter Gray, Chairman of the Executive Committee; Dr. Newton M. Shaffer, Secretary of the Executive Committee, and Dr. Wm. H. Welch.

Centennial Medical Report.—At the centennial meeting of the Hartford County Medical Association, held in Hartford in 1892, Drs. John B. Lewis, Gideon C. Segor and Joseph E. Root were appointed a committee to prepare and publish a report of the centennial meeting and a catalogue of all past and present members of the Association. The members of the committee have worked long and faithfully, and the tangible result of their labors appears in the handsome volume of 160 pages just issued. The volume is beautifully bound in white and green, and illustrated with eight or ten handsomely engraved portraits. The frontispiece is a portrait of Dr. George Oliver Sumner of Glastonbury, who became a member of the Association in 1833. After the full and accurate report of all speeches and papers at the centennial meeting, which contains much valuable historical matter, the feature of the volume is the catalogue of names. The committee has succeeded in obtaining the full name of every physician who was ever a member of the society. As the history of the society extends back over a hundred years, this was sometimes no easy task, and town records had frequently to be searched. The volume will form a valuable souvenir.—*Hartford Conn. Times.*

International Congress of Public Health.—At the meeting of the International Congress of Public Health, held under the auspices of the American Public Health Association and the World's Congress Auxiliary of the World's Columbian Exposition, at Chicago, Oct. 10-14, 1893, the following resolutions were adopted:

Offered by Dr. J. E. Monjarás of Mexico:

Resolved, I. That the educational authorities of the various nations represented here be requested to devote a longer

time than they now do, in their curriculum, to the teaching of hygiene.

2. That the governments of the countries represented at this Congress be urged to appoint to sanitary positions and commissions only such persons as may have acquired a special education in sanitary studies.

Offered by Dr. Benjamin Lee of Pennsylvania:

Resolved, That the International Congress of Public Health affirm in the strongest possible manner its confidence in the value of vaccination as a preventative of smallpox.

Offered by Mr. Henry Lomb of Rochester, N. Y.:

Resolved, I. That this Congress urge upon the people of the countries here represented, the importance of completing our sanitary organization by forming voluntary Public Health Associations, to study for themselves the conditions of healthy living in the home and the community, and to afford efficient and persistent support to the work of public health officials.

2. That this Congress respectfully ask State and local Boards of Health to assist in all proper ways the formation of such organizations.

IRVING A. WATSON, Secretary.

CONCORD, N. H., Oct. 25, 1893.

American Public Health Association.—At the annual meeting of the American Public Health Association, held at Chicago Oct. 9-14, 1893, the following resolution offered by Dr. Henry P. Walcott of Massachusetts, was adopted:

Resolved, That the American Public Health Association again urge upon Congress the necessity of the appointment of some officer with general sanitary authority in connection with the National Government.

That the functions of such an authority are of sufficient importance to demand the exclusive attention of the best instructed sanitarian.

That such authority should be enabled, from time to time and under proper regulations, to secure the advice and cooperation of State Boards of Health.

IRVING A. WATSON, Secretary.

SECRETARY'S OFFICE, CONCORD, N. H., Oct. 25, 1893.

Union Medical Association.—The eighty-ninth quarterly session of this Association will be held in Hollenden Hotel, Cleveland, Ohio, Tuesday, Nov. 14, 1893.

The program is as follows: Lecture, "Pathology and Treatment of Injuries of the Pelvic Floor," Dr. F. D. Brandenburgh; Essay, "The Doctor—The Surgeon," Dr. J. V. Cleaver; Essay, "The Eye Symptoms of Brain Disease," Dr. R. D. Gibson; Lecture, "The Significance of Glycosuria," Dr. E. J. March. Reports of cases will be given by Drs. W. E. Wirt, C. S. Leonard, A. C. Brant, P. Max Forshay, E. O. Portman, T. W. Johnson, Geo. S. Peck, T. H. Landor, Edward Prebel, H. E. Whelan.

Topic for discussion, "How shall the requirements of aseptic and antiseptic methods be carried out in general midwifery practice?" Discussion will be opened by Dr. T. Clarke Miller; alternate, Dr. L. S. Ebright.

A. B. WALKER, M.D., President.

W. W. LEONARD, M.D., Secretary.

University of Georgia.—The Medical Department of the University of Georgia is against the abolishment of the Board of Medical Examiners by the State Legislature, and make an earnest appeal that it be reestablished. The professors of the Medical College adopted the following resolutions:

WHEREAS, It is an indisputable fact that since the Board of Medical Examiners of Georgia was abolished by act of the Legislature, Georgia has been a veritable paradise for quacks who have been driven out of other States,

Resolved, That the Faculty of the Medical Department of the University of Georgia heartily indorses the principal features of the bill as printed in the *Atlanta Medical and Surgical Journal*, December, 1893, pages 612, 613 and 614, captioned, "A Bill to Be Entitled an Act to Establish a Board of Medical Examiners for the State of Georgia, and to Protect the People from Illegal and Unqualified Practitioners of Medicine," which bill was passed by the Senate of Georgia at its last session.

Resolved, That a committee of three members of this Faculty be appointed and charged with the duty of appearing before the Legislature of Georgia and using all honorable means to secure the enactment of said bill.

Resolved, That this Faculty, through the said committee, requests the Senator from this Senatorial district, and the Representatives of the Lower House from this county, to exert themselves to secure the passage of said bill.

Resolved, That this College points with pride to the fact that it was the first medical school in America to insist upon the necessity of higher medical education in the colleges of the United States. This fact is shown first, by the record that in 1825 the first Board of State Medical Examiners was organized at the request of the Board of Trustees of this College; second, in the early history of this College the term was six months. In 1845 the Faculty of this College attempted to have all medical colleges in America require of their students attendance on two full courses of six months each, as a requisite to graduation. This Medical School only receded from its then advanced position, because forced to do so by refusal of all other colleges to join in the movement, no other college having expressed a willingness to join in the crusade against the disgraceful practice of yearly graduating large numbers of ignorant and unqualified medical students.

Resolved, That it is, in the opinion of this Faculty, a blot upon the escutcheon of the State, to permit Georgia to be without a Board of Medical Examiners to protect her citizens against medical pretenders.

Southern Surgical and Gynecological Association.—Sixth annual meeting will be held in New Orleans, La., Nov. 14, 15 and 16, 1893.

TUESDAY, NOVEMBER 14—MORNING SESSION.

Address of Welcome and Response.

Memorial Address on Dr. Ephraim McDowell, L. S. McMurry, M.D., Louisville, Ky.

Diagnosis of Pelvic Inflammatory Diseases, Howard A. Kelly, M.D., Baltimore, Md.

The Treatment of Pyo-Salpinx, Cornelius Kollock, M.D., Cheraw, S. C.

The Incision in Abdominal Section—How to Close it—Post-Operative Complications About it, Joseph Price, M.D., Philadelphia, Pa.

Etiology and Treatment of Post-Operative Ventral Hernia, Chas. A. L. Reed, M.D., Cincinnati, Ohio.

The Vaginal Method as Compared with the Abdominal Operations on the Uterus and its Appendages, Geo. J. Engelmann, M.D., St. Louis, Mo.

The Best Time to Operate in Appendicitis, A. M. Cartledge, M.D., Louisville, Ky.

An Extra-Peritoneal Method of Operating in Certain Cases of Appendicitis, Bacon Saunders, M.D., Ft. Worth, Texas.

AFTERNOON SESSION.

Intra-Cranial Neurectomy and Removal of the Gasserian Ganglion, with Report of Cases, Louis McLane Tiffany, M.D., Baltimore, Md.

Contusion of the Brain, J. B. Murfree, M.D., Murfreesboro, Tenn.

Trephining as a Cure for Traumatic Epilepsy, Jno. T. Chapman, M.D., Bessemer, Ala.

Some Remarks on the Treatment of Epilepsy, B. E. Hadra, M.D., Galveston, Texas.

A Contribution to the Study of the Prostate, G. Frank Lydston, M.D., Chicago, Ill.

The Management of the Epicyclic Fistula in Cases of Enlarged Prostate, J. D. S. Davis, M.D., Birmingham, Ala.

Choice of Operations for Stone in the Urinary Bladder, W. T. Briggs, M.D., Nashville, Tenn.

Supra-Pubic Cystotomy, B. W. Taylor, M.D., Columbia, S. C.

WEDNESDAY, NOVEMBER 15—MORNING SESSION.

Conditions Modifying the Prognosis in Gunshot Wounds of the Abdomen, A. B. Miles, M.D., New Orleans, La.

Treatment of Gunshot Wounds, with Report of Cases, W. F. Westmoreland, M.D., Atlanta, Ga.

How to Deal with Gunshot Wounds Safely Without Delay, W. L. Robinson, M.D., Danville, Va.

Laparotomy in General Surgery—Report of Twenty-two Cases, W. B. Rogers, M.D., Memphis, Tenn.

Celiotomy, with Report of Cases, W. H. Wathen, M.D., Louisville, Ky.

Hypertrophy of the Omentum in Hernia, with Specimen, G. A. Baxter, M.D., Chattanooga, Tenn.

Wyeth's Bloodless Method in Amputation at Hip, F. W. Farham, M.D., New Orleans, La.

AFTERNOON SESSION.

The President's Annual Address: The Southern Surgical and Gynecological Association; Its Origin, Objects and Aims, Bedford Brown, M.D., Alexandria, Va.

Cancer; Its Etiology and Treatment, W. L. Rodman, M.D., Louisville, Ky.

Operative Procedures for Carcinomatous Tumors of the Breast, J. McFadden Gaston, M.D., Atlanta, Ga.

Wounds of the Bladder, their Recognition and Management, Richard Douglas, M.D., Nashville, Tenn.

Fibroid Tumors Complicated with Pregnancy, W. D. Haggard, M.D., Nashville, Tenn.

The Diagnosis of Some Abdominal Tumors Supposed to be Ovarian, Jas. Goggans, M.D., Alexander City, Ala.

THURSDAY, NOVEMBER 16.—MORNING SESSION.

Rhinoplastic Operations, W. S. Elkin, M.D., Atlanta, Ga.
Sarcomata of the Peripheral Nerves, with Report of a Case, W. O. Roberts, M.D., Louisville, Ky.

Division of the Cervix Uteri, H. P. C. Wilson, M.D., Baltimore, Md.

Some Experiments with the Galvanic Current on the Endometrium, H. Berlin, M.D., Chattanooga, Tenn.

A Combination of Carbolic Acid and Camphor as an Antiseptic, Wm. Perrin Nicolson, M.D., Atlanta, Ga.

A Case of Popliteal Aneurism, R. M. Cunningham, M.D., Pratt City, Ala.

The Present Status of Ureteral Surgery, Arch. Dixon, M.D., Henderson, Ky.

Operative Procedures for Calculi in the Pelvis of the Kidney, W. E. B. Davis, M.D., Birmingham, Ala.

AFTERNOON SESSION.

Two Unique Cases in Abdominal Surgery and Obstetrics, J. P. Moore, M.D., Macon, Ga.

Four Cases of Hysterectomy by Baer's Method, Jos. Taber Johnson, M.D., Washington, D. C.

Placenta Previa, George Ross, M.D., Richmond, Va.

Some Interesting Cases from Surgical Practice, F. W. Parham, New Orleans, La.

Report of Surgical Cases, Wm. H. H. Cobb, M.D., Goldsboro, N. C.

Treatment of Stone in the Ductus Communis Choledocus, Wm. E. B. Davis, M.D., Birmingham, Ala.

MISCELLANY.

Dr. Franklin W. Hayes has been appointed a member of the Indianapolis Board of Health, by the Mayor of that city.

Emergency Hospital at World's Fair.—There were treated at the World's Fair Emergency Hospital, 18,500 cases, and there were twenty-three deaths at the institution.

New Dental College.—Tacoma, Wash., has a new dental college, which has been organized with a faculty of nine professors and four special lecturers. It will give a three years' course to conform to the rules of the National Association of Dental Faculties.

The Pacific Medical Record of Portland, Ore., is rapidly gaining the support of the medical profession of the Pacific Northwest. It is published as a local journal only, and is not yet one year old, but it has already been indorsed by five State Medical Societies. It is a staunch supporter of the AMERICAN MEDICAL ASSOCIATION, and will lend its influence towards increasing the membership and interest in that organization on the Pacific coast.

Doctors' Bills as Debts of Honor.—Strange as it may seem, doctors' bills are said to be classed as debts of honor in Austria, China and Sweden. They are therefore in those countries left, as gambling debts are here, so far as the law is concerned, to be paid or not, according to the inclination of those incurring them. So in England, unless the law has been very recently changed, a *physician* (or one licensed by the College of Physicians) has no remedy at law for his ser-

vices, but his employment is wholly honorary, though a "medical practitioner," whose legal appellation is usually "apothecary," has. Indeed, it has there even been held that a physician, who prepared or dispensed his own medicines could not recover for them, although they were furnished to his own patients. This may not, however, be entirely a disadvantage, because it is well known that such obligations are frequently paid where legal debts could not be collected.

A New Water Filter for Troops.—Recent advices from Vienna speak of a water filter, the invention of a staff officer of the Austro-Hungarian army, which after thorough trial by the Sanitary Committee of the War Office has been adopted and issued to the army. Of these filters 12,000 are now in use by the troops at the corps maneuvers in Galicia, and are reported as being perfectly satisfactory. The filter is made in two sizes; one the dimensions of the cavalry water bucket, the other smaller. It contains two wire sieves; one resting upon the bottom of the bucket and the other suspended midway between the top and bottom. A handful of asbestos is placed upon the lower sieve, and the bucket is hung over a cask or any suitable receiving vessel. The water is said to pass through the filter perfectly clear, odorless and suitable for drinking, the pulpy asbestos absorbing the organic matter. The upper sieve is intended to remove the coarser particles from the water, such as gravel, weeds, insects, etc.; the lower sieve to hold the asbestos. The latter can be washed and cleaned by hand and used a number of times. The smaller filters are constructed on the same principles. Each consists of a round piece of canvas of the size of a dinner plate, provided with a string around the edge to draw it to an orifice and hold a cup-shaped tin funnel. The funnel contains two sieves and when it is to be used a small piece of asbestos of the size and double the thickness of a silver half-dollar, is placed upon the lower sieve.

The Imperious City Druggist.—A writer in the *New York Herald* communicates the following pen picture of the lordly drug clerk and his ways of "just as good" substitution:

"It requires some nerve and the display of an acute presence of mind to enter a drug store and inquire for a particular thing and to take no other thing in place of it. Nobody understands better than the average drug clerk the feeble character of the human will, and nobody than he better appreciates his own superior position. If I should go into an eating house and want frogs' legs and no frogs' legs were to be had there, nothing would be thought of the circumstance if I should move on to some other place for what I wanted. Nobody would call out the rest of the force to stare at me. Nobody would tell me I really didn't mean frogs' legs, but wanted to get a wholly different thing. Nobody would sneeringly remark that they never heard of such a thing, that it wasn't down on the bill of fare printed for their house, and therefore frogs' legs were not in the market. Nobody would, when I told them that I had seen frogs' legs in another restaurant, not far away, insinuate that I was mistaken or was lying. Not at all. They would merely permit me to go away and hunt up my frogs' legs and enjoy them wherever I might find them.

"The average drug clerk is a very different sort of an individual to deal with. Not to be too sweeping in this remark let me say some of these licensed practitioners on the public credulity are a trifle too smart for common everyday mundane affairs. I have had them not only subject me to all of the above conditions, but absolutely go so far as to further relieve me from the strain of thinking to the extent of putting up something unasked for and by them pronounced just as good or better. And I never found that peculiar method of doing business in all my varied dealings with my other fellow men. There is food for philosophical reflection in this. Now it is said that certain patent medicine firms of a competitive character offer pecuniary inducements to dealers for pushing goods on the market, and this will account for some of the peculiarities of the business, but it will not account for all of them. Only the all-seeing One who graciously stands between us and morphin put up as sedditz powders can do that."

The Journal of the American Medical Association

VOL. XXI.

CHICAGO, NOVEMBER 18, 1893.

No. 21.

ADDRESS.

THE SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.—ITS ORIGIN,

OBJECTS AND AIMS.

THE PRESIDENT'S ADDRESS.

Delivered at the Annual Meeting, held at New Orleans, La., Nov. 14, 15 and 16, 1893.

BY BEDFORD BROWN, M.D.

ALEXANDRIA, VA.

Six years ago a small band of earnest, brave and determined Southern surgeons assembled in the city of Birmingham, Ala., with Dr. Haggard as President, amidst doubts, anxieties and misgivings for the future, to found and organize a Southern Surgical and Gynecological Association, and in this effort to build up an organization that would meet the advanced requirements of the times, and that should rank in point of talent, efficiency and high-toned character with the other great institutions of the kind, in this and other countries.

Under the circumstances we fully appreciated the difficulties ahead of us, and measured accurately the herculean task that had to be accomplished. Many of the most eminent and experienced surgeons of our section regarded the enterprise of doubtful propriety, while others equally distinguished believed that the object would never succeed.

But notwithstanding the stupendous difficulties we had to encounter, the vast labor expended and the many obstacles in our path, the Southern Surgical and Gynecological Association stands to-day a monument of energy, enterprise and indomitable will power.

In launching forth this enterprise upon the world of science, we were anxious but hopeful for the future; and in laying the foundation of our Association with a view solely and alone to future success, regardless of prejudice, of individual opinion or interest we determined to begin in the right direction and continue so to the end.

The first and most important question to settle was a leadership, and to be certain that no mistake could be made in the selection of a leader fully capable of steering the ship on its voyage, whether in calm or in storm, we wisely selected one of the most distinguished and eminent men in our profession in this nation; a man who by character, talent and reputation was in eminent degree qualified for the purpose. We started out on our career in the right way, and I trust that, by the exercise of wisdom and discretion, we shall continue to prosper in the future as in the past.

The next consideration of importance was the selection of proper material to compose this body. In framing our laws to meet this important question, I think the Association has manifested wisdom, judgment and foresight. They were so arranged as to

admit to membership three distinct classes of professional men: the specialist, whether surgeon or gynecologist, of distinction, skill and experience. The second was the general practitioner of eminence and experience, who in addition practiced surgery and gynecology to a limited extent. The third was the rising young surgeon or gynecologist of character, talent, education and promise, but whose practical experience was limited. In this connection this term, *promise*, means a great deal. Throughout our Southern country there are hundreds of accomplished young surgeons and gynecologists of *promise*, but not yet of eminence, who are struggling for success and who are certain to attain distinction, that this arrangement was made to reach. These are the men who are coming forward to take the place of those of the past generation, and these are the future hope of our country.

There never was in any land or any age so many young enterprising men of character, talent, energy and education as in our country at the present time. It is to this class of young men of known talent and energy that this Association has extended the right hand of fellowship, and a free untrammelled invitation to unite in our work and responsibilities, and the act has been a wise, judicious and profitable one. The individual or organization that has extended the helping hand of encouragement to the deserving, meritorious, energetic, struggling young man in fighting his way to success and eminence, has done a noble and generous act of humanity. The time seemed propitious, then, for the organization of a Southern Surgical and Gynecological Association. Circumstances demanded it and subsequent events have warranted it. Since that period this Association, I am proud to say, has scientifically, intellectually and professionally become an integral part of Southern progress. It is an evidence of Southern spirit, energy, enterprise, recuperative power and courageous determination to rise above its desolated condition and conquer success and prosperity; and it is typical of that noble and brave ambition which pervades our people, to restore this once impoverished land to a state of prosperity far beyond that of the golden past. Twenty-five years ago the condition of the Southern people was desolate and impoverished, to a degree that no civilized nation of modern times has been reduced. For those who had to begin the herculean task of restoring lost fortunes, and rebuilding a ruined country, the outlook was appalling and dreary beyond measure. Since that time, well calculated to appal the stoutest hearts, our noble profession by its labors of humanity, charity, its cheering influences and brave example has exerted in Southern recuperation a powerful effect for good.

That our Southern country might be enabled to reap fully the benefits of its talents, learning and

labors, the organization of a home association for the development of surgery and gynecology was imperatively demanded, and this organization came in response to that demand. In the progress of Southern affairs, in the onward march of improvement, in the advance of thought, in that vast wave of prosperity, which is now in progress throughout the land, this organization had become a necessity to the progress of surgery and gynecology among our Southern people. And as time marches on, and future events reveal the requirements of our country, they will only serve to prove that the foundation of this Association came at the right time to subserve a great and pressing purpose. The origin of the Southern Surgical and Gynecological Association was based on a necessity of the times. Its object was the promotion of the progress of scientific surgery in the South, and its aim was the development of surgical talent and learning in our Southern profession. In this direction I am impressed with the conviction that this Association, in connection with others, is doing a great and good work for our country. All professions, in all times, and in all countries, need an active living stimulus to urge them on to energy and enterprise.

Forming an opinion by my own individual experience, and by that of others, I am persuaded that no member who has followed the progress of this Association closely, and who has taken assiduous part in its proceedings, whose knowledge of the science of surgery has not expanded; whose ideas have not been enlarged by the able papers and discussions that have characterized our transactions. The character, reputation and vast experience of many of the surgeons who compose this body, and the splendid work they have performed are in every particular worthy of the great Southern people, and would be an honor to any people or nation on earth.

Throughout our sparsely populated Southern country there is a large class of general practitioners, many of whom are good surgeons and gynecologists, men of reputation, of education, experience and standing in their communities and States, whom it was designed to bring into active sympathy and cooperation with the work of this institution. This is a meritorious class of men in every respect. Their services as surgeons are of infinite value to our Southern people, and their influence as men of refinement and moral character are equally valuable as a high-toned honorable example.

But, unfortunately, this class of men were absolutely debarred from sharing the privileges and advantages of the exclusive special associations of the country. All professional associations, however exclusive, open their doors widely to men of national or world-wide reputation. Men of great talent or reputation are, as a rule, always welcome to such associations. But it is very different with the two classes alluded to in the foregoing pages. The doors of the great national associations of specialists are closed and barred against those two classes of professional men, however meritorious may have been their lives, provided they have not reached the climax of professional reputation. I am happy to say that the organization of this Association is based upon broader, more liberal and more democratic principles.

Our laws and our principles require that all whose names are inscribed on the rolls of this Association

shall be men of honor, of character and standing, of education, of talent, or experience and distinction.

In this way we have brought together and united in one compact, harmonious working body the skilled and illustrious specialist, the educated, experienced general practitioner, who includes in his work surgery and gynecology, and the educated young surgeon and gynecologist of talent and promise. We believe that this arrangement subserves the purposes and requirements of our Southern people better than any other. We believe also that the influence of such an arrangement will tend more certainly to build up the interests of surgery and gynecology in our section, and at the same time to advance the interests of the medical profession in our Southern States, than if we had organized an exclusive association of specialists. In this great work we must ever bear in mind the fact that our labors, means and time are being expended, not only for the benefit of science generally, but also to aid in the cause of Southern restoration and recuperation, educationally, intellectually and scientifically.

Scientific bodies, whether medical, surgical or otherwise, are in all intents and purposes educational and instructive, and their management, principles and work should be so arranged as to conduce to these objects in the highest degree. The professional association and journal are both exerting a powerful effect in promoting the cause of medical science. They are the progressive allies of the medical college in the art of teaching medicine. They are both great and necessary mediums for the interchange of thought and opinion, and for the publication of that which is above all things the most useful and indispensable, whether to the experienced or inexperienced—the results of practical personal observation and investigation. Pure science without experience is simply impractical theory. Simple experience without the light of science is but little better than profitless rubbish.

It is this admirable combination of scientific learning and culture, and ample and well-regulated personal experience that gives to the work of this Association such force and effect in our profession. It is the friction of mind with mind, the interchange of thought with thought, idea with idea, that stimulate intellectual effort and development, and add to the accumulation of knowledge.

The conservative character and mission of the Southern Surgical and Gynecological Association affords a field for the liberal interchange of thought and opinion that none other does. It is a school for imparting and receiving practical knowledge that is unrestricted and untrammelled.

In every section of our country, accomplished surgeons are springing up who are prepared to practice surgery scientifically and successfully. It is in obedience to this rapid increase of surgeons and gynecologists that this Association was founded. There was a period when a single surgeon could control the practice of a great section or State. It is no longer thus. The unlimited avenues for the acquisition of medical knowledge have wrought a wonderful change in this respect. I will not say that education is leveling all things, but I will say that education is elevating all things moral, intellectual and material.

I regard this Association in the light of an organized institution for the acquisition of a practical knowledge of surgery and gynecology. To so con-

struct it as to make it an organization where practical experience alone is taught, was one of the principal aims of those who founded it. We need in our Southern country, practical men, practical ideas, practical methods and knowledge. This is eminently a practical age, and in this respect we have endeavored to adapt the working of this organization to the practical wants of the times. Ever bearing in mind the great principles of honor, right, justice and truth, let every man, whatever profession or vocation he may be destined to fill, labor to make our Southern people a practical people, a useful people and an honorable people. Practical employment is the great and pressing need of the hour and times. In restoring the prosperity of our country, in rebuilding our great and valuable interests, nothing but practical methods and means will succeed. We believe that in furthering these great and vital questions that we, as a profession, with our present practical methods of research, observation and investigation are by example and practice contributing our influence towards Southern recuperation and restoration. But we are not only engaged in a great and important practical work. We, at the same time, have not forgotten the refined amenities of personal association.

The interchange of thought and opinion between the members of our Association, different from that of some others, has never been trammelled or embarrassed by acrimonious controversy or harsh criticism. On the contrary, our discussions have ever been conducted in a spirit of manliness, high-toned gentlemanly bearing, and a courtesy that has ever characterized our proceedings. In this way, thought has ever had a free range, and it has been the means of developing a freedom of opinion that has exerted a most happy and beneficial influence over all. Courtesy in our intercourse, kindness to all, a due respect for the rights of every individual member, in their results are not limited to the personal gratification they afford at the moment, but looking far into the distant future we see the working of these charming influences in engendering delightful memories that we have acted our parts as men of honor and humanity.

The memory that we have treated our brother kindly, magnanimously and generously will do to carry with us down the rugged path of life. Recurring again to the beneficial influence exerted by medical associations on medical progress, I do not hesitate to hazard the statement here that the Medical Association of my own State, Virginia, has accomplished more to raise the profession of medicine in that State, up from its condition of lethargy, depression and helplessness resulting from the wreck and ruin of war and restore it to energy, life and prosperity, than any other single agency. No one can fully realize or appreciate the grandeur and importance of this work, and its valuable results, but those who are familiar with the black hopeless chasm of despair into the gulf of which our people had sunk after the late disastrous war. Then how much cause have those who expended their time and means and have toiled and persevered in past years, often against opposition, discouragement and difficulties, to congratulate themselves on the splendid results of their labors, and to feel proud that they have borne an honorable part in this great and noble work. The diffusion of useful and practical knowledge, the education of the human mind, and the elevation of human thought

are among the grandest of human missions, and rank in their glorious results almost equal to, and but little less in importance, than the propagation of the gospel of Christ.

Then let us not under-estimate the importance of the aims and objects of this Association. They are not limited to the pleasures of reunion; neither are they confined to the mere advancement of individual interest or the gratification of personal ambition. They rank far beyond the limits of these considerations. We are building up surgical and gynecological science. We are adding our mite to the accumulated experience of ages. We are engaged in the stupendous work of making surgical history. Whatever is said or done within the confines of this Association, will be impressed on the pages of the medical history of the world and must go down to posterity and bear the test of enlightened criticism. Will the character of our work bear the sharp and rigid criticism of the cultivated, enlightened and searching opinion of the scientific world? I believe that it will. I believe that the character of the work of this Association will rank in point of scientific value and professional merit with that of any other organization of the kind. Medical and surgical associations have multiplied with extraordinary rapidity in the past few years. Have the results of this vast increase in medical associations proved favorable or unfavorable for the cause of medical science? I believe that it has been for the good of medical education and progress. It indicates the development of a spirit of inquiry, of research, a desire to impart and receive information, and a laudable ambition for advancement that augurs good for our country. The Southern States, six years ago, were absolutely destitute of a surgical or gynecological association. This, when considered in connection with the large number of talented, experienced, and promising surgeons and gynecologists in that section is a remarkable fact.

These Southern surgeons and gynecologists scattered over vast and sparsely populated sections, men of talent, character and education, had no association of the kind on earth with which they could unite. Their reputations were not such as to entitle them to fellowship in the great associations of specialists in our country. This had become a serious question in the medical profession of the South. There seemed to be just at this period a consensus of circumstances, a fitness of things, a tide of professional sentiment and opinion which proclaimed to us in strong and unmistakable language that there was a demand and a necessity for an association, based upon principles of surgery and gynecology, coextensive with the interests of the medical profession of the South, but at the same time one based upon more liberal and broader principles, and more suitable to the requirements of the Southern people. Were these meritorious and deserving men to be forever excluded from all participation in associations of this character, and debarred from all their advantages, pleasures and profits? No. The time had arrived in the accumulating necessities of the age, when talent demanded a fair, unobstructed field for action.

Intellect in its height, depth and immensity is godlike, and it is a God-given function to be cultivated, developed and used for the good of the human race, and it is our imperative duty to give it a generous and liberal encouragement. When for a moment we pause and reflect on the wonderful develop-

ment of talent, the extraordinary acquisition of knowledge, and the marvelous progress of medical science in our land, it is not difficult to realize the fact that the rapidly growing and expanding medical talent of the South called for and demanded a new organization, to meet the rising emergencies of the times.

The origin, objects and aims of this organization must be regarded in a broader, wider and far more important light than the mere founding and building up of a professional association under ordinary circumstances. The state of the medical and surgical sciences is inseparably associated with the moral, intellectual and material progress of countries and nations. At the conclusion of the late civil war, the condition of the Southern States was, in many respects, similar to that of a people just beginning a new life, but bereft of everything, material and immaterial, for the reorganization of society. The medical profession ever brave, ever earnest and ever determined, was among the earliest, in this gloomy and discouraging prospect for our country, to indicate signs of recuperation. Since that sad period in our history, the onward progress of medical science in the South and the process of Southern recuperation have advanced, hand in hand, shoulder to shoulder, and are linked indissolubly in destiny. When medical science declines and falls, in this or any other nation, then civilization and national prosperity will go down with it. Medical science, enlightened, cultivated, pure, constitutes one of the strongest pillars of civilization and national refinement. And though our people were left, after a disastrous war, impoverished and desolated, they still cling to their civilization, their religion, their medical and legal learning.

No nation, no people can ever rise high in the scale of enlightenment and prosperity without an enlightened knowledge of medical science. It is one of the earliest indications of national progress, and one of the earliest to indicate national decline and decay. In founding the Southern Surgical and Gynecological Association, I believe that we have accomplished a noble and commendable work. It was an important duty that we owed to Southern recuperation and prosperity, and in laboring to strengthen medical science in our country we are bearing our part, however insignificant it may be, in the grand cause of civilization and enlightenment. We stand here in the relation to each other of both teachers and learners. We instruct and are in turn instructed. The very nature, the pith, the leading principle and object of this Association is *educational*. Its chief aim is to aid in the cause of developing enlightened surgery and gynecology in the sparsely populated sections of our Southern country. If, in our efforts we have been the means of conducing to this end, then our labors have not been in vain.

The medical and special associations of our country I regard as an important and indispensable part of the educational system of the nation, and none are doing more efficient or valuable work for the promotion of this cause than this. Men of eminence, distinction and vast professional opportunities, from great and almost unlimited fields of practical experience meet here on common ground, and each ripe in knowledge acquired from active practice, and each willing and ready to impart to

the other, valuable treasures obtained from practical observation.

While the Southern Surgical and Gynecological Association is supposed to be composed exclusively of specialists, as its name implies, this is not a strictly correct idea of its character. If it were so constituted it would fail to meet the requirements of the Southern people. It is in reality composed of two distinct but harmonious elements—the skilled and learned specialist and the minor surgeon and gynecologist. I believe, as previously expressed, that the latter is at this time a necessary element of Southern society as at present constituted. The chief advantage of this arrangement is that the skilled specialist becomes the teacher of the minor gynecologist. He instructs him in that most important art, a correct knowledge of the true distinctions between the requirements of major and minor gynecology. To have attained to a clear and scientific understanding of the art of knowing when a given case demands surgical interference, or when conservative treatment only is required, is arriving at a state of perfection that the most learned might envy. Both the major and minor gynecologists should, by all the means in their power, strive to attain this facility or art of differentiation in this particular, as being the basic principle upon which all safe surgery depends.

The learned and skillful specialist occupies a position in this Association of infinite importance and usefulness, his relations here to the minor gynecologist are equally fortunate and favorable, and his influence for good is invaluable. There can not be skilled specialists in every town and village in our country, but there are thousands of diseased females who require attention but are not proper subjects for surgical operation, and who have not the means to enter a sanitarium for treatment. There are this day hundreds of educated physicians practicing minor gynecology among this class who are doing a good and meritorious work. Let us not undervalue the merits of an intelligently and skillfully practiced minor gynecology. If there is any good in it, let whatever is good be sifted from that which is worthless and estimated at its true value. I believe that minor gynecology has its proper place in the science of general gynecology.

The appearance on the stage of medical progress, of the skilled specialist, has been one of the glories of the present generation. It is one of those brilliant and splendid advances in civilization that appears only at rare intervals in the progress of science. It marks a tremendous stride in the onward march of our profession. Medical and scientific knowledge and learning were pressing on the human brain so forcibly and powerfully as to demand more room, and a wider field for action, and specialism came for the accommodation of this marvelous increase of knowledge.

Forty years ago there appeared on the scene of American surgical science a man whose splendid genius blazed forth in all the brilliancy of the gorgeous and glorious sun of the summer morn. He came from poverty and obscurity. He came unheralded, unpredicted and unexpected. Rarely has it been the fortune of any man to make such impression on professional opinion and practice. He was a native of our Southern land, and it was in that warm, genial and sunny clime that his genius was

born. It was that grand and superb man whom we all loved and admired, the great Marion-Sims, *the ideal specialist*. His life was a beautiful picture to contemplate, of lovely character, of attractiveness of person, of innate modesty, elegance of manner, a charming, fascinating voice, united with the grandest order of genius and strength of intellect. He was, in all the relations of life as a man, a great surgeon, as a humanitarian and speaker, one of the most splendid of his race. His appearance on the scene of surgical science marked an epoch in the history of surgery, not only in his own country, but throughout the universe. Marion-Sims was truly a great man. He originated ideas, thoughts and practices that revolutionized the opinions and methods of an age, and that must impress themselves on the current of surgical progress for all future time. It was not the borrowed, purchased or surreptitiously acquired reputation, but the glorious genius of nature, bursting forth and unfolding itself as circumstances and opportunity called it into active life. The man who can turn the great strong tide of human thought from the depths of doubt, uncertainty and darkness, into the clear golden light of truth, reason and certainty is nothing less than a heaven-born genius.

We, of the South, have a just right to feel proud of the genius and greatness of Marion-Sims. We are proud that he was born on Southern soil. But at the same time we are proud to call him an American citizen, an honor to his country and age. Nothing but the demands of absolute necessity brought forth the specialist in modern gynecology. Sims was the forerunner, the pioneer who made it reputable, who made it great and launched it on its road to greatness and power. Medical science had grown too vast, too complicated for any single mind to grasp or practice. The time had arrived for a division of labor in our profession, and the rapid development of medical science imperatively demanded it.

In the economic arrangement of all things there seems to be a tendency to a division of labor. We observe this tendency in the arts, manufactures, sciences, in commerce; and in nature's great field of operations we see this principle at work busily and unceasingly, and as we near the goal of perfection in medicine, specialism or a division of labor, will be drawn finer and closer as we progress. If the division of labor has been a means of developing art, mechanism, manufactures, then there is no good reason why it should not become a means of developing medical science also.

The progress in medical and surgical science in the past twenty years has astounded the civilized world. We, who are engaged in its daily study and practice, behold its wonderful advance with astonishment. These wonderful changes have been wrought largely through the advantages of a division of labor. For ages the advantages of a division of labor were unknown and unrecognized. Hence the progress of medicine and all other sciences and arts was slow, uncertain and often retrogressive. So long as a single mind attempted the impossible task of grasping all things there could be no progress.

But while untold benefits have resulted from a division of labor in our profession, in developing the various great specialties and in the attainment of their wonderful power and perfection, this vast influence may prove a source of danger, and special-

ism may in its exalted position become demagogic, intolerant, may radical, and run into the extreme of exclusiveness and narrow-mindedness. I am happy to say that in the construction of our organization there is a conservative element, a balance-wheel that will protect us against these untoward dangers.

All organized bodies, in their struggle for the attainment of success and the maintenance of that supremacy that comes from success, may in certain particulars be compared to individual enterprise. When by a long course of toil, perseverance and good judgment the much coveted goal of success has been at last attained, and the very pinnacle of hope has finally been reached, and we stand apparently on a firm and solid foundation, and then can take a retrospective view of the difficulties of the past, and look the future in the face with confidence and composure, and satisfy our minds that all has been accomplished that ambition, hope, and expectation could desire, then we already stand on dangerous ground. It is as difficult in the affairs of this world to maintain success, as it is to attain it.

You and I have toiled for years to build up this admirable and noble institution, the pride of our profession. Let us, with equal ardor and earnestness labor to maintain it in its integrity and power, and to perpetuate it for all future time. We stand here as an organized band, united in purpose to promote the great and glorious cause of surgical science, with this single aim in view, congenial in sentiment, united in friendship, strong in the confidence of each other, determined to give our time, talent and energy to the great work before us.

Forty-five years ago the medical history of female diseases was in a state of primeval simplicity, and it was the simplicity of profound ignorance. It was then confined usually in the concluding pages in some work on obstetrics to a description of prolapsus uteri, leucorrhoea, amenorrhoea, dysmenorrhoea, menorrhagia, cancer uteri and metritis. Now the literature of gynecology is sufficient to fill a respectable library, and the work is of sufficient magnitude as to occupy the most splendid minds of our day for a lifetime. Such is the importance of her who is the loveliest of all God's creation, and such is the vastness of her peculiar diseases.

The change that these forty-five years have wrought is marvelous and astounding, even to us who make the science an object of daily thought and observation. Surgery has taught gynecology much, but gynecology has repaid surgery with full measure. The gynecologist taught the surgeon the invaluable lesson that the abdominal cavity could be opened with impunity, and its organs exposed, handled and treated successfully. The grand lesson was taught in the wilds of Kentucky more than seventy years ago. Every year of our progress, gynecology is becoming more and more a part of surgery, until it would seem that the two would become ultimately blended into one vast science. Nevertheless, I am impressed with the conviction that there are two natural divisions of gynecology, based upon actual and real phases and conditions of disease, the major and minor forms of the science, and that the lines between these two divisions can never be obliterated. History indicates that the science of medicine is replete with remarkable changes, sometimes advancing and at others receding. Sometimes following new ideas and theories with

intense zeal to extreme results, and again abandoning what appeared to be fixed principles and practices and then retracing its steps returns to old opinions long discarded.

Our profession is steadily advancing, but it does not progress in a direct line forward. However apparently well grounded and firmly fixed may appear our ideas and principles of to-day, they may be overturned by others equally plausible, and set aside tomorrow. We may not be surprised if principles which appear to us to be settled for all time should in a few brief years be rejected as untenable. But without a scientific knowledge of the principles of sepsis, as a cause of disease, and antiseptics comprising the means of correcting diseases, this Association and others of its kind would not now be in existence. Sepsis is no longer an idea or a theory. It is an established fact, and has come to remain with us for all time. It has made surgeons and gynecologists of us all. Men who were formerly timid and hesitating about using the knife on any occasion now dare use it at every opportunity. We are naturally inclined to ask this question, When will this thing end, or has it any end?

There is at the present time a larger degree of talent, absolutely and relatively, of education, of learning engaged in the study, observation and practice of medicine in its various branches, throughout the civilized world, than in any other single subject. This is in wonderful contrast with the state of medicine two or three centuries ago. We can now, without emotions of shame or reproach, look the world squarely in the face and with pride and justice proclaim that modern medicine is a science. Twenty years of the present time can bring forth more for the enlightenment and civilization of the human race than five centuries did a thousand years ago.

In conclusion, I desire to make some passing allusion to the alleged sectional character of our title and purpose, "The Southern Surgical and Gynecological Association." Those who founded this Association never entertained the remotest idea or intention of organizing it or using it for sectional purposes. They believed that the necessities of the medical profession of the South demanded and required such an institution based upon broad, liberal and democratic principles open to merit, talent, and character for the encouragement of medical progress in that section.

No! We are of all people the least sectional. We are a band of workers linked together, working with one mind, with the single purpose, the noble object of promoting the sciences of surgery and gynecology. We know no politics, no political distinctions. We do not even know the political opinions entertained by each other. We are composed of ardent spirits in search of scientific knowledge from the far North, the distant West, the East and the South, that mingle together on perfect terms of equality, in social pleasure, and in a spirit of kindness and mutual confidence. There are those here mingling together in friendly intercourse who took part in the great struggle, and who stood arrayed against each other in bloody array, now united in friendship and engaged in the humane office of devising means for alleviating human suffering and prolonging human life. The scene as it presents itself to my mind, of men with one single and grand and glorious object working together harmoniously, congenially, trustingly, forgetting all differences of opinion, political and social, each ready

to make sacrifices for the other and for the good of the cause, presents a sight truly noble and worthy of the greatest admiration.

To those illustrious and distinguished men who have at our invitation come from the great cities of the North—Boston, New York, Philadelphia, Buffalo, Chicago, Cincinnati and St. Louis, and united their destinies with ours and are sharing with us our toils and responsibilities, I have only words of admiration, commendation and kindness. I, for one, thank them for the noble, distinguished and unselfish part they have borne in laboring with us to build up the cause of medical science in our once impoverished Southern land, and I can in all truth and sincerity assure them that their association with this institution has not only redounded to its welfare and profit, but has brought about a friendly and kindly relation and engendered charming and delightful memories that I trust may go with us through all the vicissitudes of life and end only when life itself is no more.

And, finally, in the concluding sentences of this address we can, in all truth, congratulate ourselves that we have arrived at a stage of the progress of this organization where we can look back and take a retrospective view of our work for the past six years, and see the good results of our labors, and observe the growth of this Association from a small beginning to a great and influential body, representative of the Southern profession, and respected not only by the people of the South, but by the entire profession of this great Union. How has this eminent position in the estimation of the profession of our country been attained? This great and desirable end has been accomplished solely and alone by a strict and unswerving adherence to the inflexible principle, that no man can gain admittance to a membership of this Association who has not an unblemished character, who is not a gentleman of honor and probity, and who does not possess professional attainments. That Council of Five, which is so strong and valuable a feature of this Association, has ever been the watchful, the faithful and incorruptible guardian of the interests, the rights and the welfare of this institution, and they have unswervingly protected it against the entrance of men unfit to become the associates of gentlemen of honor and attainment.

Gentlemen, this is the basis, the foundation of all great and prosperous institutions. However brilliant and splendid may be the intellectual features of an institution, if it is corrupt, is low in its standard of character, if it hath not honor, purity and refinement it can not stand the test of time. Then let us hold to that invaluable principle which has given us strength, influence and prosperity, which has made us what we are to-day, a great and respected body, whose portals no man is permitted to enter without an unblemished reputation. Let us but determine to maintain this high standard of qualification which has been the established rule of our action in the past, and the future success and prosperity of this Association is assured, and it will take rank morally and intellectually with the greatest association of the kind on earth. But if the day should ever come when this high standard for membership should be lowered, then our reputation and standing in the estimation of the world will be trailed in the dust, and the Southern Surgical and Gynecological Association will no longer command or deserve the respect of an honorable profession.

THE RELATIVE VALUE OF THE OBJECTIVE AND SUBJECTIVE SYMPTOMS OF DIS- EASES OF THE UPPER AIR PASSAGES.

CHAIRMAN'S ADDRESS.

Read in the Section on Laryngology and Otology, at the Forty-fourth Annual Meeting of the American Medical Association.

BY E. L. SHURLEY, M.D.

DETROIT, MICH.

It has been the customary duty, I believe, of the Chairman of a Section to present an epitomized review of the new facts and new thoughts evolved during the year, pertaining to the department of medicine or surgery, in this Association, to which he belongs. As highly useful and edifying as this plan has been in the past, I doubt its utility at the present time when medical literature is so widely distributed, and accessible to every physician in the land. Therefore such a compilation would of necessity fail to edify such a body of men as are assembled here.

We are aware that one of the crying evils of the present time is too much medical literature, and possibly too many medical journals. However this may be, it is doubtfully an evil, and if so will properly adjust itself in time. The fancied harm arising from a journal article or even a textbook on the practice of medicine, or any department of it, such as diseases of the throat, which may be written by a very recent graduate is likely to be very much over-estimated. It may do the author or compiler much good as an educational measure, while the reader will not long be influenced by its lack of practicability, particularly if he has had some experience. Besides, the time of "rules of practice" in any department of medicine has about passed away. Speculative thought is disappearing before the rapid discoveries of physiologic, biologic, pathologic, and chemic discoveries, and consequently the practice of medicine and surgery is approaching a state of exactness. And the practitioner, like the navigator, shapes his course under the guidance of charts and observations based upon the developments of nature herself.

Coming to a consideration of the work of our own Section, and sparing you a dissertation upon the fashionable topic, viz: the general practitioner vs. the specialist, I will invite your attention briefly to a few thoughts on the relative value of the subjective and objective symptoms (including visual observations) of diseases of the upper respiratory passages.

Every one who has used the microscope very much or practiced exclusively in any particular field, will admit that without due care a tendency will arise to exaggerate local appearances and symptoms, to the exclusion of other and more general bodily ailments; in other words, as Josh Billings expresses it: "To know too much that isn't so." This failing may occur to the best of minds, and it seems to me may become a serious hindrance to real medical progress in more ways than one.

The glory from cauterizing a couple of apparently swollen, and red, turbinated bodies should be promptly swamped by the further observation that the patient does not suffer from nasal stenosis or excess of secretion over what might be expected, under the circumstances of climate or surroundings. Although such operation may for the time relieve a headache, "a spell of insomnia," "nervousness" or

apprehension of a "horrid catarrh," yet the satisfaction will be needed the practitioner a year or two afterward, when he observes that the former symptoms have returned, with possibly an unrelenting sensation of dryness with sneezing, or other discomfort superadded.

Many such cases, therefore, could be treated far better by attention to the stomach, bowels, habitus or habits of such a patient. Neither will it be considered necessary to saw off every deflection of the nasal septum met with, when we consider how many people go through a tolerably healthy life to a good old age, with a nubbins, angle or convexity on the side of their nasal septum. There are many persons presenting one or other of these local abnormalities, who, as we know, are much sooner restored to a normal condition without the adoption of such heroic local treatment.

Many of the published instances of brilliant cures of hay fever, chorea, insomnia, neuralgia, persistent cough, asthma, etc., brought about by cauterization or operations—such as sawing and drilling—of the tissues of the nasal passages, lose their brilliancy a short time afterward when the effect of the counter-irritation has passed off, and a complete relapse of the symptoms occurs, and the connective or fibrous tissue formation, replacing the destroyed mucous membrane or cartilage proves a still greater annoyance to the patient. Likewise many of the various complaints relating to the pharynx and esophagus—such as fullness, frequent acts of swallowing, pain referred to this region, continual spitting of saliva or mucus, and supposed difficulty of swallowing, sensation of dryness, or of a foreign body (such as a stick, pin, bristle, and frequent sneezing, may be entirely due to derangement of other parts of the body or the nervous system—notwithstanding the presence of enlarged follicles on the walls of the pharynx or at the base of the tongue, or a so-called ragged tonsil. An experience of my own, will illustrate this point:

A case of well-marked follicular pharyngitis with enlargement of the glossal papilla was under my professional care for a number of months. Cauterization with the galvano-cautery and chronic acid was carefully practiced upon the abnormal follicles, and rigid attention given to diet and hygienic surroundings. But, notwithstanding all this, the patient continued to complain about the same, if anything a little more. After a time, hoarseness gradually supervened, and the patient grew apprehensive, while I was beginning to despair. I had made a thorough examination of the chest several times, but could find no lesion of the lungs nor auscultatory evidence of any enlargement of the mediastinal glands. Finally, I found upon a subsequent critical examination of the person a fissure of the anus, which the patient had scarcely ever complained of. Upon treatment and cure of this fissure, all of the throat symptoms quite rapidly disappeared, although for some time there remained what seemed to be a congestion of the pharynx and upper larynx. Another case, of quite severe rhinitis, covering a period of several months which seemed to defy all treatment, conservative and radical, was effectually and quite rapidly relieved in a patient of mine, by the treatment of the skin with soap baths, which plan I was led to adopt by the discovery that the skin was continually dry, lacking in oil and flexib-

ity. Still another instance was that of a patient suffering from chronic coryza with nasal stenosis, (from enlargement of the turbinated bodies) and excessive nasal secretion, who was not relieved materially by cauterization, etc., but was effectually restored to health by a few consecutive doses of blue mass, administered on account of the observation of symptoms indicating so-called torpidity of the liver. This patient has never had any return, to my knowledge, of this troublesome rhinitis excepting such as all persons living in the Northern States are apt to have during the changes of weather incident to the spring and autumn seasons.

It may be considered by many that in these cases the previous local treatment had some good effect, while, undoubtedly, some credit might justly be given to the local treatment adopted, yet I do not see how to avoid the logical conclusion that the nasal and pharyngeal disease, from which these patients suffered, depended mostly upon a faulty systemic condition.

It is often difficult, I know, to discriminate between the direct and indirect causes of such signs as before mentioned. While structural change or functional derangement of the nerve centers may give rise to such symptoms referable to the region of the throat, yet there are undoubtedly many peripheral lesions which are the result of affections in some one or other of the organs outside of the nervous system, as well. Besides, we must not overlook the fact that chemic and biologic derangements may be manifested in this manner, for we frequently find patients suffering from oxaluria, who complain of abnormal sensations in the throat such as fullness, constriction, persistent cough, or who may indeed show signs positively of congestion of the nasal passages.

It is not infrequent in the early stages of Bright's disease, and diabetes, to meet with patients who complain almost entirely of derangements about the throat. On the other hand, there may be found in the course of systemic diseases, congestions of the pharynx and larynx marked by alterations of voice, excessive discharge, etc., which seem to be entirely independent of the general affection. Such cases are in a measure amenable to local treatment. One will be surprised, on taking pains to examine the nasal passages, pharynxes or larynxes of a large number of people, comparatively well, to find bunches of enlarged follicles, or enlarged tonsils, or tonsils with apparently diseased follicles or groups of enlarged glands at the base of the tongue, or swollen turbinated bodies, or enlarged pharyngeal tonsils, who apparently are not suffering from abnormal sensations. It often happens also that we are consulted by people presenting groups of symptoms entirely due to disease or derangement of other organs, whose throats will present some of the appearances just mentioned, but who themselves are unconscious of any disturbance there, unless once in a while under the influence of a so-called cold. On the other hand, while such observations are of untold value in directing our thoughts towards the general survey of the bodily functions, it is gratifying to note, to the credit of this special field of practice, that there are also many instances where marked disease of other organs or parts has been relieved by an operation on the nose for the removal of hypertrophied tissue, or deformity, or disease of bone, or by the local treatment of a diseased pharynx or larynx. It is also

quite notable that the treatment by surgical means or otherwise, of an enlarged or diseased palatal or pharyngeal tonsil will sometimes produce the most salutary effects on the general nutrition, or remove a chronic deafness.

In the case of children suffering from so-called adenoid vegetations at the vault of the pharynx, too much consideration can not be given the case before instituting operative procedures. For it must be remembered that the size and shape of the pharyngeal tonsil varies much with the individual, even within the limits of a healthy condition; and that, if the child does not suffer from stenosis, or deafness, or extra secretion or other disturbance of the functions of the part, it will not be necessary *always* to attempt removal or destruction of the part, although the tonsil may appear relatively enlarged. But if any of these untoward phenomena are present in a given case, then the physician should not hesitate to remove by suitable means the redundant tissue.

Unfortunately, regarding treatment of tonsils we are often obliged to depend more upon signs and symptoms than appearances, as our knowledge of the function of these glandular aggregations is far from exact, so that we may meet with the paradox of a healthy individual with abnormal tonsils. Recent experiments upon the internal secretions and glandular system of the body demonstrate the existence of such biologic relations with the blood and various nutritive processes that we may reasonably hesitate about destroying very much, if any, of these structures.

Perhaps I may be accused of taking too conservative a stand; but I know that many present, as well as myself, have seen too often the ill effects of radical treatment by escharotics or surgical measures applied to the nasal passages or throats of young children, as well as adults. Hence I feel justified in holding these convictions.

There are a great many interesting questions relating to local disease which we shall not have time to discuss. It has been claimed that no local disease *per se* (not traumatic) can exist for any length of time without more or less general derangement of the functions. This is perhaps too far from the truth. However, the rapid strides of physiologic chemistry and physiology teach us that local disease is less of an entity than we have been accustomed to suppose. For in all special departments of medical practice there are many observations made, day after day, which show the intimate connection between the different parts of the body through the agency of the nervous system, or the blood or the lymphatic fluid, so that we may well inquire how much truth there is in the above mentioned dogma. In other words, whether local abnormalities are mainly expressions of primary disease there, or consecutive and dependent upon disease elsewhere. Common sense, of course, dictates that if we meet with neoplasms or positive hypertrophy or deformity which, through mechanical or physical irritation disturbs surrounding tissues, we must promptly remove the same by the best and quickest means at our disposal; but, in cases where such local lesions are not obvious, and where there may be doubt, we should delay the adoption of any positive form of local treatment until we have acquired a tolerably good knowledge of the mental and physical condi-

tion of the patient. In other words, the patient is to be viewed as an organism, or a combination of physical elements acting together, before we undertake the work of repair.

ORIGINAL ARTICLES.

A CASE OF CARIOUS DESTRUCTION OF THE ENTIRE PYRAMID OF THE TEMPORAL BONE.

Read in the Section on Laryngology and Otology, at the Forty-ninth Annual Meeting of the American Medical Association.

BY C. BARCK, M.D.

ST. LOUIS.

H. W., aged 12 years, came under observation on Dec. 30, 1891. Both parents living and healthy. Of their nine children, three died in infancy, and one brother of 7 years, a year ago after an operation performed on the left mastoid.

The patient had chronic otorrhea from the left ear for about seven years, the sequela of scarlatina. Has been under the care of a number of physicians at different times. Five years ago, an operation on the mastoid had been performed.

Status: emaciated boy; temperature 102; right ear normal; fetid discharge from left ear. Walls of external canal swollen so that no speculum can be introduced. Above the mastoid an old cicatrix; the whole mastoid region edematous and painful upon pressure. Facial paresis of moderate degree. A close examination revealed no evidence of tuberculosis.



FIG. 1.

Operation on Dec. 31, 1891. Opening of the petro-mastoid by the ordinary method. The external lamella of the bone was nearly three lines thick. After its removal with the chisel, a cavity filled with pus and detritus was exposed; scooped out with a sharp spoon. The posterior wall of this cavity was soft, being formed by the dura mater, and upon manipulation on this portion, an alarming cessation of breathing occurred twice.

The healing process at first did not deviate from that of the vast majority of cases. The temperature became normal; general health improved; but the opening did not close. Exuberant granulations sprang up which necessitated repeated removals; rough bone could be felt, and in brief, within the next five months the entire petrous portion of the temporal bone was exfoliated in three large and



FIG. 2.

some smaller pieces. The first sequestrum was removed on February 20, the second on April 16 and the third on May 20, 1892. The last two pieces a and b embrace the whole labyrinth. The drawings are double the natural size.

Soon after the exfoliation the discharge ceased entirely. The permanent opening behind the ear is one-half inch in diameter. Joining the external canal at an acute angle, both lead into a large cavity, one and one-half inches deep, lined by a pale reddish-gray membrane. This is, with the

exception of a few outer places, lined by a thin, reddish, and very soft membrane, formed by the perisperm.

It did not deviate at all, due to closure of the external canal of the ear by a plastic operation, as the large opening was inspected and kept open, better than ever, by the drainage to the external canal.

The general condition has wonderfully improved. My now in robust health. The facial paralysis had become steadily worse during the illness and was nearly complete at the time of the removal of the last sequestrum. Since then it improved slowly; the eye can now be closed up to 4 mm.

The taste on the left half of the tongue is considerably lessened, conclusive evidence of an involvement of the chorda tympani. The uvula does not deviate from the middle line, indicating that the nervus petrosus superficialis major remained intact.

Vertigo or impairment of equilibrium has never been observed, neither has patient had subjective noises. The question of hearing is most important. No tuning-forks can be heard from the affected side by air conduction. By bone conduction it is perceived to a moderate degree in the other ear.

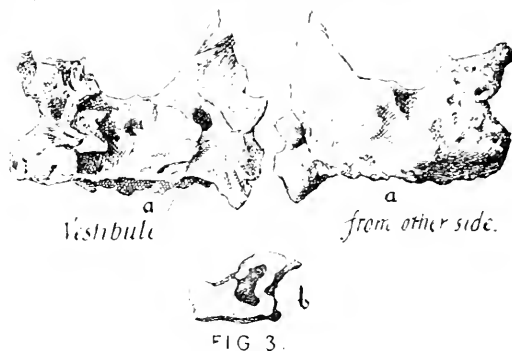


FIG. 3.

Careful examinations convinced me that the hearing is entirely lost, but impressed me on the other side with the difficulty or rather impossibility of the complete exclusion of the other ear from the act of hearing. For instance, after this had been tightly closed by three successive pellets of cotton, then the auricle bent forward and covered by a towel and the hands of an assistant, ordinary conversation was understood and repeated at two feet distance from left ear. But under the same conditions it was understood at four feet from the right ear. Control tests are indispensable in these cases. The question has been fully ventilated by Bezold in his valuable contribution "On Neurosis of the Labyrinth." (Arch. of Otology, 1887). In the five cases by Guye, Cassels, Christenneck, Jacobson and Gruber, which were brought forward to establish the fact, that the hearing is not entirely lost after destruction of the labyrinth, he proved the assumption to be fallacious. None of them can pass the crucial test absolutely necessary in a question of such fundamental physiologic importance.

The judgment of localization of sound was in my case decidedly better on the right than on the left side.

In the recent literature since 1880, I find seven similar cases reported:

- S. Pollack, Arch. of Ot., 1881, p. 361.
- Walter Fye, London Lancet, Feb. 1885.
- Roosa and Emerson, Zeitschrift f. Ohrenheilkunde, XV.
- Görstein, Arch. f. Ohr, XVI, p. 51.
- Bezold, Arch. of Ot., 1887, p. 297, two cases.
- Koebel, Med. Corr. Blatt, f. Württemberg, 1889.

THE RELIEF OF CHRONIC DEAFNESS, TINNITUS AURIS AND TYMPANIC VERTIGO, BY REMOVAL OF THE INCUS AND STAPES.

Read in the Section on Laryngology and Otology at the Forty-fourth Annual Meeting of the American Medical Association.

BY CHARLES H. BURNETT, M.D.
 AURAL SURGEON, PRESBYTERIAN HOSPITAL, ETC.,
 PHILADELPHIA, PA.

There are numerous cases of chronic catarrhal otitis media with the characteristic tinnitus, deafness, and tympanic vertigo, which continue to suffer even after the nares, naso-pharynx, and fauces are restored to health. Therefore, after the restoration of the nose, naso-pharynx, Eustachian tube, and throat to a normal condition, the aural symptoms being little or no better, the aurist is confronted with the very important question as to what shall be done to improve the hearing, reduce the tinnitus and abolish the vertiginous tendency. Many surgical methods of treating the ear at this point of its history have been suggested and put into operation, chiefly for the relief of one prominent symptom, namely, deafness. These operations have ranged from simple puncture to total excision of the tympanic membrane, and the removal of one or more of the ossicula. Sometimes, however, patients complain more bitterly of the noises in their ears and of the vertiginous symptoms, the latter often mis-called Ménière's disease, than they do of their deafness, and gladly accept relief of these symptoms even if the deafness remains. Unfortunately for these patients the noises in the ear or ears, and the tympanic vertigo, or mis-called Ménière's disease, which are entirely due to lesions of the middle ear, from chronic catarrh, are very frequently erroneously ascribed to "biliousness," or "neurasthenia," and hence the constitutional and electrical treatment often instituted on this false diagnosis lead to no relief; often, indeed, such treatment aggravates the symptoms. All of these symptoms—tinnitus, deafness, and tympanic vertigo are due to the chronic sclerosis of the mucous membrane of the drum cavity, and consequent retraction of the chain of bonelets, and the undue pressure inward of the stapes upon the labyrinth fluid. The production of the tinnitus and deafness has long been accepted to be due to this mechanical cause. Not so, however, the chronic tympanic vertigo which so often attends chronic catarrh of the middle ear. It has even received an improper name, being often mis-called Ménière's disease. The latter term, if it means anything, means a form of aural vertigo due to the disease of the semi-circular canals in the internal ear. Disease of these canals, however, is very rare and difficult to diagnose. The name, Ménière's disease is therefore inaccurate, because it is applied indiscriminately to all forms of ear vertigo, regardless of the seat of the otic lesion, whereas, Ménière attempted to prove the existence of a disease of the semi-circular canals as the only cause of aural vertigo, an entirely untenable hypothesis. Also the name, Ménière's disease, applied to chronic tympanic vertigo is unjust because Flourens in 1822, and Deleau in 1836, described ear-vertigo more accurately than Ménière in 1861, and Deleau came much nearer than any previous observer, to the solution of the

cause of most cases of aural vertigo, in placing the origin in *lesions of the middle ear*.

Tympanic vertigo, however, from lesions in the middle ear is of frequent occurrence. It is often not recognized, especially by the general practitioner as ear vertigo. It is not unusual for tympanic vertigo to be attributed to some intestinal or nervous disturbance as already stated instead of to an aural lesion. Hence, the diagnosis being erroneous at the outset, the treatment is wrong and the patients do not recover.

True tympanic vertigo, due to a lesion in the middle ear, chiefly from chronic catarrh of the tympanic cavity, is paroxysmal in character and always attended with tinnitus and deafness in the affected ear. It is caused by the inward pressure exerted upon the labyrinth fluid by the retracted and ankylosed ossicles. The foot-plate of the stapes is thus unduly pressed into the oval window, and there held by the force named, paroxysmally and for longer or shorter periods.

Chronic tympanic vertigo may attack the patient in any place or at any time without warning, unless it be a slight increase in tinnitus, but this is not invariable. It may vary from a slight unsteadiness in gait to reeling and falling, without loss of consciousness. Sometimes the nausea is intense and vomiting may occur. If the nausea and vomiting are excessive, syncope from this cause may ensue but this is the only form of unconsciousness ever produced by tympanic vertigo.

Such a tympanic and mechanical origin of most cases of ear vertigo, I have long maintained, in opposition to the often asserted neuropathic or labyrinthine cause.

Sooner or later in every case of chronic catarrh of the middle ear there must be a disturbed tension in the conductors of sound, due to the sclerosis of the investing mucous membrane, whereby at times the membrana tympani and the three auditory ossicles are carried unduly inward, exerting a morbid pressure through the stapes upon the fluid in the internal ear. Such irritation in the labyrinth being communicated to the motor filaments of the auditory nerve is reflected by them to the cerebellum, and disturbed equilibration is the result.

This morbid retraction of the auditory chain and resultant cerebellar irritation are not constant, but vary with the state of the general health, and the condition of the catarrhal middle ear, just as tinnitus and deafness vary under the same influences. Hence, all true aural vertigo of tympano-mechanical origin is paroxysmal in form.

If the theory is correct that the vertigo in chronic catarrh of the middle ear is due to the paroxysmal retraction of the conductors of sound and the consequent mechanical pressure on the labyrinth fluid, then the removal of the means of such temporary increase of retraction and pressure ought to relieve tympanic vertigo. No method, however, but the surgical removal of the agents in this retraction will effect a cure of chronic tympanic vertigo.

The first chance of testing the truth of this theory offered itself to me in May, 1888. At that time I was consulted by a former patient with chronic catarrh of the middle ear, for the relief of constant tinnitus, and for recurring attacks of *severe tympanic vertigo*, which had been superadded to her deafness in the

left ear within the previous two years, during which time I had not seen her. Finding at that time that the malleus had become adherent to the promontory, I resolved to do, what so far as I know had never been done, for the relief of any form of ear vertigo, namely, to cut away the membrana tympani and the malleus in order to liberate the impacted stapes, which I felt sure to be the true cause of the vertigo in this case. This case and the entire success attending the operation have been fully detailed in other places. I would like to state here that the entire relief from tinnitus and vertigo which followed immediately upon the operation five years ago has continued to the present time.

I then operated during the following three years upon four more cases of chronic tympanic vertigo, consequent upon chronic catarrh of the middle ear, with entire relief in all of them.²

However, as in all of the cases more or less inflammatory reaction followed this operation of total excision of the membrana, I concluded that removal of the incus alone, or of the incus and the stapes, the membrana tympani and the malleus being allowed to remain in position, would liberate the stapes and the compressed labyrinth fluid as well as, or perhaps better than total excision of the membrana and the malleus, and probably would not be followed by inflammatory reaction; and the notes of the following cases will show that I was correct in my assumption. All the operations referred to in this paper were performed upon the etherized patient, the ear being illuminated by a six-volt electric lamp held on the operator's forehead. Of course, in all of these operations there has been the three-fold object to attain, namely, the relief of chronic tinnitus, deafness, and tympanic vertigo, the three results of chronic catarrhal otitis media.

Having alluded to five cases of total excision of the membrana for the removal of the incus and stapes without their notes, I will give some details of operations.

Case 1.—Miss T. of Virginia, 30 years of age, was first examined by me in June, 1892. The patient had been operated upon for nasal polyp six years before. Soon thereafter she had had typhoid fever and finally nervous prostration with uterine disease, for which latter she has just been successfully treated by a prominent gynecologist. All of these maladies just named cover a period of the last six years. The hearing began to fail about two years previous to the time of her first consulting me. At that time there was found some slight hypertrophic nasal catarrh, for which the patient was ordered to use a spray of Dobell's Solution, two or three times a week.

In November, 1892, when I saw the patient again I made the following notes: the right membrana tympani is retracted, opaque and of a bluish-pearl color. The incus-stapes articulation is not visible through the membrana. There is a constant tinnitus; the hearing for all sounds by aerial conduction equals zero, and the tuning fork is heard *per ossa* in the right ear. The external auditory canal is very narrow. On November 21 the patient was etherized and the upper posterior quadrant of the membrana tympani was cut away and the incus revealed. The incus was then detached from the stapes and removed from the tympanic cavity. The stapes was high placed and not seen. Had I made the incision a little higher the stapes might have been seen and an endeavor made to remove it.

On November 22, no reaction had taken place and the patient volunteered the statement that the tinnitus was decidedly less and that she could hear a little. On November 23 she heard a little better. There was no reaction in the ear and the tinnitus was further decreased. On November 25 there was a little more tinnitus than on the 24th but not so much as before the operation. On November 26 the

patient could hear loud clear sounds brought at ear trumpet, which were inaudible before. There was now no tinnitus. On November 26 same report was made as on the 24th. The patient now returned to her father. After her return home she expressed the ear according to my directions by having some one read to her through the ear trumpet once or twice daily for fifteen minutes at a time. This was done in order to insure passive motion of the stapes by a concentration of sound waves upon it.

In December, 1892, she reported that she could hear better with the ear trumpet; before she could not hear without it. In January, 1893, her father wrote me that his daughter could now hear reading in the right ear, aided by the ear trumpet, and with the voice slightly elevated. There has never been any inflammatory reaction in this case. I am unable to say whether the perforation of the membrana has been maintained, as I have not seen the patient since her return to Virginia. A letter in April, 1893, informs me that still further improvement in hearing has taken place. Such progressive improvement in hearing as one of the good results of tympanic surgery was first noted by SEXTON (New York).

Case 2.—Mr. J. H. P., 23 years old, states that he has had chronic hypertrophic nasal catarrh in both ears for several years. The left ear was formerly better than the right; the latter has improved under treatment of the nasopharynx, but the left ear has not improved. The hearing distance in the left ear for the voice when I first examined him was one foot, and there was an annoying tinnitus. The membrana tympani was opaque. The incus-stapes articulation was not visible through the membrana.

On Dec. 15, 1892, the patient was etherized and the upper posterior quadrant of the membrana was excised. The incus, stapes, stapedius pyramid, and the tendon inserted in the stapes were then plainly visible. The tendon of the stapedius was first severed, then the incus was separated from the stapes and removed from the tympanic cavity. A blunt stapes hook was then passed beneath the head of the stapes between the crura and traction made. This bone-let was found to be most firmly imbedded in the oval window. Traction upon the stapes by means of the stapes hook brought away its head and crura. The operation was bloodless.

On December 16 no reaction had taken place and there was much less tinnitus. The hearing distance was not noted, as I did not see the patient that day. On December 17 no reaction had occurred and there was further marked diminution of the tinnitus. The hearing distance for the voice in low tones was from four to six feet. On March 25, 1893, considerably over three months after the operation the perforation in the membrana still existed. A little tinnitus was perceived in this ear if the patient took cold in his head; otherwise he did not observe any noise in his ear. He volunteered the statement that *the operation had done more for him than the stapes, regardless of the original hearing.* The hearing distance at the present time is from eight to ten feet for isolated words, there having been a *marked improvement* in hearing since the time of the operation.

Case 3.—B. B., a girl 12 years old, has been known to have dullness of hearing in the left ear for two years. When brought to me in October, 1892, the right ear was entirely normal; the hearing in the left ear was zero; tinnitus and vertigo at times were very annoying. The tuning fork was heard *per ossa*.

On Dec. 16, 1892, the patient was etherized and excision of the upper posterior quadrant of the left membrana was performed. No bleeding followed. The incus, stapes, and stapedius pyramid, with the tendon were then distinctly seen. The stapedius tendon was severed first; then the incus was detached from the stapes and the stapes was removed whole from the oval window. There was no escape of labyrinth fluid. Finally the incus which seemed unusually adherent in the attic was removed. The operation was bloodless. On the next day there was no reaction, no vertigo, and the patient felt well and lively. She heard isolated words in the left ear at a distance of from eight to ten inches and there was no tinnitus. On December 22 there was no reaction and no regeneration of the membrana. The voice was heard in whisper at a distance of from six to eight inches, and louder tones two to three feet. There was no regeneration a month later. On April 1, 1893, regeneration of the membrana was found to have taken place. The hearing was not improved but there had been *marked improvement* in hearing, which symptoms had been ascribed to other causes before the ear was examined by me and operated upon.

² International Clinics, January, 1892.

This is the only case in the present series in which the stapes was removed entirely. The result was so good, in fact, so much better than in some instances in which the stapes was only liberated by removal of the incus, or only its crura were removed in addition to the removal of the incus, that I am inclined to think that in any case of tympanic vertigo, in which liberation or partial removal of the stapes does not give as much relief as is desired, puncture of the foot plate of the stapes in order to relieve the labyrinthine tension would be justifiable.

Case 3.—Mrs. T. R. G., aged 55 years, the wife of a physician of Clearfield County, Pa.; has had chronic catarrhal otitis media since childhood. The tinnitus has increased of late years, and she has been treated for several years by various physicians for neurasthenia without relief. Within a year or two, marked tympanic vertigo has set in and increased to *weekly attacks*, laying her up in bed whenever a paroxysm occurred. These attacks usually have come on in the house; sometimes in bed, but once lately the patient was attacked while out driving. These attacks of vertigo have been attended with increased tinnitus, nausea, and vomiting without loss of consciousness, the face and forehead being bathed with cold sweat. There has never been any aural treatment carried out in this case. The patient has been treated with purgatives and alteratives for debility and "neurasthenia," and has grown steadily worse.

Examination of the left ear in June, 1893, revealed a retracted membrana tympani with signs of sclerosis of the drum cavity. The incus and stapes were visible through the membrana. There was no catarrh of the nares, or naso-pharynx. The tuning fork was heard *per os* in the affected ear. Loud sounds could be heard near the ear. The right ear was good, but was said to be failing a little of late.

As the attacks of tympanic vertigo had now become so marked and distressing, her husband determined to seek relief for the patient by means of the removal of the force impacting the stapes in the oval window. Therefore, on June 7, 1893, the patient was etherized, and after excision of the posterior superior quadrant of the membrana, the incus, though held tightly in place by synechie, was quickly removed. The stapes was found firmly and immovably fixed in the oval window and could not be removed, its head being broken off in the endeavor. There was no reaction in this case and the patient went home in a few days.

Three weeks after the operation her husband wrote that, "she has been getting on so well that we have somehow failed to report to you of her general improvement. The first week after the operation she had several very slight attacks of vertigo, but they passed off very soon and of late she has had no trouble whatever." She has been able to go about the house attending to her duties without the fear, even, of the hindrance previously experienced from the attacks of the tympanic vertigo. The tinnitus became much less and the hearing improved a little, but the great end had been attained, namely, the relief from the sickening and incapacitating chronic tympanic vertigo. On August 8, her husband wrote that there had been some attacks of slight vertigo since his last letter but nothing severe. Before the operation the patient had been bedridden by the severity and duration of the vertigo. A letter of September 10 states that the patient is free from vertigo.

Case 4.—Sister M., a nun, 25 years old, states that she has suffered for several years from tinnitus, deafness, and tympanic vertigo, due to sclerotic otitis media of the right ear, following a chronic purulent otitis media which later ceased years ago. In May, 1893, inspection revealed a perforation of the posterior superior quadrant of the membrana, with calcareous patches in the upper posterior and upper anterior quadrants of the membrana. The tuning fork is heard well *per os*, and isolated words were heard close to the affected ear. On June 28, 1893, patient was etherized, and the perforation already existing enlarged and extended into the upper posterior quadrant, exposing the incus lying high up in the attic. The incus was then removed.

The next day the hearing for isolated words in an ordinary tone was two feet, and for whispered words from eight to ten inches. The patient was not seen again until July 29, 1893, when she reported that there was no more tinnitus, nor "singing in the head." There had been no return of the symptoms by Sept. 1, 1893. The result in this ear has been so good that a similar operation is contemplated for

the relief of dullness of hearing and tinnitus in the better ear.

Case 5.—Mr. C. C. T., aged 31, of Baltimore, stated July 18, 1893, that he had been affected with chronic catarrhal otitis media in the right ear for eight years, and in the left ear for four years. Within a year the tinnitus has become severe in both ears and the hearing has failed in both, the left ear being a little better for hearing, however, than the right ear. In addition to these symptoms there had been superadded the tendency to attacks of tympanic vertigo with temporary increase of tinnitus in both ears at the time of the vertiginous paroxysms. So severe have the latter been as to require the patient to hold on to the nearest object in the street to prevent him from falling. He has never vomited, however, in any of these attacks, but their severity and frequency have dispirited him and prevented him from attending to his duties as a book-keeper. For many months previous he had been treated for an asserted catarrh of the nares, naso-pharynx and throat, but the tinnitus, deafness and vertigo have grown worse rather than better. Examination revealed the membrana tympanum to be slightly retracted; the incudes visible through the membranes; the nares and naso-pharynx were not affected.

July 21, 1893, the patient was etherized, and I endeavored to remove first the right and then the left incus by excision of the posterior superior quadrants of the membrana. The right incus seemed to be firmly held in the attic and when traction was made on its long process it quickly broke off. No further attempt to remove the body of the incus was made, as the object sought, namely the severance of the retractive power of the incus from the stapes had been attained. I met with the same experience on the left side. The next day there was a slight reaction in both ears. The tinnitus was no better, and the hearing was perhaps a little duller in the left and better ear, but there was no vertigo.

The patient now returned to his home and reported to me in the course of four days that he had had no vertigo, but that he felt worse in his ears and that he had some fugitive pains in them with a little bleeding from one.

August 11, the patient reported a "slight improvement in hearing in the left ear, but none in the right." The tinnitus still continued, but there had been an "entire absence of vertigo." The left ear had pained him "quite a good deal and felt uncomfortable for the past day or two."

August 13, the patient's sister, a physician, reported to me that her brother had evidently improved in his hearing during the last ten days, and there had also been a great improvement in his spirits.

On Sept. 3, 1893, the patient wrote that the hearing in his left ear was much improved. He said: "I can hear conversation in ordinary tones about two feet, and if loud about ten feet. If the windows are open I can hear calls on the street. There is scarcely any singing in the left ear, and hearing in the right ear seems to be about the same as before the operation." There had been no return of the attacks of tympanic vertigo. The ear felt entirely comfortable.

It is noteworthy that in this case relief followed the severance of the retractive force by resection of only the long processes of the incudes; also that *most improvement in hearing and relief from the annoying tinnitus ensued in the better ear*. This is due to the fact that greater mobility of the stapes had persisted in this ear than in the worse ear, and hence liberation of the freer stapes and the passive motion exercised upon it by sound waves have improved the function of hearing in this ear more than in the worse ear. The result in this respect should encourage the surgeon to operate upon both ears, or upon the better ear rather than upon the worse ear alone, when both are so profoundly affected as in this case. Most important is it to observe the *progressive improvement* in this case, as in some of the others. This must be due to the effect of the continuous passive motion exerted upon the ankylosed stapes by sound waves which fall upon this bone more freely than before the operation. It may, therefore, be concluded:

1. That removal of the retractive force of the

sound conductors upon the stapes is the efficient means of relieving the tinnitus, deafness, and vertigo due to the lesions of chronic catarrh of the middle ear.

2. That the removal of the retractive force upon the stapes can be accomplished efficiently and simply by removal of the incus alone, and even by resection of its long process.

3. That the improvement in these cases is due to the liberation of the stapes from the retractive power of the tensor tympani muscle, and the consequent unimpeded action of the stapedius muscle, which relieved of the antagonism of the tensor tympani tends all the more to draw the stapes from the oval window, thus aiding in the isolation and improved mobility of the bonelet, as well as in removing its undue pressure inward upon the labyrinth fluid.

4. It seems wiser, therefore, in most cases of chronic catarrhal deafness, tinnitus and tympanic vertigo, not to sever the stapedius tendon and remove the stapes, but to be content with the removal of the incus only.

5. Removal of the incus alone, the membrane, malleus and stapes being left in situ, gives more space to the drum cavity, increases its resonance, and permits freer access of sound-waves to the stapes, thereby improving the hearing.

6. The progressive improvement in the hearing noted in many instances, especially in Case I, must be due to the continuous passive motion exerted upon the ankylotized stapes by sound waves, which are enabled to reach this bonelet more freely after the removal of the incus.

SOME NEW METHODS OF TREATING CHRONIC SUPPURATIVE OTITIS MEDIA.

Read in the Section on Laryngology and Otology, at the Forty-fourth Annual Meeting of the American Medical Association.

BY F. C. HEATH, A. M. M.D.
INDIANAPOLIS, IND.

No apology is needed for proposing any new methods of treating a disease so intractable, in many cases, as chronic suppuration of the middle ear. That the methods about to be mentioned, in connection with a few cases cited, give miraculous results, are superior to all others or are applicable to every case, I am far from claiming, but they have certainly proved efficacious in some instances. A few cases will serve to illustrate these methods (perhaps more properly called modifications of one general method).

Case I.—Miss P., Indianapolis; nurse, aged 34, came to me Oct. 25, 1892, with history of pain in right ear for about a week. Had been treated for nasal catarrh for nearly a year by a competent specialist. No physical signs of phthisis discovered, but stated that she had had several hemorrhages. Bone conduction was better than air conduction. Watch heard but two inches from right ear. Considerable pus found in canal. Inspection after cleansing showed moderate perforation of membrana tympani in the anterior inferior quadrant. Used 5 grain solution of nitrate of silver in office (Buck's method), and advised warm water syringing and boric acid at home; later, weak solution of alum and zinc sulphate. Discharge ceased after one month's treatment but soon reappeared and proved very obstinate. After faithful trial of solution of silver and later of bichlorid of mercury with little of any improvement, papoid was resorted to January 9, its use being suggested by the favorable reports of the use of digestive ferments, in the treatment of ulcers, given in our journals. Two days after there was no discharge and treatment was discontinued. The discharge reappearing two weeks later and not yielding promptly to papoid (although somewhat modified by it), dermatol was employed after Buck's successful method with iodoform, that most recent substitute for the latter having been used by surgeons with so much success and satisfaction with no drawback from an offensive sense. A few applications stopped the discharge entirely and it has never returned, over four months hav-

ing elapsed since treatment ceased. This case is the first I give occasional trouble, much less than former. A patient now heard distinctly through teeth.

Case 2.—Mrs. J. Roseville, Ind., troubled for six years with left ear and discharge at intervals for ten years. Watch heard only on contact. Drum membrane completely destroyed. Examination of middle ear showed masses of hardened discharge. Patient troubled also with numbness of limbs and had general condition of debility (see Fellows' Hypoaspites and nodal of not pure). She was sent for constitutional treatment. A thin discharge of pus was removed by syringing and papoid (very weak) same treatment every few several days. Discharge soon became liquid and very profuse. There was no more ear-ache and severe pain for a short time. It was at first treated by hot water syringing, pain and discharge both coming quite promptly, numbness disappearing, and general condition improving. Effect upon granulations unknown, patient not having been sent since the above treatment.

Case 3.—Miss C., Indianapolis, referred to me July 2, 1893, by a general practitioner, who had partially removed a polypus from left ear. Hearing was very bad; pressure only. Considerable discharge for a year previous. Inspection showed polypus coming from middle ear through perforation near center of membrana tympani. This was removed, partly by snare and partly by caustics. After using silver, bichlorid of mercury and other solutions for some time without much effect, papoid was applied by means of moistened applicators, followed by insulation of boric acid. A few weeks of this treatment possibly checked the discharge a little and modified its character. Dermatal was then resorted to with good effect; the discharge immediately lessened and after a few applications ceased entirely about the last of February. The hearing was but slightly improved.

This patient returned lately with a discharge from the other ear, right, neglected for over a month. This is gradually yielding to similar treatment, peroxid of hydrogen having been used, in addition, for cleaning the ear at the office. The left ear started to discharge again since she placed herself under treatment for the right, but the discharge has been easily controlled by the peroxid of hydrogen, pepsin and dermatol.

Case 4.—Miss D., Indianapolis; aged 20, discharge from both ears, for eight years, following scarlet fever. Hears watch six inches with right ear and four inches with left. Polypus in latter gradually removed with caustics. Right membrana tympani nearly destroyed. Boric acid, silver solution, etc., seemed to have but slight effect upon right ear. Pepsin somewhat modified the character of the discharge and it is now gradually lessening under the use of peroxid of hydrogen for cleansing, followed by dermatol. This is a very obstinate case, having been under treatment somewhat irregularly for four months; although the discharge is still some discharge, it is much less in quantity and less offensive in character since beginning the present line of treatment. The hearing has also improved very considerably.

Case 5.—Miss O., Indianapolis; considerable ringing and buzzing, with slight pain, in right ear. Hears watch four inches with this ear, fifteen feet with left. Bone conduction better in right, air conduction in left. Examination shows masses of hardened secretion in right canal. This has been gradually softened by using peroxid of hydrogen, followed by pepsin. The discharge is now liquid and is being checked by degrees with the use of peroxid of hydrogen and dermatol. The hearing is improving and the ear is much more comfortable.

The use of papoid, or pepsin, in the ear (as far as I know) has never before been reported. When I began to use dermatol, I had seen no mention of its use, either, in aural affections, but have since seen three reports. Dr. Doenberger was unable to come to any conclusion respecting its action; Dr. Davidsohn of Berlin, tried it in fifty cases, some of which improved very rapidly and a few improved after unsuccessful treatment with boric acid, yet he thought the results on the whole no more satisfactory than those obtained from using boric acid; on the other hand, Dr. Stone of Boston, reports Dr. Jack of the Massachusetts Eye and Ear Infirmary, as believing that charring was materially hastened in cases treated with the dermatol, where formerly

he would have used the boracic acid." My limited experience, so far as it goes, inclines me to indorse the opinion of Dr. Jack, and I also believe that papoid and pepsin may frequently be employed with advantage. I am aware, however, that the few cases above reported are far from being conclusive, and the only value to be hoped for in connection with this report is, that it may prove suggestive, leading to more complete reports from competent observers.

SOME REMARKS ON THE OPERATIVE METHODS IN THE TREATMENT OF ADENOID GROWTHS.

Read in the Section on Laryngology and Otology, at the Forty-fourth Annual Meeting of the American Medical Association.

BY C. W. RICHARDSON, M.D.

PROFESSOR OF LARYNGOLOGY AND OTOTOLOGY, MEDICAL DEPARTMENT OF COLUMBIAN UNIVERSITY, WASHINGTON, D.C.

It is not my intention in this paper to give a resumé of the operative methods in the treatment of adenoid growths, nor a historical outline of its gradual development and improvement; but simply to describe the operative method I have now employed for several years in the treatment of this condition. In the various steps of the operation I claim nothing original; my originality, if any exists, arises from the manner in which the successive steps are made to interlace. It is with growing interest that I have watched, year by year, the rapid increase in the number and variety of forceps and curettes for the operative removal of these growths, until my interest has become satiated with their multiplicity. Many of these inventors seem to have overlooked the fact that nature has endowed them, not only with the safest and most complete, but also the most sensitive instrument for this work. My method of operative procedure is as follows:

The child is prepared for the operation in a general and local manner, as all good surgeons prepare their patients when about to resort to operative methods. I prefer always to give a general anesthetic, as I consider the operation not only extremely painful, but excessively alarming to the little one. I prefer ether, because I consider it safer; although I do not object to chloroform, should others insist upon its use. I do not consider the A. C. E. mixture reliable. It is stated by many that ether produces an excessive flow of salivary and mucus secretion into the mouth, and that it also increases the amount of hemorrhage, by producing turgescence of the head. The former condition I have never seen to an annoying degree—very rarely any increase over that which would be produced by the use of chloroform. I have never had what I could call more than a normal amount of hemorrhage after any of my cases, and therefore can not give any evidence as to the latter assertion. My patient, prepared for the operation, is etherized in the recumbent position. The etherization is carried to the point of complete abolishment of reflexes. After the stage of excitement has passed, the ends of the sheet, upon which the child has been lying, are brought over and the arms and legs firmly pinned therein. When the corneal reflex is completely disappeared the etherization is completely completed. The child is now placed in the supine position, the arms of an assistant who has been standing waiting to receive the patient. The

assistant encircles the child with his left arm, supports its head with his right hand, and hugs the lower extremities of the patient between his clasped thighs—in this manner the child is firmly held. The gag is now placed in the child's mouth and held by the assistant. Holding the head with the right hand the index finger of the left hand is rapidly passed up behind the soft palate and the growth quickly torn away from all points of attachment. The nail of the finger must be a little prominent, as it is often necessary to tear and cut as well as crush the growth. The blood now commences to flow quite freely from the nasal and buccal cavities, and it is well at this stage of the operation to incline the child slightly forward, so that the blood and broken-down tissue can more readily flow from the nose and mouth, until the operation is completed. The operation is completed in a minute or so, and the child is held forward in the inclined position until hemorrhage has about ceased. I always have a large mouth cuspidor in front of assistant, so that the blood flowing from the patient's mouth and nose can be caught therein. The patient, now partly conscious, is cleaned of all blood about the face and put to bed. Many object to the erect position in operating upon these growths, for fear that blood will flow into larynx and interfere with respiration. I will state that no one has cause to dread such an occurrence. In the four hundred and more cases that I have operated upon in this position, I have never yet had the slightest indication that a drop of blood ever entered the larynx. There is much more danger of the blood entering larynx and causing an arrest of respiration when the patient is placed in either the supine or prone position. I have operated on several patients where other operators have been obliged to suspend interference before finishing, on account of dangerous and alarming dyspnea; and in conversing with others, I find that such a state of affairs is of no rare occurrence. The use of the finger for the various forms of forceps and curettes was a gradual innovation with me. The first hundred cases I treated entirely with forceps and curettes, requiring prolonged instrumentation and frequent introduction of finger, to learn whether all of the growth was thoroughly removed. Often I would, after removing several masses with forceps or curettes, finish the operation with my finger, and later on, I gradually found that although always getting ready my forceps and curettes I rarely took them in hand, finding that after the introduction of my finger the growths were so easily crushed and scraped away that I finished the operation with the finger. Now I never use the curette; only using the forceps when, after scraping away the greater mass of tissue, there seems to be one or more fibrous bands resisting and slipping away from the finger. These I tear away with forceps.

In most children, between the ages of two and ten years, these growths are so soft and gelatinous-like in their texture that they readily yield to the pressure of the finger and the cutting of the finger nail.

The advantages that the use of the finger offers over many forms of instruments are manifold:

1. The rapidity with which the operation can be done, requiring only the use of a small amount of ether.
2. The exactness with which the operator can work,

as his tactile sense gives him complete knowledge of what he is doing and where he is working.

3. The complete absence from all possibility of injuring normal parts or tearing away normal tissue.

4. The comparative freedom from hemorrhage, as only adenoid tissue is removed and the normal mucous remains uninjured.

1102 L Street.

CASES OF LARYNGEAL NEOPLASMS.

Read in the Section on Laryngology and Otology at the Forty-fourth Annual Meeting of the American Medical Association.

BY ROBERT LEVY, M.D.

PROFESSOR OF PHYSIOLOGY AND LARYNGOLOGY, GROSS MEDICAL COLLEGE;
LARYNGOLOGIST TO ARAPAHO COUNTY, ST. LUKE'S AND
DEACONESS' HOSPITALS, DENVER, COL.

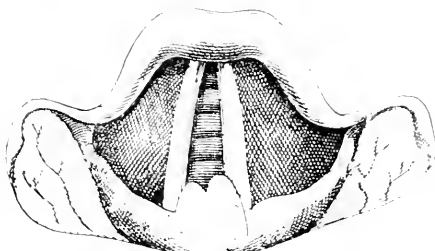
The following cases are reported, not with the view of adding anything new to the already extensive laryngeal literature, but for the purpose of placing on record two interesting cases:

Case 1.—A. K., female, age 21 months, was brought to my office Aug. 22, 1892, having been referred to me by Dr. Blickensderfer of Denver. The child presented all the evidences of laryngeal dyspnea with marked stridor and especial embarrassment in inspiration. The voice was aphonic and there was a slight cough. The general condition of the child was bad; her appetite was poor; she was anemic, weak, with a rapid, small pulse. The following history was obtained: At birth the little one required resuscitating, which was accomplished in about one hour with great difficulty. After this, the voice and respiration were good until at the age of about 8 months when, with the beginning of dentition there developed some difficulty in breathing, lasting until the first tooth appeared. At the same time the voice was lost but was soon restored, although imperfectly. At the age of 13 months there was a return of the dyspnea, at which time the attack was worse than before and lasted about one week. The voice was now left less clear, and from that time gradually became aphonic. At the age of 16 months another and very severe attack occurred, which was termed by attending physicians "croup," this being the first diagnosis ever made in the case. The child never fully recovered from this attack, but was left completely aphonic, with more or less difficulty in breathing at all times, the dyspnea being frequently exacerbated and often associated with fainting spells. The case had been seen by many physicians in Iowa, and the diagnosis of asthma often made. A change of residence to Colorado was ordered.

The evidences of laryngeal obstruction being clear, a laryngoscopic examination was attempted but, notwithstanding the greatest perseverance, could not be accomplished. A digital examination was also unsuccessful in determining the nature of the case. Tonic and anti-spasmodic treatment was instituted, with a view to gain more time and attempt subsequent examinations. Three days later, at midnight, a hasty summons took me to the little one whom I found cyanotic and rapidly suffocating. The case had appeared to be one of either laryngeal paralysis or papilloma. I had previously decided to intubate in either case. This was easily accomplished with the smallest tube and the relief immediate and grateful. August 29, four days later, the tube was coughed out, its re-insertion, however, being demanded the following day. At intervals of three days the tube was expelled and re-inserted. September 11, the next size tube was placed in the larynx and remained in situ until November 28, a period of sixty-eight days, during which time the child gained in weight, ate well without the slightest difficulty and improved remarkably. The tube was now removed but its removal was followed by immediate and alarming apnea. Artificial respiration and stimulation resuscitated the child in about twenty minutes, and the breathing became quite easy. The following day, however, surgical interference was urgently called for and the same tube placed in the larynx. March 20, 1893, the child was found suffering great dyspnea, the attack having come on gradually with several remissions, during the previous three days. The intubation tube was found in situ and evidently unobstructed from the fact of free expiration. It had been in place 111 days without removal. Tracheotomy

was earnestly advised, but not acceded to by the father until the child was unconscious when it was rapidly performed, not without a good deal of hemorrhage, however. The tracheal opening was held open by a silk thread until a cannula could be obtained, the operation having been demanded without loss of time. Following the tracheotomy the respirations became more tranquil but the dyspnea was not entirely relieved. On inserting the tracheal tube the breathing became more embarrassed and remained so despite the prompt removal of the cannula. A digital examination revealed the fact that the intubation tube which had been allowed to remain in the larynx had disappeared, probably into the trachea. A pair of McKenzie's laryngeal forceps passed into the trachea came into contact with the lost tube and its withdrawal was at once followed by complete relief. During the operation and examination for the cause of the dyspnea, the presence of soft irregular growths was determined by the finger. These appeared to occupy a considerable portion of the larynx, both above and below the vocal bands. No attempt was made at their removal, owing to the low condition of the patient from loss of blood and the continuous dyspnea. With the exception of great weakness and several severe convulsions, during one of which the respiratory muscles seemed fixed, the patient made a good recovery and is now gaining rapidly in point of general health.

The patient is now but little over two years old. The question of performing laryngotomy and removing the neoplasms, or waiting for an opportunity to perform an intra-laryngeal operation, or for the not impossible spontaneous expulsion of the growths, is an important and interesting one. The dangerous consequences of thyrotomy, both as to the life and subsequent voice of the patient, have been well considered. Intra-laryngeal removal can successfully be accomplished at a very early age, Rice¹ having performed it at five years and Hovell² at three and one-half years, this being probably the youngest on record, while the case of Boylan's³ at ten years is an example of what can be done by a few years of waiting.



Extreme Abduction.

That spontaneous cure of papilloma is quite possible, is illustrated by the case of Major,⁴ in which a quantity of the growths was expectorated, and the cases of Hunter McKenzie, Eliasberg,⁵ Oertel,⁶ Lowman,⁷ White⁸ and Garell.⁹ Massol¹⁰ shows that many papillomata may disappear because of their being more properly granulomata. Brown¹¹ by enjoining absolute silence and applying cold prevented recurrence, while Eliasberg believes the removal of the respiratory process from the larynx withdraws certain irritant factors.

It is interesting to note the results of treatment for papillomata by intubation, and incidentally the use of this method in other conditions besides croup and diphtheria, as well as the length of time a tube may remain in the larynx without doing any harm. Seiffert's¹² reports a case in which intubation was done after thyrotomy for papillomata. Massol¹³ used it in one case; Lichtwitz¹⁴ recommends a fenestrated

tube to assist in intra-laryngeal treatment of these growths and other conditions. Petersen¹⁶ shows failure in one case treated by intubation. Waxham¹⁷ reported an interesting case before this Section at its last meeting, at which time Thrasher¹⁸ also showed the value of intubation in papillomata. The case reported by C. H. Knight,¹⁹ and that of Raynor,²⁰ are also noteworthy in this connection.

Among the various chronic conditions for which intubation has been mentioned, we find ankylosis of laryngeal articulations from cancer,²¹ abductor paralysis,²² syphilis,²³ sub-glottic neoplasms,²⁴ to assist in removing foreign bodies,²⁵ tuberculosis,²⁶ after tracheotomy,²⁷ stenosis following diphtheria²⁸ and stenosis following fracture of the larynx.²⁹

The length of time an intubation tube may, without doing serious if any harm, remain in the larynx does not seem to have, as yet, been settled. In fact continual surprises in this respect confront us. In one of O'Dwyer's³⁰ cases the patient did not suffer from retention of the tube for a period of ten months and four days. The case of Waxham's¹⁷ already quoted, retained the tube four years; Schmiegelow's,³¹ one year; Dillon Brown's,³² nine months; C. H. Knight's, three months; Brother's,³³ fifty-eight days; McCurdy's,³⁴ forty days. In most of these cases the tube was removed every month or two. Dr. O'Dwyer's, however, remaining continuously ten months and four days. In the case here reported, the tube was retained continuously for sixty-eight days, then removed for twelve hours and again retained for 111 days, a total of six months and twenty-three days. Feeding was normally performed after a few days' retention, and there was absolutely no discomfort notwithstanding several attacks of colds and coughs.

The noteworthy points here are: 1, the occurrence of a growth, probably not congenital, in a child 8 months old; 2, the apparently negative result from treatment by intubation; 3, the length of time the tube was continuously retained without any discomfort.

Case 2.—G. L., male, age 16 years, was referred to the Department of Laryngology at Gross Medical College, Feb. 26, 1891, by Drs. Bull and Butler of Grand Junction, Col. The following history was obtained:

His occupation was that of a farmer. His health up to the present illness had always been perfect. His family history revealed nothing of importance. Early in the winter he had had an attack of typhoid fever which had lasted about nine weeks. During the last three weeks of his illness his voice was hoarse and there was slight difficulty in breathing, but no pain except upon coughing. Soon after his convalescence there developed some dysphagia upon taking liquids, a slight cough; followed by occasional sharp and sudden pains, loss of weight and rapidly progressing weakness.

A week previous to his arrival in Denver he had an attack of la grippe, since which all symptoms have been greatly exaggerated, more particularly the difficulty in respiration, which upon the slightest exertion causes the patient great suffering.

Upon examination the boy presents an anemic, almost cachectic look, marked dyspnea with decided stridor which is constant. His voice is dysphonic and his cough gives forth a loud barking sound; pulse 140; temperature 97.5 degrees F. at 3 p.m. The laryngoscope shows both vocal bands red and near the median line. The left is visible in its entire length; the right is covered at its posterior attachment by a small, light red, lobulated, smooth growth, the lobulation dividing its surface into two unequal parts. Upon phonation the growth is partly in the chink of the glottis, and upon forcible inspiration the vocal bands are but slightly abducted. They are not completely fixed but can be separated about one-fourth inch, during which time the tumor fills up the posterior portion of the chink. The left vocal

band seems slightly less movable than the right, notwithstanding the position of the tumor. The diagnosis of partial bilateral posticus paralysis with some form of laryngeal tumor, probably fibroid, was easily made. Without preliminary training, but under cocaine anesthesia, an attempt was at once made, with a McKenzie antero-posterior forceps to remove the tumor, which under the existing paralytic condition seemed responsible for much of the dyspnea, despite its small size, it being about as large as a green pea. The first effort was unsuccessful and brought on at once a severe spasm of dyspnea. Before making another trial, preparations were made for a possible tracheotomy. This, fortunately, was unnecessary, as about three-fourths of the growth was removed without any difficulty, the result being immediate relief to the breathing. The stridor still persisted but was less marked. The following day the remaining portion was readily and thoroughly removed and the patient was at once placed upon a tonic of iron, quinin and strychnin with the faradic current applied to his larynx, both internally and externally. After two weeks' treatment the patient returned to his home greatly improved, but still showing considerable dyspnea on exertion. The cough and pain had disappeared, the voice was clear only at times, being less so in the morning. A letter dated May 12, 1891, informs me that he is not yet able to work on account of short breath. Another letter, Nov. 17, 1891, tells me that he has had electricity applied to the larynx externally until July and has faithfully taken his tonic. His breathing is better, he can do light work, his voice is nearly normal. A letter received April 15, 1893, shows the patient to be in perfect health, voice and respiration unimpaired.

The larger portion of the tumor was frozen, sections made, stained and examined by Dr. A. S. Lobinger, then Professor of Histology and Pathology in Gross Medical College, and pronounced by him a spindle-celled sarcoma.

The cause of abductor paralysis is always an interesting though uncertain subject. In this case it can be considered that, the larynx being involved in the typhoid fever, there was set up a peripheral neuritis, as mentioned by Tissier³⁵ and others. Whether we accept the proclivity theory of Simon or not, the fact remains that abductor paralysis follows central lesions, as well as lesions in the course of the inferior laryngeal nerve. Local disturbances also play an important part in the etiology, for cases due to myopathic cause, to rheumatism, to localized pressure, are not rare. Among the most interesting causes might be mentioned hysteria, as reported in the case of West's³⁶ and Bandler's,³⁷ and reflex disturbances from nasal and post-nasal troubles, as in Stewart's³⁸ and Robertson's³⁹ cases.

In regard to sarcomata, these are not of frequent occurrence in the larynx. Bosworth⁴⁰ collects forty-seven cases; additional cases are reported by Wright,⁴¹ Browne,⁴² Scheinmann,⁴³ Lentiage,⁴⁴ Toeplitz,⁴⁵ Hjorth,⁴⁶ Cutter,⁴⁷ Schnitzler-Frisch,⁴⁸ Bissell-Hagen⁴⁹; and while they occur early in life, more frequently than do carcinomata, there are but a few cases on record under 20 years of age. Bosworth⁴⁰ records the case of Caselli at 19 years; Browne⁴² one at 9 years, Carlos Labus⁵⁰ one at 13 years, forming, with the one here reported at 16 years, four under 20 years of age.

The intra-laryngeal method of removal is quite universally condemned, although the cases of Scheinmann, Toeplitz and Labus were thus cured.

The points of special interest in this case are: 1, the rare combination of paralysis and sarcoma, only one other case, by Cohen,⁵¹ of paralysis and tumor being recorded; 2, the cause of the abductor paralysis; 3, the occurrence of a rare form of laryngeal neoplasm; 4, the age of the patient; 5, the apparent cure, after two years, by the intra-laryngeal method.

REFERENCES.

- 1 Rice, Trans. Am. Laryng. Assoc., 1891, p. 9.
- 2 Howell, Jour. of Laryng. and Rhin., Vol. IV, p. 285.

- Baylan, Intern. Med. Mus., London, 1892.
- Major, Trans. Am. Laryn. Ass., 1891, p. 71.
- Hunter McKenize, Lancet, April 1, 1891.
- Ellisberg, Jour. Laryn. and Rhin., Vol. V, p. 219.
- Hoffmann, Sammelk. in. Vorh. Ver. L. u. R., p. 257.
- Lowman, Jour. Am. Med. Assn., Vol. XIX, p. 142.
- White, Jour. Am. Med. Assn., Vol. XIX, p. 478.
- Gard, Jour. Laryn. and Rhin., Vol. V, p. 281.
- Massel, Jour. Laryn. and Rhin., Vol. V, p. 269.
- Browne, Trans. 9th Inter. Med. Congr., Sec. XIII, p. 41.
- Seiffert, Jour. Laryn. and Rhin., Vol. IV, p. 291.
- Massel, Jour. Laryn. and Rhin., Vol. V, p. 269.
- Giltschitz, Jour. Laryn. and Rhin., Vol. V, p. 245.
- Petersen, Deutsche Med. Wochs., No. 9, 1892.
- Waxham, Jour. Am. Med. Assn., Vol. XIX, pp. 477, 478.
- Thrasler, Discussion.
- Knight, Med. News, Vol. LXI, p. 27.
- Raynor, Jour. Am. Med. Assn., Vol. XVIII, p. 542.
- Reid, Inter. Centrality of Laryn., etc., Vol. VI, p. 59.
- O'Dwyer, Trans. 9th Inter. Med. Congr., Sec. XIII, p. 12.
- Leferts, Trans. 9th Inter. Med. Congr., Sec. XIII, p. 109.
- Robertson, Lancet, Sept. 10, 1892.
- O'Dwyer, Trans. 9th Inter. Med. Congr., Sec. XIII, p. 123.
- Massel, Jour. Laryn. and Rhin., Vol. V, p. 269.
- Leferts, New York Med. Rec., Oct. 1, 1892.
- O'Dwyer, Trans. 9th Inter. Med. Congr., Sec. XIII, p. 129.
- Wright, Jour. Am. Med. Assn., Vol. XVII, p. 453.
- Meltzer, New York Med. Rec., Sept. 21, 1892.
- O'Dwyer, New York Med. Rec., Sept. 21, 1892.
- Massel, Jour. Laryn. and Rhin., Vol. V, p. 269.
- Hopkins, New York Med. Jour., Feb. 27, 1892.
- Baldwin, New York Med. Jour., March 12, 1892.
- Massel, Jour. Laryn. and Rhin., Vol. V, p. 269.
- Andersen, Jour. Laryn. and Rhin., Vol. IV, p. 222.
- McDonagh, Jour. Laryn. and Rhin., Vol. IV, p. 171.
- Schmigelow, Jour. Laryn. and Rhin., Vol. IV, p. 169.
- Jallon Brown, Arch. of Otol., June, 1892.
- Stinson, New York Med. Rec., March 12, 1892.
- O'Dwyer, Trans. 9th Inter. Med. Congr., Sec. XIII, p. 126.
- Brothers, Med. Rec., July 27, 1892.
- McCurdy, Colman's Med. Jour., July, 1891.
- Tissier, Annals, des mal. de l'oreille, etc., August, 1887.
- West, Lancet, Aug. 6, 1892.
- Bandler, Jour. Laryn. and Rhin., Vol. IV, p. 245.
- Stewart, Lancet, Oct. 17, 1888.
- Robertson, Lancet, Sept. 10, 1892.
- Bosworth, Dis. of Throat, Vol. II, p. 712.
- Wright, Jour. Am. Med. Assn., Vol. XVII, p. 459.
- Browie, Dis. of Throat, 2d Ed., p. 442, N. p. 267.
- Scheinmann, Jour. Laryn. and Rhin., Vol. VI, p. 299.
- Lentaigne, Brit. Med. Jour., June 1, 1890.
- Teplitz, Trans. Inter. Med. Congr., Sec. XII, p. 413.
- Jorth, Jour. Laryn. and Rhin., Vol. III, p. 119.
- Cutter, Trans. Am. Med. Assn., 1892, Rep. Jour. Laryn. and Rhin., Vol. III, p. 444.
- Schintzler-Frisch, Inter. Centrality of Laryn., etc., Vol. VI, p. 256.
- Messel-Hauser, Inter. Centrality of Laryn., etc., Vol. VI, p. 129.
- Lafou, Arch. of Laryn., Vol. I, p. 229.
- Cohen, Rep. Inter. Centrality of Laryn., etc., Vol. 7, p. 74.

CHRONIC NASO-PHARYNGEAL INFLAMMATIONS, AN ETIOLOGICAL FACTOR IN THE DISORDERS OF DIGESTION AND EXCRETION.

Read in the Section on Laryngology and Otology, at the Forty fourth Annual Meeting of the American Medical Association.

BY P. C. JENSEN, Ph.C., M.D.

MANITWA, MINN.

MEMBER OF THE AMERICAN MEDICAL ASSOCIATION; MEMBER OF THE CHICAGO MEDICAL SOCIETY; MEMBER OF THE AMERICAN HEALTH RESORT ASSOCIATION.

To maintain the highest standard of health, it is of the greatest importance that the alimentary mucous membrane and its anatomical structures should retain their physiological activities. For upon the perfect performance of the functions of the gastro-intestinal mucous membrane, assisted by the glandular secretions of the liver and pancreas depend the processes of digestion, absorption, perfect blood construction, and the maintenance of healthy nutrition. Any pathological deviation from the physiological standard can only result in a corresponding impairment in structure or function, proportionate to the extent of membrane and structures involved. Owing to the sudden and frequent fluctuations of temperature and humidity in the lake regions, it is difficult to find a child, who at the age of seven years does not present advanced proliferative inflammation of the nasal mucous membrane. A hypertrophic catarrhal inflammation not infrequently develops simultaneously, or is concomitant with, the exanthematous fevers. The portion of mucous mem-

brane primarily involved is the anterior tips of the inferior turbinate bodies, extending usually along both lower and middle turbinates to their posterior aspects in the naso-pharyngeal space. The activity of cell proliferation, and resultant hypertrophy of the turbinate bodies provoke irritations, and hypersecretion of mucus follows, which gravitates into the naso-pharynx. As the process of the inflammation advances in the nasal cavities, it extends by continuity of structure along the mucous membrane of the naso-pharynx, thus increasing the area of excessive mucus production, which of necessity gravitates along the posterior pharyngeal wall, until it reaches the oropharynx, in which location it is found to have lost its watery consistency, by the evaporation sustained in its passage over a superheated and inflamed membrane, causing it to become thick, tenacious and adherent. During the process of ingestion, adhesive mucus contaminated with microorganisms, and products of decomposition from various sources, are conducted into the stomach in the act of deglutition, along with food and drink.

Mucus being a ferment, will in presence of starchy and saccharin material, develop pathological fermentation of the gastric contents. The persistence of this condition will in due time (owing to the irritative nature of the fermentation products) develop inflammation of the gastric mucous membrane. With inflammation of the organ derangement of function follows, a vitiated secretion, abnormal in quality or quantity takes place, the chyme is imperfectly formed, toxic and intermediate sub-oxidation chemie compounds are developed; all of which reduce the nutritive value of the gastric and intestinal contents, and aggravate the local distress. Defectively formed chyme, laden with toxins or leucemaines, when subjected to the digestive fluids in the duodenum and jejunum, will in turn so interfere with the chemie, digestive and bacterial influences of the normal processes, as to retard their oxidations and metabolic transformations; in short, producing a chyle of low nutritive value, surcharged with morbid products in consequence of imperfect chemie action, invariably resulting in sub-oxidized, toxic, chemie compounds. If these conditions continue to exist, the development of an inflammation of the intestinal mucous membrane, of a low grade of action, would only be a question of time.

Mucus being the normal secretion of the mucous membrane, when excessively increased in quantity, due to irritation or inflammation, it becomes the mildest product of the inflammatory exudations. By persistent irritation, the inflammation of the mucous membrane increases in severity and extent until its mucoid transudations and fermentation products exert a morbid action upon the entire assimilative portion of the intestinal mucous membrane. These conditions often continue for a long period of time, by a low grade of action, and it is only after the individual becomes sufficiently debilitated by deficient nutrition, that the nervous system gives the alarm of impending danger. This may not occur until anemia has placed its stamp upon the patient.

Another important influential factor, in part responsible for the failure of complete and final oxidation of chemie products, as they appear in the blood, in consequence of defective intestinal, interstitial and intra-cellular oxidation, is directly attributed to deficient respiratory action, (nasal and

pulmonic) whereby the blood corpuscle does not obtain the necessary oxygen for the conversion of its hemoglobin into that of oxy-hemoglobin. It is to the oxygen-carrying function of the hemoglobin of the red corpuscles of the blood, that we owe the completion of the chemic oxidations of the incomplete sub-oxidation compounds therein contained; whether such substances are destined for tissue reconstruction, or for excrementitious elimination. It is here, also, where further oxidation is required to bring about the normal changes in peptones, leucamines, etc. So that the liver as a gate-keeper for the portal circulation, may be able to completely elaborate the albuminoid products for nutrition and excretion, and restrain those compounds from entrance into the general circulation which are detrimental to the organism; pending such chemic action or change as to render them safe for nutritious distribution, or harmless for excrementitious elimination. Under such conditions, the patient, when subjected to the exposure of sudden changes of temperature or humidity, excessive indulgences, or fatigue, may by any change in the normal activities, or by defective eliminations through the excretories, experience a chill, and a rheumatic fever follow. Or a neuralgic condition may develop in consequence of retained poison in the system, acting as an irritant to sensory nerves.

By such retention of toxic material in the blood, auto-intoxication is almost without limit, in its evil effect upon the tissues and structures of the human body. In this manner, a large percentage of the insomnias, many of the mental conditions, as morbid fears, melancholia, irritability of disposition, hallucinations, impaired memory, etc., are satisfactorily accounted for.

In conclusion, chronic naso-pharyngeal inflammations are antigenetic in the development of secondary diseases of the gastro-intestinal mucous membrane, through deglutition of mucoid products or by continuity of structure, and by reflex action. The removal of the primary lesions will correct, relieve or cure, secondary remote effects of the digestive, broncho-pulmonary or nervous systems.

Further, owing to the perverted chemic, bacterial, and digestive processes of the small intestines, the more or less extensive chronic catarrhal inflammation of the intestinal mucous membrane and glandular structures, the absorption of a deteriorated chyme and chyle is continuously going on, blood deterioration and contamination is constantly taking place, the circulation conveying poisoned blood for distribution, by nutritious arteries, to the various tissues and structures of the body.

Is it, then, a wonder that the telegraphic system should give a painful neuralgic alarm, as an indication of deprivation of some structure? Is it a surprise that the delicately constructed nervous system should fail to render good service, in the innervation of the muscular fibers of the intestines, rendering them defective in their vermicular activities, and in a like manner fail to cause glands and ducts to give up their secretion?

To this failure is attributed the common complaint, constipation. From defective digestion with development of gases (abnormal fermentations) cardiac palpitations frequently occur. From incomplete orthogenic transformations, we obtain uric acid and urates, instead of the completed product, urea. From

incomplete oxidations of the starchy and saccharin material, we obtain oxalic acid and oxalates, instead of carbon dioxid and carbonates. The transportation of such products through the renal system, is a prolific cause of renal and vesical irritations and inflammations. Such irritations and inflammations give rise to not a few distressing symptoms, viz., lumbago, myalgia, despondency, melancholia, frequent micturition, dysuria, etc. There can be but little doubt, that a large proportion of structural, renal and cystic diseases take their origin from a continuous toxic and irritant urine. To the incomplete oxidations we owe the origin of uric acid and urates, oxalic acid and oxalates, which we find constitute the nuclei and substance of renal and vesical calculi.

As near as I have been able to ascertain, fully 66 per cent. of renal calculi are composed of uric acid and urates, oxalic acid or oxalates, separately or combined in alternate layers, but almost invariably containing a uric acid nucleus. These are considered by Prof. Christian Fenger, as aseptic calculi. While the largest percentage of the vesical calculi are composed of phosphates, either separate, or in combination with urates and oxalates, these are most frequently secondary to inflammation, with decomposition of urine, and hence may be considered as septic calculi; but in some cases the phosphatic constituents are due to excessive nerve disintegration.

It is, therefore, of the utmost importance to recognize the necessity of maintaining the mucous membrane of the body in a healthy and physiological condition. It is the one great essential in health, and it is equally essential, to approach as near as possible to the physiologic condition in the treatment of disease, if the physician desires to obtain the greatest success.

THREE CASES OF REFLEX NEUROSES ORIGINATING IN THE NOSE.

Read in the Section on Laryngology and Otology, at the Forty-fourth Annual Meeting of the American Medical Association.

BY NORVAL H. PIERCE, M.D.

PROFESSOR OF OTITIS IN THE POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL; ATTENDING SURGEON TO THE NOSE AND THROAT DEPARTMENT, MICHAEL REESE HOSPITAL, CHICAGO.

It is my intention to place the following three cases of reflex nervous phenomena before you with little or no comment. They are each striking in their way, and well worthy to be put on record. The first case was as follows:

Case 1.—Mrs. P., a nurse, age 28; anemic and of a nervous temperament. She complained of failing sight; had difficulty in reading the clinical thermometer. For this trouble she had consulted Dr. Bettman, who referred her to me. The treatment which she received previous to the time of her consulting me will be given in Dr. Bettman's notes which follow, and for which I now take the opportunity of expressing my thanks. I found on examination that there was a slight congestion of the palpebral conjunctiva, but the most striking feature was the difference in the size of the pupils, the left being dilated to twice the size of the right. On examining the nose I found in the left side a slight congestion of the mucosa covering the middle concha, while the anterior fourth of the middle turbinate was the seat of an enlargement about the size of a small gooseberry, quite hard, and bleeding easily when touched with a probe, being partially denuded of epithelium. This growth was shown to be a hard hypertrophy under the microscope. The pressure caused by this hypertrophy against the septum was so great as to make the passage of a probe through the fissura orificatoria quite difficult. The examination of the right nostril gave negative results. I determined to remove the hypertrophy by means of the cold snare. After cocaine-

izing thoroughly with a 10 per cent. solution, I noted no change in the dilated pupil, but this did not influence me in any way, as the coagulation had little or no effect in diminishing the hypertrophy. There was nothing of moment in the operation. The day after, the pupillary dilation was greatly reduced; two or three days afterward the dilation was as great as ever, but I could justly account for this, by the fact that the pressure of the seal covering the point of operation was as great as that of the original hypertrophy; I did not take this away at once, but waited two or more days and then removed it, after which the pupillary reaction gradually became normal.

Allow me to add that in this case I found a hysterical deafness, that is to say, the watch, speech and tuning-fork tests gave normal reaction; but, as she said, "while she could hear what was said, she could not always understand, and was obliged to have sentences repeated." I would like to say too, that I was not sure that the pressure caused by the hypertrophy was the cause of the pupillary dilation, but there were ample indications to justify me in the removal of the pressure. The results were gratifying.

Case 2.—Miss B., a nurse, aged 27, was also of a rather nervous temperament, but not so markedly as in the first instance; the left pupil here was dilated to 7 mm. The right measured but 4 mm in diameter. On examining the left nostril, a diffused redness of the mucous membrane was apparent. There was no hypertrophy, but the anterior head of the middle turbinate body was so bent as to produce marked pressure against the septum. Having the experience of the previous case before me, I determined to remove as much of the turbinate as caused the pressure, which I did by means of cutting forceps; the results in this case were not so satisfactory as in the first, as the pupillary dilation diminished only gradually, and the last time I saw the patient, while it was greatly diminished in size, the left pupil was still slightly larger than the right.

Dr. Bettmann's Notes:

Case 1.—Mrs. P. came to me in May, 1892, complaining of inability to read the markings of the thermometer. Upon examination I found the following conditions: Vision, both eyes equal to 20-20, accepted - 0.5D both eyes. Right pupil dilated (medium); left pupil one-half again as large. No reaction to light or on convergence. Can not read ordinary newspaper print. With + 1.5D reads fine print at twelve inches; muscular equilibrium normal; ophthalmic examination negative. Diagnosis: paralysis of sphincter muscles of irides and accommodation. No history of diphtheria, rheumatism, or syphilis. Recommended galvanic current and injections of strychnin. This treatment was carried out for two weeks, without producing any improvement in her condition. I then referred her to Dr. Pierce, who operated with instantaneous effect on the ocular symptoms. The day after the operation the pupils were normal in size and reaction and she read the finest type at close range. A few days later—as soon as a crust formed over the wound—the abnormal conditions of the eye returned, to disappear again permanently as soon as the seal came away.

The changes in Case 2, Miss B., were similar to those already reported; the reaction to light very slight on convergence. Vision = 6-12, with 1D. V. 6-6 both eyes. Can only read fine print with her glasses. The ophthalmoscope revealed nothing abnormal. Advised the patient to consult Dr. Pierce for examination of the nose. Dr. Pierce operated, and the operation was followed a week later on exposure to cold by an acute catarrhal otitis media and a mastoid-periostitis, both of which yielded readily to treatment. The ocular symptoms had previously disappeared.

A third case I wish to report, was a patient referred to me by Dr. Fenger of Chicago. A farmer from the interior of Illinois; strong-framed, muscular, plethoric. Complained of a constant pain in the right half of the tongue. He consulted Dr. Fenger, fearing cancer, who, not finding any pathologic change in the tongue referred the patient to me. On examination, I found an extensive hypertrophy of the inferior turbinate body on the right side, causing complete obstruction and a marked degree of pressure in that region. Operation was performed by means of galvano-cautery. In three days the pain in the tongue had entirely disappeared, and has remained absent ever since—a year having elapsed since the operation was performed.

REPRODUCTION OF THE UPPER AIR-PASSAGES BY PLATING CASTS OBTAINED BY THE CORROSION METHOD.

BY R. ALEXANDER RANDALL, M.D.

While it is no new thing to obtain, in metal or other materials, casts of the cavities or structures of the body, and exact site results have been long and by many workers obtained in this field, there yet remains much to be thus demonstrated to the scientific world at large, and far more in the way of local demonstration. It is with this latter object that I desire here to bring forward some of my results, believing that they will be new to some and interesting to others who work in the upper air tract.

Made in fusible metal, which can be readily cast into the soft tissues of the recent cadaver, these metal casts have a delicacy and a durability far superior to anything which is possible with the more frequently used wax mass; and the secondary process which I have here employed has marked advantages and seems to constitute a new and important step in this matter.

All of these casts have the grave disadvantage, which grows with the increased complexity of the object, of being negatives only, and a comprehension of their real teaching can be gained only by a process of mentally turning them inside out, which many persons find very difficult and unprofitable. They are often needlessly costly, too, since one can lock up many pounds of expensive alloy in a single cast. But if the solid cast can be electroplated and its metal then fused out to leave the thin shell of deposit, we have a repetition of the negative almost as true and quite as instructive as before; while we have absolutely reproduced, in a permanent and convenient form, the hollows of the organs originally molded. Strong as is the fusible metal, it is yet so heavy that casts made of it are very apt to fracture if dropped, and my idea, as a teacher, is that preparations too delicate to take some chances of rudeness of handling are of little value except to the original student. They may be marvels of beauty and accuracy, full of new and instructive points, but all of this is lost to those who can not handle and closely study them. These electrolytes can be feather-weight reproductions if desired—delicate as the empty shells of a collection of birds' eggs—yet safe for any reasonable handling or transportation. Carefully sectioned, before or after the removal of the fusible metal within, they can afford new possibilities of study and reveal much which might escape observation, even when both interior and exterior are thus accessible.

The first results which I have now in hand to bring forward are in many respects rude and unsatisfactory; yet are delicate enough to reveal all the shortcomings of the original casts. They illustrate that the primary casting in fusible metal should be done with all care and accuracy, and with due consideration of the aims, difficulties and possibilities of the method. The metal had best be fused in a water-jacketed funnel capable of containing several pounds, so that a superabundance may be present to secure full fluidity of the material and completeness at one casting without requiring any supplementary

pouring, even if a good deal should be lost through some unexpected leakage. This last mishap calls for the aid of some efficient assistant who shall stand ready to stem such flow, and do anything to aid in perfecting the result. Thus cast, with fore-sight in arranging for the escape of air from all the cavities and a normal disposition of the preparation so as to avoid distortion, exquisite results can be obtained from adequate material; the main difficulty in America, being to obtain such material in any quantity, and at times when the experimenter really has the leisure to utilize it. This has rarely been my good fortune, hence my preparations fall far short of what the method might afford.

As to the electroplating, the main point is that it should be slowly done, in order to obtain due evenness and smoothness. Any forcing of the process will give lumpy distortions which may greatly impair the accuracy and beauty of the operation.

BICHLORID OF MERCURY IN THE TREATMENT OF DIPHTHERIA.

Read in the Section on Laryngology and Otology, at the Forty-fourth Annual Meeting of the American Medical Association.

BY CHARLES F. McGAHAN, M.D.

ALBANY, N. Y.

I wish to call attention to the treatment of diphtheria by the bichlorid of mercury, not that I regard it as a specific in the disease, for I am sure that all of us who have had much experience with this most treacherous malady will agree with me that there is no such thing as a specific for it. Various modes of treatment have been followed by me, and frequently with such success in different epidemics that I felt on several occasions I had found a cure, but each time my hopes were crushed by having the treatment fail entirely in the next series of cases which fell under my observation. I have made this statement so that all can see that I am not reviving this treatment, in the expectation of having it considered a "cure-all" for the disease, but simply because I believe that if the profession would use it more extensively, and in larger doses, that we should have better results.

In one of the latest works on general therapeutics we find, in laryngeal diphtheria, "one one-hundred and fiftieth to one one-hundredth of a grain of bichlorid may be given every hour, for not over four days, and it must be carefully watched." This dose is not large enough to be of any service, if we have a true case of diphtheria to deal with. In fact, we can diagnose a case of diphtheria by the way the patient bears the bichlorid of mercury. I will give the history of one case, so as to illustrate the manner of giving it:

On February 13 I was called to see a patient, a lady over sixty years of age, who was suffering from a sore throat. Upon examination, I found the fauces very red, and not then suspecting diphtheria I prescribed peroxid of hydrogen (Marchand's) one to four to be sprayed four times a day, and an alternative. When calling on the 14th, I found both tonsils covered with membrane. The patient was immediately put upon one-fiftieth of a grain of bichlorid of mercury every hour and a half, and to be sprayed every hour, alternating with bichlorid of mercury one one-thousandth and peroxid of hydrogen one to two. The disease gained rapidly and by the next

day the pharynx, larynx and nasal passages were covered with membrane. For the first four days the patient took one-fiftieth of a grain of bichlorid of mercury every hour and a half, and for the four following days she took one-fiftieth of a grain of bichlorid of mercury every two hours. Besides this, during the eight days her throat was sprayed every alternate hour with bichlorid of mercury one one-thousandth, and enough solution was atomized each time to vaporize one-tenth of a grain of bichlorid of mercury, making one and one-half grains of bichlorid of mercury sprayed on the throat every day, and some days it amounted to even more, for when the disease was at its worst I used the bichlorid of mercury every hour.

In spraying, the larynx, pharynx and nasal cavities were sprayed. During the eight days over eight grains of bichlorid of mercury were given by the mouth, and about twelve grains sprayed into the larynx, pharynx and nasal cavities.

The only bad effect I had from the bichlorid was great depression which was counteracted by giving whisky freely. The throat was so covered with the membrane that my patient could not swallow for thirty-six hours, and nourishment was given by the rectum, and bichlorid through a tube passed in through the nose. Her recovery was very slow, and she suffered with paralysis of the vocal cords for over two months, but it gradually yielded to treatment.

In conclusion, I wish to impress you with the importance of giving bichlorid of mercury in large doses, in diphtheria, and do not be afraid of it.

CLINICAL EXPERIENCE WITH SOLUTIONS OF PYROZONE.

Read in the Section on Laryngology at the Forty-fourth Annual Meeting of the American Medical Association.

BY JAMES E. NEWCOMB, M.D.

ATTENDING LARYNGOLOGIST DEMITT DISPENSARY; ASSISTANT IN THE ROOSEVELT HOSPITAL, OUT-PATIENT (THROAT) DEPARTMENT, NEW YORK, N. Y.

About thirty-five years ago, Sir Benjamin Ward Richardson introduced into medical and surgical practice the use of solutions of hydrogen dioxide. For a quarter of a century or more, he was their only advocate. With considerable distinctness he pointed out their application to various clinical conditions. He carefully recognized their limitations and, while making for them broad claims, did not regard them as a panacea for all ills. During the past few years, he has had many imitators of his advocacy. They have gone far beyond him in their claims of therapeutic results. They have, unfortunately, fallen short of him in honest conservatism. They have forgotten the counsels of this therapeutic pioneer, have made wild and untrustworthy statements, and have thus tended to bring the remedy into disrepute. They have had as allies some of the manufacturing chemists, whose wily rhetoric has been far more specious than their appreciation of the problems of clinical medicine has been accurate.

Richardson strongly insisted that it was impossible to prepare more than a ten-volume stable solution in water; to exceed this limit required a degree of acidity so great that, on exposure to the air, the solution rapidly ran down in oxygen strength, the H_2O_2 becoming practically H_2O . A true and honest ten-volume solution has only a very slight degree of

acidity. Anhydrous hydrogen dioxide is described as a syrupy, colorless liquid, with a styptic taste and a caustic action. It has a specific gravity of 1.45. It is a very unstable compound and hence is used in commerce only in diluted strengths. Confusion seems to exist with regard to the meaning of the term "volumetric solution." A fifteen-volume solution, granting that such an one is a durable possibility, is to be defined as one which yields fifteen times its own volume of oxygen gas. Such a solution would, according to the calculations of Smith and Oertel (*New York Medical Journal*, Aug. 6, 1892) contain, in 100 c.c. of fluid, 4.25 grams of the pure hydrogen dioxide. Out of fifty specimens of various brands, purchased by these observers in open market and analyzed by them, not a single one contained 4.25 grams. The highest approximation thereto was 2.50 grams. The average of the whole number was 1.78 grams. 2.50 grams correspond to an eight and eight-tenths-volume solution. Smith and Oertel found a great discrepancy between the different specimens from the same manufacturer. Eight per cent. of all the specimens contained no hydrogen dioxide whatever. Thirty-six per cent. were decidedly deficient in strength. Squibb (*New York Medical Journal*, *ibid*) from analysis of a large number of various specimens, found only one with more than a ten-volume strength.

Undoubtedly the weaker solutions keep better, especially in warm weather. Decomposition is detected by the sight of the bubbles of escaping gas. Fairly pure solutions may be so concentrated by evaporation as to approach a thirty- or forty-volume strength. These solutions are distinctly acid and fairly stable, especially when dissolved in ether.

Such solutions entirely without acid, with ether as the solvent, are now on the market under the trade name of "Pyrozone Solutions." I have used them to considerable extent during the past few months, and have formed some definite ideas (which are, I hope, logical) as to their therapeutic value.

Pyrozone, which is here used to indicate the character of the formula H_2O_2 , is taken from the Greek word for fire, and the word ozone. Pyrozone, or H_2O_2 , is supplied in three solutions viz: pyrozone 3 per cent. solution aqueous, referred to as medicinal; pyrozone 5 per cent. solution ethereal, referred to as antiseptic; pyrozone 25 per cent. solution ethereal, referred to as caustic. The figures in this connection refer to the parts by weight. We have, therefore, in this series of preparations the advantage of knowing precisely how much of the agent we are using. The pyrozone 3 per cent. solution corresponds to the so-called fifteen-volume solutions of peroxid of hydrogen. The average specimens of hydrogen dioxide on the market contain, as we have seen, only one and one-half per cent. The pyrozone 25 per cent. solution contains a very large amount of H_2O_2 approximating the pure product, as a result of its volatile vehicle.

It goes without saying that all containers must be of glass; metal should be avoided. Glass or hard rubber tubes will answer for the spray when pyrozone 3 per cent. solution is used, and cotton wrapped splinters or glass rods roughened at the end, so as to retain the cotton for local application of the pyrozone 25 per cent. solution. The pyrozone 5 per cent. solution does not seem to me to have a place in

rhinology. It is too strong for some, too weak for others.

Regarding the mode of action of the pyrozone, it is generally admitted that purulent matter possesses the power of liberating the oxygen from the solution, as evidenced by the ebullition of bubbles of gas. Bacteria also, it is claimed, possess this power. I have used the pyrozone 3 per cent. solution for cleansing the nose and nasopharynx whenever there have been crusts or gross discharges secreted. The mild strength has been employed anteriorly by a small pyrozone atomizer, and posteriorly with the ordinary hard rubber syringe. It has not seemed necessary to dilute the solution. Care should be taken that it is slightly warm, as indeed should be all cleansing agents applied to these regions. On coming in contact with the tissues, it produces a momentary tingling which quickly subsides. In using this remedy, the impression has been forced upon me that we are not always as thorough in cleansing the nasal cavity as we suppose. Often I have used aqueous and oily sprays in the nostrils until they were apparently clean, but a succeeding syringe full of pyrozone 3 per cent. solution would start up little masses of white foam, showing that a little of the secretion was still hidden somewhere behind some projecting shelf in the nasal cavity. In regard to the smarting produced, we have to remember that in this strength we are employing an aqueous vehicle, and I have not found the solution any more irritating to the average patient, than is the Dobell solution or the Seiler Tablet, the latter of which I prefer.

The pyrozone 25 per cent. solution should be handled with considerable care. A drop spilled on the hand causes some discomfort, but no deep action on the tissues. I have employed it to stimulate the healing of sluggish mucous patches on the tongue, cheeks and lips with much satisfaction. In a case of perforation of the palate, in a syphilitic girl of eleven years, it has proven more efficacious than nitrate of silver in stimulating the edges of the wound, and has led to a marked increase in the rapidity of closure. The patient is still under treatment with the iodid of potassium, and I hope for a complete recovery of this feature of the case. With reference to the destruction of hypertrophied undiluted tissue, I have not found it a substitute for either the cautery, the chromic or the trichloroacetic acids. Its action in safe quantities seems to be entirely too superficial to effect the desired result. The surface has been first anesthetized with a 10 per cent. solution of cocaine, and the pyrozone 25 per cent. solution applied on a bit of cotton wound around the end of the glass rod described, and held in contact with the tissue for, say, ten seconds. A false impression is produced as to the action at the time of use, as the re-agent produces a large white blotch, which is all the more prominent from its marked contrast to the red background of the tissue.

When all this clears away, however, it is seen that the penetration has been slight and only a very little tissue removed. If the pyrozone 25 per cent. solution is rubbed in, it does not seem to produce an action deep enough to "stick" or bind down the exuberant tissue. Hence several applications are necessary to effect what could be accomplished by one application of the cautery or other destructive agents. The after effects have seemed to be slight; there has

been very little inflammatory reaction, and the slough has come away by the third or fourth day at the longest. I have been in the habit of coating over the area acted upon, with official collodion.

On enlarged glands at the base of the tongue, if isolated, the pyrozone 25 per cent. solution has given considerable relief to the symptoms incident to that condition. If the adenoid masses have been large and aggregated so as to form physically a true lingual tonsil, the same objection has seemed to obtain as in the turbinate hypertrophies; but after all, we have to remember that it is on dead matter, rather than on living tissue that the remedy finds its own peculiar sphere of action.

118 West 69th Street, New York City.

A CONTRIBUTION TO THE TREATMENT OF WHITE SWELLING OF THE KNEE.

Read before the American Orthopedic Association, St. Louis, Mo.,
September, 1895.

BY A. E. JUDSON, M.D.

ORTHOPEDIC SURGEON TO THE OUT-PATIENT DEPARTMENT OF THE NEW
YORK HOSPITAL.

White swelling of the knee belongs to a class of diseases which it is difficult to believe are not constitutional, and yet which are so modified in their progress and results by the influence of mechanical environment that, beyond the regulation of the diet, the administration of roborants and the observance of the laws of hygiene, the only treatment necessary is that which is carried on by mechanical appliances. Not that treatment of this kind can abruptly arrest the disease and remove the traces which it almost always leaves in the structures which have been affected. It will be a happy day when the advance of our science puts us in possession of the power to cut short this morbid action, and secure ultimate symmetry and normal ability.

Until that day we may well give our best attention to methods of placing the affected member and the system in the best position to promote and take advantage of the inevitable rally of the defensive and reconstructive sources of nature. For restoration to health and more or less complete function are certain to occur, except in most unfortunate exceptional circumstances.

Speaking of hip disease Brodie exclaimed: "Why should the disease be dangerous? The hip-joint is not a vital organ!" And this is not the less true of white swelling of the knee. And in the case of children, among whom our patients are chiefly found, we have especial reason to expect, amid the countless transformations attending growth and development, an early occurrence of the favorable reaction in which the disintegrating process ceases and repair of the damaged structures, so far as may be looked for, sets in.

As in the treatment of articular osteitis elsewhere, we seek to arrest the functions of the joint, which, in the present instance are two-fold; motion and weight bearing. We are early taught that the function of a joint is to give motion to the otherwise rigid skeleton, but it is only later, when we are perplexed with the treatment of diseased joints in the lower extremities, that we are impressed by the observation that one of the important functions of the bones, which go to make up the joints of the lower extremity, is

the duty of sustaining the weight of the body, or a large part of it, in standing, and of enduring the violent blows that are inflicted in rapid succession by the weight of the body in locomotion. Therefore, it follows that, as the function of the knees is two-fold, our efforts to arrest function must also be two-fold. We must 1, arrest motion, or fix the joint and we must, 2, relieve the joint of the duty of bearing weight. I prefer to do these two things, in the joint in question by two separate instruments, one of which, the fixative brace, is to be worn constantly, while the other, the protective splint, or ischiatic crutch, is used when the patient is up, and removed during the hours of sleep.

1. And first of fixation of the knee: it is one of the very simplest problems in mechanical surgery, made so by the presence in the limb of a bony lever above and below the joint (ginglymoid), which practically has no motion except in flexion and extension. How widely different from the problem of fixing the hip-joint which, a ball and socket, has flexion, extension, abduction, adduction and rotation, and practically no leverage at all above the joint. The fixative splint for the knee is simply a lever, making pressure from before backward at the place of motion, and counter-pressure from behind forwards at two points; one remote from the joint, at the upper part of the femur, and the other, also remote from the joint, at the lower part of the tibia. A bar of soft steel of suitable length is applied to the posterior surface of the limb. To it are attached four cross-pieces each cross-piece being riveted at the middle of its length, and curved so as to half encircle the limb. The upper and lower transverse pieces are applied to the limb with the intervention of pads, while the middle pieces do not necessarily touch the surface of the limb at all, but have at each end a buckle in which pieces of webbing are tightened over the limb in front; one piece of webbing crossing the lower part of the thigh and the other the upper part of the leg. If the apparatus is applied to a limb with the knee fully extended and the webbing straps tightly buckled, flexion of the knee is prevented and, as there is practically no lateral motion, this brace is an efficient means of fixing the knee, not immobilizing it, for immobilization, or the equivalent of bony ankylosis, is impossible by apparatus applied with the intervention of the vulnerable skin and the elastic and mobile subcutaneous tissues.

When the knee is fully extended, this fixative splint arrests motion, but when used in case of deformity it is a convenient and efficient means of bringing the flexed knee into extension. At the beginning the splint is to be applied with the upright bend to simulate the flexion of the knee, or to be a little straighter than the knee, and the straps are to be buckled more or less tightly, according to the tolerance of pressure, until after a few days of intermitting and gradually increasing pressure the flexion of the limb corresponds with the flexion of the splint. With care and judgment the upright of the splint is then to be still further straightened and the pressure re-applied by tightening the straps and buckles as before. In an ordinary case, coming under this treatment in the acute stage, this manner of correcting the deformity is easy, certain and painless, and we have the added satisfaction, while thus reducing the flexion, of arresting motion in the knee at the same time.

It seems paradoxical to say that we, at one and the same time, prevent motion and effect a change from flexion to complete extension. This calls to mind the peculiar condition of an inflamed joint, a condition in which the muscles in reflex contraction hold the joint motionless, and yet not so rigidly motionless but that it may be moved by a force gently continuous, painless and harmless. In the hip joint advantage is taken of this peculiar kind of immobilization, which is better called fixation, to correct the bad position of the limb, without mechanical force, by inducing the patient to adopt habitual attitudes and motions, chiefly the habit of walking in natural rhythm, in which a normal position of the limb gives the patient more convenience in locomotion than a deformed position. With the mechanical advantages found in the knee, however, we can change the position of the joint, regardless of the patient's habits or convenience, by directly applying force through the leverage of the fixative splint.

In this affection, as in all others producing deformity and disability through osteitis, the best ultimate result is to be sought incidentally while our principal efforts are directed to the promotion of recovery by the arrest of function. Fortunately, in white swelling of the knee the means of arresting motion, or fixing the joint, are identical with those with which the final good position of the limb is secured.

2. In the second place, we must relieve the affected joint from bearing weight in standing and walking, a problem very easy of solution by the use of a pair of crutches and a high sole on the well foot. But axillary crutches, though sometimes necessary, may in almost all cases occurring in orthopedic practice, be laid aside in favor of the perineal or ischiatic crutch. This, in its simplest form, consists of a steel upright, ending below in a foot-piece, shod with leather, and above in a horizontal semi-circular pelvic band, covered with leather, or better with hard rubber, carrying a padded strap for the reception of the os innominatum. The same apparatus is used in the treatment of hip disease in certain stages, except that in white swelling of the knee the rigid knee-piece is discarded. It is useful in order to prevent motion at the knee, which is harmful in hip disease, because it is inevitably accompanied by motion at the hip. It is useless in the disease now under consideration because arrest of motion at the knee is secured by the fixative splint already described. The ischiatic crutch is provided with a shoulder strap by which the weight of the apparatus is transferred to the opposite shoulder in walking and with the ordinary knee strap of webbing and the leather ankle strap. The upright should be adjustable in length to accommodate the growth of the patient or, if there are many patients, uprights of different lengths may be kept in readiness. Like any other crutch it is laid aside at night.

A CASE OF ABSENCE OF UTERUS.

BY O. M. DOYLE, M.D.

SENeca, S. C.

In September last I was requested to examine a colored woman under a warrant for insanity. She had been married about ten years and had never been pregnant. On inquiry, it was learned that she had never menstruated. Examination revealed a hymen

intact; very small, and to grow larger. It seemed a peculiarly favorable case for the symptoms present, and it was determined that an operation was indicated.

In presence of an assistant by Drs. J. S. Strickling and H. R. Hays, I proceeded to operate. First, as I supposed an imperforate hymen only. After opening the tissues, ordinarily making the structure I failed to reach a cavity beyond, and by keeping one finger in the os uteri as a guide, continued the dissection in the proper direction for the vaginal canal, at a depth of three or three and a half inches, a small opening or cul-de-sac was found; and, protruding into it from above was a body thought to be the uterus; but as this could not be found by external examination, the opening was sponged out and a Sims' speculum introduced, which enabled us to determine that the posterior portion of the bladder was the organ exposed by the operation—that portion depending below the fold of the peritoneum—just where the mouth of the womb would be in a normal case. To prove the correctness of the opinion as to the organ exposed, the bladder was catheterized which caused it to contract and pass out of sight.

Thorough exploration of the parts was made, with the conviction on the part of all present, that the woman had no womb. She was dressed antiseptically and put to bed; recovering from the operation in a few days.

SELECTIONS.

OPENING OF THE ARMY MEDICAL SCHOOL.

The Army Medical School was opened November 1 in the Library and Museum Building of the Surgeon General's Office, Washington, D. C. The Surgeon General, the members of the Faculty, the passed candidates and a number of medical men interested in the development of this new idea, gathered in the assembly room of the School at a little before 3 p. m. Colonel Alden, as President of the Faculty, opened the proceedings.

Surgeon General Sternberg's address occupied about half an hour. He expressed his gratification at meeting his audience under the particular conditions of the occasion, and congratulated the passed candidates on the facilities which the School would afford them, of learning from the practical experience of others what would otherwise cost them years of apprenticeship with perhaps many a mistake which they would have wished rather to have avoided. He congratulated them on having for teachers men who had been schooled in the practical work of the Army Medical Department, during the progress of a great war, and who were able now to review their early experiences in the light of a fuller knowledge than they possessed at the time. He thanked these officers for the earliest and helpful support they had given to his efforts for the establishment of the School and for the time and labor they had expended, while heavily charged with other important duties, in perfecting the arrangements for the course which was now commenced. This course would be a valuable one to the Medical Department of the Army, as well as to the individual officers. Young officers who were fortunate enough to be able to take advantage of it would perhaps never realize its full value. Only those who had experienced the difficulties, annoyances and anxieties which it would be the object of this course to prevent, could fully appreciate its value.

Up to this time a young medical man on being commis-

sioned in the Service found himself a military officer with no military knowledge or training, no knowledge of his rights, duties and responsibilities as a military officer. These would be taught to him at this School. By virtue of his commission he became a commanding officer and caretaker of men of the Hospital Corps, with no knowledge of military discipline, of drill regulations or of the methods of providing for the necessities or caring for the rights and privileges of the men under his command. These also would hereafter be taught to him. His responsibilities as a medical man were also infinitely greater than could be sustained by the knowledge which he had gained as a medical undergraduate during his collegiate course. He became a sanitary officer although he had no practical knowledge of sanitary methods. The duties required of him at a military post speedily showed him his deficiencies and he endeavored to remedy them, but had few facilities for accomplishing this. Oftentimes he had to depend on subordinates older in the Service than himself for his instruction; but instruction of this kind was liable to be tinged with errors and misapprehensions. He gained his experience under difficulties. Hereafter, however, all this will be changed. The Army Medical School will enable passed candidates to fall in for service fully equipped and competent.

It is not the intention to make an expert bacteriologist of every officer, but each would be expected to gain a thorough knowledge of the methods of bacteriologic research and of the practical deductions from the most advanced knowledge of this subject as bearing on the prevention of disease among the troops under his care. Bacteriologic study in its application to medicine is in fact but another name for preventive medicine. Nor is it the intention to make each officer a trained chemist. The object of the laboratory teaching on this subject will be to give such a knowledge of chemie practice as will enable the officer to conduct his sanitary inquiries with intelligence and accuracy. There is no such thing as a medical chemistry or a sanitary chemistry independent of the principles of general chemistry. These must be learned, and in proportion to the fullness of his knowledge of them is the ability of an officer to apply them to special uses in medical and sanitary inquiries. The Surgeon General hoped and expected that there would be a long continued future of usefulness before the school which was now being opened.

Colonel Alden then began his course on the duties of medical officers. He spoke of military discipline as constituting one of the distinguishing characteristics of military life, common to all branches of the service. There is nothing mysterious about this term. It simply refers to the prompt and unquestioning obedience due from subordinates to those in command, and which is essential to the efficiency of a military body. It is by no means confined to the military service. Where bodies of men have to be controlled, or where large and important interests are at stake, there is the same necessity for discipline and obedience, although from the absence of military forms and parade it is not so apparent. The discipline and obedience among the employees of the more important railroads illustrate this. The same thing is to a certain extent to be seen in large manufacturing establishments, and, coming to our own profession, the discipline in a civil hospital has necessarily to be strict because life and death are frequently at stake. The necessity for discipline in the Army, which may seem a little rigid in time of peace, becomes at once apparent if we remember that war is the normal state of the military man and that peace is to him but a time for preparation for war. The commander in the field must be promptly obeyed, implicitly and without question, or the success of the Army may be defeated. Military discipline implies a prompt, loyal and unquestioning compliance with the orders of a superior. Whether that discipline is irksome or not, depends largely on the temper with which the subordinate receives his orders. If he recognizes discipline as an essential feature of military life, surrenders himself to it cheerfully and takes pride in the promptness and thoroughness

with which he obeys orders there is no hardship in it. Obedience then becomes a mark, not of servitude but of loyal devotion to duty. The days of military despotism and tyranny have passed; the rights of the individual are so carefully guarded in this day and in our country that no one need fear that his liberty may be abridged or that unjust treatment will be sustained.

Colonel Alden then spoke of the importance of the sanitary side of the medical officers' duties, stating that it was chiefly to perfect this side of their education that the Medical School for young officers had been established. The position of the medical officer in the military body then occupied his attention; and Jonathan Letterman was cited: "A corps of medical officers was not established solely for the purpose of attending the wounded and sick; the proper treatment of these sufferers is certainly a matter of very great importance and an imperative duty; but the duties of medical officers cover a more extended field. The leading idea which should constantly be kept in view is to strengthen the hands of the commanding general by keeping his army in the most vigorous health, thus rendering it in the highest degree efficient for enduring fatigue and privation, and for fighting. In this view the duties of such a corps are of vital importance to the success of an army, and commanders seldom appreciate the full effect of their proper fulfillment. Medical officers should possess a thorough knowledge of the powers and capabilities of the human system; the effects of food, raiment and climate with all its multiplied vicissitudes; the influences for evil which surround an army and the means needful to combat them successfully. When medical officers consider this subject all their high, special and important duties will naturally occur to them."

In speaking of the position of the Medical Corps, Colonel Alden remarked that it was for no selfish purpose that its members cared for rank, rights or privileges. A better appreciation of the importance of the medical officer and the granting to him of larger powers for good would come with the increasing intelligence of the community, and would be hastened by the demonstration of the intelligence, scientific attainments and efficiency of the Corps. Rank fixed the pay and allowances of the medical officer and defined his precedence when serving in courts and boards, regulating also certain military courtesies due him. The military title was official and sanctioned by the usages of the War Department. Nevertheless, Colonel Alden seemed to consider it questionable whether medical officers had gained any in importance and consideration by assuming the military title of their rank, or whether they had not lost something. After these preliminary remarks on general points, he proceeded with an outline of his course on the duties of the military medical man, dividing them into three branches: 1, the duty of supervising recruiting to see that none but able-bodied and effective men entered the Service; 2, to prevent disease and preserve the efficiency of the troops, and lastly, to care individually for the sick and wounded of the Army.

Pathology of Influenza.—The author who is Prosecutor at the Marien Hospital at St. Petersburg, furnishes a detailed account of forty cases of grippé on which autopsies were performed. These cases were all of individuals who were otherwise healthy. On microscopical examination of the voluntary muscles, he occasionally found loss of the striae, however only in isolated muscle bundles. In three cases he discovered evidence of hemorrhage in the muscular tissue, and the resulting hematomas were so large that entire bundles of muscle-fibers were involved.

A closer microscopical examination disclosed the fact that there had been a parenchymatous bleeding, and probably a bleeding by diapedesis. In the vessels were found numerous small microorganisms, and it may be inferred from this that there was nutritive disturbance of the vessels. As the hemorrhages were invariably unilateral, the author concludes that the lesion involves the sympathetic centers.

Pachymeningitis hemorrhagica interna he found only in one case, but in 50 per cent. of the cases there was a hyperemia of the pia, and in two cases even bloody infiltration. Suppurative cerebral meningitis was found in one case. In those cases with bloody infiltration of the pia, there was found besides, hemorrhage into the lateral ventricles.

As a general rule, Kussow found the heart muscle soft, friable and anemic.

A microscopical examination showed a calcification of the muscle cells, loss of the striae of the shorter muscular fibers, while the longer fibers were unusually prominent. Fatty degeneration was not found.

In a preparation stained with Müller's fluid, Kussow found enlargement of the muscle cells, with changes similar to those found in typhoid lesions of the bowels. Hyperemia and infiltration of the pharynx and larynx, he found occurred quite frequently.

Careful examinations of the capillary vessels of the lungs and bronchi were made. The author calls special attention to the frequency of lobar inflammation. In eight cases he found purulent infiltration, and of these six resulted in gangrene.

The gangrene spots as well as the purulent ones, were wedge-shaped, with their bases towards the pleura. Capillary thrombosis, such as is described by Klebs, he seldom found, but when so found it occurred in fibrinous plugs. Venous thrombosis was much oftener discovered, as was also arterial thrombosis, but the latter not so frequently as the former.

The spleen, in the majority of cases was contracted; only twelve were found to be enlarged. These were also microscopically examined. Changes in the intestinal canal were often found. Peritonitis was never discovered, but the kidneys were usually affected.

In conclusion, the author decides, on the strength of his numerous investigations, that influenza may be divided into two forms: 1, hemorrhagic; 2, pyemic or septic-pyemic form, with purulent and gangrenous inflammation of the lung tissue and frequent metastases in other organs.—*St. Petersburg Medicinische Wochenschrift*.

Urethritis in Abeyance during Acute Pneumonia.—Boyd has reported, in *Wiener Medizinische Presse*, No. 21, 1893, a case of a male of 18 years having profuse gonorrheal discharge, with marked pain on micturition, at the time of admission into hospital. Four days later, he came down with a sharp attack of croupous pneumonia of the left lung, and during the next day all the urethral symptoms subsided. On the tenth day, on the inception of convalescence from pneumonia, the former symptoms returned with all their original virulence. Bartholmey has seen two analogous cases where, during the acute stage of typhoid fever, a preexisting urethritis was not observed. One of these cases had an epididymitis on the seventh day, going to show that the gonorrhea had not been cured, but had simply been in abeyance.

The Mississippi Valley Medical Association.—We extract the following from our esteemed contemporary, the *Indiana Medical Journal*. The truth is that the constitution referred to has not yet been printed and we have therefore no data at hand from which to verify the statement of our contemporary. From what we learned from Dr. Reynolds, however, we are of opinion that the statement in regard to geographical limits is too sweeping:

"The Mississippi Valley Medical Association is, by virtue of the amendment to the constitution carried through at the Cincinnati meeting in 1892, a national society. Practically it is nothing of the sort. There is one national, general medical organization, the AMERICAN MEDICAL ASSOCIATION; there is no need and no place for another. No one seems to know and no one seems to be able to find out just why this change was made. It appears to have been a case of 'follow my lead,' but, we think, in a wrong direction. This year, as heretofore, the effort to give the Association a national character, was a failure. It were hardly too

much to say it has been a farce. Outside the section of country bounded by Pittsburg on the east, Kansas City on the west, Detroit and Chicago on the north, and Kentucky on the south, there were not, so far as we know, ten physicians present. The Association, originally the Tri-State Society, would, we can not but believe, better fulfill its mission by devoting itself to the cultivation of scientific medicine and friendly intercourse among the physicians of the great Central West. The attempt to do more looks like an unnatural inflation and has an unpleasant significance to many who believe that one general medical association, embracing the nation, is sufficient and should command united support. With the various district societies around us—the new Tri-State, the Southern Surgical and Gynecological, the Missouri Valley, and others, and the American Medical, embracing all, the Mississippi Valley Association finds its true place and its real opportunity in its old field. It is to be hoped that it is not too late to bring it back to its original and logical position."

The Discovery of Modern Surgical Anesthesia.—The *Virginia Medical Monthly* for October contained an article by the editor of this journal entitled, "A Contribution to the History of the Discovery of Modern Surgical Anesthesia." The object of the communication was to place before the profession some new data relative to the claim of the late Dr. Crawford W. Long of Athens, Ga., as the original discoverer of the anesthetic property of sulphuric ether. These data pertained mainly to the alleged relations existing at the time of the discovery (1841-42) between Dr. Long and a young man, P. A. Wilhite. This Wilhite afterwards became a practicing physician at Anderson, S. C., and it was through information received from him in 1876 that Dr. J. Marion Sims presented the case of Dr. Long to the profession (*Virginia Medical Monthly*, May, 1877). The paper of Dr. Sims was very unsatisfactory to Dr. Long. It contained many errors, the principal one relating to Wilhite himself.

Sims' article makes it appear that Wilhite and three other young men were students in Dr. Long's office prior to the events of 1842; that Wilhite related to Dr. Long how he had playfully etherized a negro boy in 1839, and that Dr. Long was encouraged from this story to believe that ether might be used to prevent pain in surgical operations.

Our own paper was prepared from certificates, correspondence and other data which had been gathered by Dr. Long in support of his claim, and which were kindly placed in our hands by the Long family. Some of these papers are from Dr. Wilhite himself. One of them certifies that he entered the office of Dr. Long in October, 1844, and that he heard Dr. Long speak of having used ether to prevent pain in surgical operations, etc. As to the negro boy incident, Dr. Long appears to have known nothing about it until nearly forty years after it is said to have occurred, and then it was related to him for the first time by Dr. Wilhite.

From the evidence before us we were sure that Dr. Wilhite had achieved a prominence in connection with this matter which he did not deserve. His own letters to Dr. Long (which Dr. Sims never saw) relieve him from all possibility of credit in this connection. One of them (Jan. 16, 1877) urges Dr. Long to furnish Dr. Sims with certain information in order that he (Long) "might, and justly too, receive the credit of this great discovery." Wilhite told Sims in 1876 that "Long was the real and original discoverer of anesthesia, and believed he would be so acknowledged if all the facts in the case were fully set forth." So, from all the evidence, including Wilhite's own testimony, it becomes certain that he could not have furnished Dr. Long with any assistance or suggestions whatever.

Dr. Long himself stated that he received his first intimation of the anesthetic possibilities of ether from observing a number of young men inhaling it in sport. Several of them received small injuries, but felt no pain until the effect of the ether began to pass off. His first opportunity to test the ether in surgery came March 30, 1842, when he removed a small tumor from the neck of James Venable. Other operations followed somewhat slowly, and Dr. Long waited for a case of capital surgery before publishing his results already obtained. Then it was that his New England contemporaries were making their observations. Their first case was operated upon Oct. 16, 1846, and it took them

just eleven days to put it their ether, and then publish to the world their great "invention."

Thus it happened that the credit of this discovery, the "priceless gift of applied anesthesia" has been bestowed upon certain parties while belonging properly to another. But the profession has begun to recognize the merits of Dr. Long's case, and the time is almost at hand in our medical history when he will occupy the position which he eminently deserves, as the real and unassisted discoverer of anesthesia.—Editorial in *Atlanta Medical and Surgical Journal*.

Probable Cause of the Limp of the First and Second Stages of Hip-Joint Disease:—By HARRY M. SHERMAN, A.M., M.D., San Francisco, Cal.—There has never been published a satisfactory explanation or even description of the limp of hip-joint disease. Gibney and Barlow speak more fully than the rest, but do not explain the cause and mechanism of it. The writer then gives his explanation. At first he shared the quite general belief that pain and limp are practically one and the same symptom, the limp being due either to the pain directly, or to the effort to avoid pain. But lately he has seen so many cases of limp without pain that he differentiates the two symptoms, and regards them as independent of each other. The author has found that in the vast majority of his cases the initial lesion lies in either the head or the neck of the femur. The region attacked by the disease becomes a mass of infected granulation-tissue. The bone-trabeculae are wasted; that is, there is destruction of functioning tissue, and hence the function of the bone is impaired proportionate to that destruction. This structural weakness is not necessarily a late process, but is contemporaneous with the initial lesion.

As the head of the femur is at a distance from the center of gravity, the weight of the body throws a considerable strain upon the neck of the femur. The nearer under the center of gravity the femur is placed, the less is that strain. Under normal conditions there is with each step a tendency to assume such a position, namely the swaying from side to side. In the first stage of hip disease the limp is at first only a slight increase of this sway, and can be seen only when looked for, and when the gait is not faster than a walk. "During this first stage, while joint motion is checked at the extremes, it is still ample for the purposes of locomotion, and none of the stiffness which is so marked later in the disease is apparent." In the second stage, the area of infected bone increases and muscular rigidity lessens the joint motions. Consequently the lateral sway increases, and progression on the affected limb is shortened. The lateral sway soon reaches a maximum and is constant there, but is combined with other unusual movements, resulting from the crippled condition of the joint. Crippling of extension causes the "element of stiffness," but is in part compensated for by the slight extension between the lumbar vertebrae. Later, flexion is curtailed and proper advance of the foot is impossible; and whatever is accomplished is assisted by the swinging forward of the body by a rotation at the opposite hip. Still later, rigid flexion permits too little extension to let the heel touch the floor, and the patient walks on the toes with an up and down motion, and with great lordosis of the spine.

All of these motions are caused by two elements: 1, the lateral sway; and 2, the lessened joint motion. The lateral sway begins as an increase of the normal movement, grows into the swing which brings the body weight exactly over the head of the femur; and is an act instinctively taken to lessen the strain upon the structurally weak portion. It is neither a limitation of a normal movement nor an increased compensatory motion in other articulations; but is an independent motion, and "has all the semblance of a means adapted to an end."

The explanation offered suggests the presence of a "home-sense" by which the appreciation of the work done is transmitted to the central nervous system. If there is a muscle-sense, why not a bone-sense? The bones are supplied with the grosser sets of nerves as well as the other living tissues

of the body. In some tabetic cases the bone-sense, as well as the muscle-sense, is apparently lost; as in one of the writer's cases in which the patient walked upon a disorganized great-toe joint "with neither limp nor pain; that is, he put upon the diseased and weakened bones the same strain that he did upon the sound ones," which is ordinarily not the case even when there is no pain.

Osteo-sarcoma of the femoral neck causes the same structural weakness of it that hip-joint disease does, and therefore a perfect imitation of the hip-limp.

A Contribution to the Study of Club-Hand.—By REGINALD H. SAYRE, M.D., Orthopedic Surgeon to Bellevue Hospital Outdoor Department.—Congenital club-hand is a rare deformity. Club-hand resulting from an injury to the central nervous system, or to an unsuspected fracture of the bones at the time of birth, is not strictly speaking a congenital affection. In congenital cases there are three varieties: 1, the skeleton is complete and well-formed; 2, the skeleton is complete, but ill formed; 3, the skeleton is incomplete and distorted.

The general belief is that most of the cases belong to the third variety. The writer has seen in all five cases, only two of which belonged to this division. In four of the five cases club-foot in one form or another was also present.

In milder cases, manipulation and retention in the improved position with plaster-of-paris is of great benefit. In severer cases, section of tendons, ligaments and fascia may be necessary. Open section is often preferable, and when the flexors are involved it is better to operate in the arm, cutting the tendons diagonally, slipping the ends by each other until the required length is gained and then suturing. Two of the author's cases were due to great contraction of the flexors of the fingers, but neither of them came to operation. In a double case, which is still under treatment, manipulation and plaster-of-paris is doing good work. In another case, also under treatment, the child has right club-hand, right club-foot and left lateral curvature. The whole right side of the body is less developed than the left, possibly due to disuse, the right hand and foot being so deformed as to prevent even moderate use. The club-foot was recently cured by an operation. In the club-hand, the radius and thumb are absent, together with the first metacarpal bone and several of the carpal bones, exactly which ones it is difficult to make out. The hand was perpendicular to the arm on the radial and flexor side, the ulnar being curved 80 degrees to the radial side. The carpus did not articulate with the ulnar, but was drawn up above its distal end, and was attached to it by means of firm ligamentous bands.

The writer first performed an osteotomy of the ulnar and corrected the curve. After an ineffectual attempt, by several weeks of traction, to lengthen out the ligaments so that the carpus could be brought down to the end of the ulnar, he cut down upon the ulnar and separated all the ligamentous attachments from it, but even then could not draw down the carpus sufficiently, and he therefore removed two carpal bones which he thought were the os magnum and the ulniform. The tip of the styloid process was then cut off, and the end of the ulnar was inserted into the gap left by the removal of the carpal bones. The hand was dressed in the straight position, and after three weeks, passive movements of the wrist were begun with the object of creating a serviceable joint if possible. The operation benefited both the position and the usefulness of the hand, although an apparatus is still worn to give strength to the wrist and to preserve a better position of the ulnar, which tends to slip a little from its position unless thus supported.

The treatment of club-hand must depend upon the conditions existing in each individual case. The writer's operation is the first one of the sort reported, so far as he is able to learn.

Blank Applications for membership in the Association at the Journal office.

Abstract of paper read at the Pan-American Medical Congress.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE,
PER ANNUM, IN ADVANCE, \$5.00
SINGLE COPIES, 10 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 68 WARASH AVE., CHICAGO, ILLINOIS
F. J. REBMAN, LONDON AGENT, 11 ADELPHI STREET, STRAND, LONDON

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION

This is obtainable, at any time, by a member of any state or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Dunglison, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues and subscription for THE JOURNAL. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

All members of the Association should send their Annual Dues to the Treasurer, RICHARD J. DUNGLISON, M.D., Lock Box 1274, Philadelphia, Pa.

SATURDAY, NOVEMBER 18, 1893.

MEDICAL STUDY OF CRIME.

Within the past few years a new field of medical study has been opened which promises a great revolution in both the theories and practice of science. The prison physician who makes one or two visits a week and gives salts and quinin, or who makes cursory examinations to detect feigned diseases, is suddenly confronted with a new realm of science. The coarse abnormal features, the cringing manners, and strange histories of criminals, tell the story of disease and degeneration never dreamed of before. These poor victims are found to be types of a distinct class that spring from certain distinct causes and conditions, and follow a uniform line of degeneration in obedience to a law that can be traced in part. The study of the criminal by the Italian physicians has opened up this new realm, and pointed out the physical signs and symptoms of disease. From this point of view, crime is a symptom of brain degeneration, and is controlled by laws and conditions that are not influenced by the present methods of treatment. In England, for a period of over twenty years, the prison population has been noticed to follow a regular ebb and flow yearly. The number of inmates would steadily increase up to July, when it reached its highest yearly level; then receded to the month of February when the lowest point would be reached. This has been unvarying—year after year. Why the smallest number of prisoners should be noted in February, and the largest number appear in July, is unexplained. Why crime is more prominent in warm weather, and why prisoners confined in prisons are more difficult to manage in the summer are some of the many problems.

The presence of a criminal class who are indigenous to the country, is very possible in the old monarchies of Europe, but whether they exist in this country or are likely to spring up from certain germ causes

is not clear. Crime and criminals of large cities seem to indicate that a new class of offenders are coming into prominence. The question for the prison physicians to determine, is the heredity of criminals, the influence of seasons, climate, social status, occupation, education, poverty, and other factors which enter into the history of each one. The records of crime are the only general facts now made, with some facts concerning the associated diseases common to prison populations.

Are criminals a distinct class in this country, whose crime is always the same, and whose physical appearance indicate these abnormalities of conduct? Are such persons defective physically and mentally? Are they growths of degenerative inheritance from a past generation? or are they the products or growths of environment? Is the present method of treating crime curative or preventive? or does it increase crime and make the criminal more incurable? Are there physical conditions beginning in childhood that develop into criminality? Are there any mental defects or diseases, injuries or brain states, that naturally predispose to crime? Are criminals who commit crime against persons different from those who commit crime against property? These are the questions that have come into prominence by the works of Lombroso and others of this new school. Already some of these questions have been answered, and the facts and statistics on which they are based indicate a very suggestive and startling field of inquiry. While this is comparatively a new topic, already the list of papers and works published in Europe and this country amount to over a thousand in number. Over a hundred papers and monographs mostly in German, French and Italian, are devoted to a study of the physical symptoms of criminals. A late volume "On Abnormal Man," published by the Bureau of Education at Washington, D. C., 1893, gives a very extensive bibliography of the literature of this subject.

The prison population in this country is very large, and is no doubt as carefully housed and treated medically as in any part of the world. Yet, strange to say, very few medical men connected with prisons have made any contributions to these topics. A few clergymen and others have appeared in papers that were largely repetitions of the ideas of some foreign authors, and beyond this little or nothing has been done. The work of Dr. Wey at Elmira, New York, is a cheering exception, and shows what a great field of medical study is all unoccupied in this country.

Already the work of the medical man in a prison is found to be something more than dealing out pills and powders. Crime and criminals are not to be prevented and cured by walls and locked cells. The physician must help to solve this problem with his

studies of symptoms and cases, and conditions that make up the criminal. As an index of the profound ignorance of these new questions, and the value of medical care and knowledge, a prominent Eastern prison is an example. The physician, a recent graduate, receives \$100 as a yearly salary, and makes one or two visits a week to a population of 500. The chaplain receives \$800 a year, for a single service on Sunday.

It is pleasant to realize the fact accorded by foreign authorities, that American physicians are pronounced leaders in many departments of medical science to-day. But it is a source of extreme regret that American prison physicians should be practically unknown in this new field of medical study.

BACTERIOLOGIC EXAMINATIONS REGARDING MEMBRANOUS CROUP, BY THE NEW YORK CITY BOARD OF HEALTH.

DR. HERMAN M. BIGGS, chief inspector of contagious diseases, under the New York City Department of Health, has made a provisional report concerning his bacteriologic work for four months. During that time, Dr. Biggs has had occasion to examine thirty-six reported cases of membranous croup. In all these cases, the membrane was limited to the larynx, or only slightly extended into the pharynx. There was found, in thirty of these cases, the diphtheritic bacillus of LOEFFLER, often quite abundantly. These cases were, therefore, really cases of laryngeal diphtheria. In the remaining six cases the LOEFFLER bacillus was not found. These were, therefore, cases of catarrhal pseudo-membranous inflammation of the larynx, and are analogues of the non-diphtheritic cases of pharyngitis marked by a similar pseudo-membranous exudation. In none of these six cases of croup, was the laryngeal disease preceded or followed by pharyngeal inflammation having the LOEFFLER bacillus in the exudate. In five of the cases of laryngeal croup, having the bacillus in the membrane, there was a pharyngeal diphtheria both before and after the laryngeal trouble. In fifteen of these cases pharyngeal diphtheria neither preceded nor followed the attack. Three of the cases were preceded by pharyngeal diphtheria, while seven were followed by that complication. So that during the last four months nearly 81 per cent. of the cases of reported croup, referred to the Department for examination, proved to be genuine diphtheria. Acting upon this report, the Department will probably adopt a rule calling upon physicians to report all cases of laryngeal croup, and to isolate the sick from the well.

THE ADVERTISER AND THE MEDICAL JOURNAL.

WE notice that some of our contemporaries are very much exercised in mind on account of the fact

that THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION receives its share of advertising patronage, and they take occasion to read a lecture to the Trustees of this JOURNAL for publishing some advertisements. None of them have dared to specify what particular advertisement they would have omitted. One of our critical contemporaries stole the lecture from an Eastern publication, without an iota of credit! This is a charming illustration of the high grade of morality practiced by some of the lecturers in question. It might not be altogether out of place if we mention, quietly and with bated breath, that the very advertisements which the respected editors civilly about, appear in full display in their own advertising columns. Nay, more; in the medical publication which originated the most recent lecture, there appear two advertisements which were declined by the advertising department of this JOURNAL. The moral of this interesting story is plain. That is, that an advertisement may be printed by a publisher's medical journal without question. But when a journal managed solely in the professional interest publishes the identical advertisement, the latter journal's course "brings a blush of shame to the cheek," et cetera, et cetera. We venture to suggest to our dear brethren that an occasional leader on sincerity, based on practice, might be of great service to them. The novelty of such writing would also give the writers a new sensation.

A LIBRARY FOUNDED BY DR. ROBERT BATTEY.

As announced by the daily press, and published in this JOURNAL last week, this well-known surgeon of Rome, Ga., has expressed his intention of giving one thousand volumes of his most valuable books to the State Library of his State. He asks that these volumes be made the nucleus of a medical reference library to which other physicians will freely contribute in the future, if his suggestion is suitably met by the officials at the State capital. The need of the profession for such a reference library is one which has been often realized by him during his long and useful career. It is his chief anxiety that his gift shall be suitably housed and made practically serviceable.

LAY EVIDENCE OF INSANITY.

A general rule of law forbids witnesses, not experts, testifying as to a mere opinion. In some courts the line is drawn so closely that non-expert witnesses are not allowed to testify at all, touching sanity or insanity as a physical fact. By the great majority of courts, however, such evidence is regarded as no violation of the general rule, and is admitted, says the Supreme Court of Nebraska, in the case of *Shults v. State*, decided June 30, 1893, and just reported in 55 N. W. Rep. 1080. Still this view of

The greatest danger of the introduction of disease into Michigan, at least so far as it is practicable to guard against it, is in the baggage of immigrants; for the reason that the quarantine and immigration inspections at our Eastern seaboard are likely to stop any person actually sick with a dangerous communicable disease. This is particularly true relative to cholera. And in the case of cholera, the germ of the disease is so easily destroyed that there is reason to suppose that a method of disinfection which is not sufficient for some diseases might be sufficient protection against cholera. As a rule, baggage of immigrants coming through the port of New York is not disinfected; no attempt is made at disinfection. For several months past, that coming through the Dominion of Canada has been subjected to such disinfection as was considered by the Dominion quarantine officer to be sufficient to destroy the infection of cholera.

If the methods and practice of disinfection of the baggage and luggage of all immigrants at our Eastern seaboard were such as to inspire confidence as to sufficient protection against all dangerous diseases, Michigan, notwithstanding its position on the frontier and in the track of travel of most immigrants to this country, might rest content without maintaining a quarantine.

The hope has been that, seeing the demand of Michigan for better protection from those other diseases which experience has proved are in Michigan of more consequence than cholera, the quarantine officers on our Eastern seaboard, or the United States officers, would take measures to so disinfect the baggage of all immigrants as to make it unnecessary to detain baggage for disinfection at the Michigan border. The United States Government gave to its Marine Hospital Service an immense appropriation; therefore it was hoped that it would establish a system of disinfection of all baggage of all immigrants, as was voted to be desirable at the meeting last spring of delegates from the State and Provincial Boards of Health. The Dominion of Canada adopted the recommendation of the State and Provincial Boards, so far as to provide steam disinfection of all baggage not injured by steam. This, with another provision which the Dominion officers thought sufficient to protect against cholera, has been in force at Quebec. Although the Michigan State Board of Health has endeavored to guard against the introduction of other diseases than cholera, and accordingly its rules have required and still require more than is done by the Dominion of Canada, yet, at this meeting of the Board the following resolution was presented by Prof. Fall:

Resolved, That the action of the Dominion of Canada in disinfecting the baggage of all immigrants from Europe coming into its territory and the establishment of its admirable appliances for this purpose as described by Dr. Montzambert, at the recent meeting of the American Public Health Association at Chicago, meets our most hearty approval. We commend earnestly this action of Canada to the United States Government and hope that similar disinfecting plants be established by it at United States Atlantic ports and that the baggage of all immigrants to this country be disinfected. We ask that this be done, not alone that we may be saved from threatened invasions of smallpox and cholera, but also that a vastly greater saving of lives may be effected from measles, diphtheria, scarlet fever, pneumonia, consumption and other diseases which are of much more serious concern to the people of this country than cholera or smallpox."

This meeting having been called especially to consider the prevention of the introduction and spread of dangerous diseases in Michigan, and a full year's work having just been completed, the first quarantine rules in the present threatened epidemic, having been issued Sept. 6, 1892, Dr. Baker suggested a review of the principal lines of effort which have been put forth by this State Board of Health, and a proper

recognition of the efforts which have been so remarkably effective in the preservation of the public health in Michigan. The first recommendation which issued from the office of the Secretary of the Board a little more than one year ago was a plea for such a thorough cleaning up throughout the State, with especial reference to water supply and the disposal of excreta that if cholera gained an entrance it should not find the conditions favorable to its spread. An important method, many times recommended by this State Board, was the house-to-house inspection followed by the abatement of all nuisances found. Another line of work, in which the local Health Officers cooperate with the State Board, is the surveillance of immigrants in order to be prepared for any dangerous disease which might be brought by them or by their baggage. This has been possible through the notices supplied to the State Board by United States immigration officers and by inspectors at the Michigan border; and although it has cost the office of the State Board much labor it is believed that it has been worth what it has cost.

The effect of the extra sanitary work in Michigan was at first very marked and on the whole has been worthy of note. During the first quarter in which the extra work was unusual—being the last quarter of 1892—the sickness statistics showed a remarkable lessening throughout the entire list of diseases. This was mentioned in the published proceedings of this Board Jan. 13, 1893. During the first quarter of 1893, the sickness statistics show that smallpox, cholera morbus and scarlet fever were more than usually prevalent, but that many diseases including consumption which is the most dangerous disease of all were less than usually prevalent. During the second quarter of 1893, the statistics show that scarlet fever and diphtheria were more than usually prevalent and a few diseases were less than usually prevalent. During the third quarter of 1893, the statistics show that a few diseases including consumption, were less than usually prevalent in Michigan, and that "no disease was more than usually prevalent." Thus, on the whole, notwithstanding the great immigration and the threatening of cholera and other diseases from abroad, there has been less sickness than usual, entire freedom from cholera, and nearly complete freedom from smallpox.

Dr. Baker offered as a substitute for the resolution offered by Prof. Fall, preambles and resolutions as follows:

WHEREAS, Michigan has been remarkably favored by comparative immunity from dangerous diseases during the past year, while cholera has been and still is prevalent in most European countries, and smallpox and other dangerous diseases also have been, and smallpox still is, prevalent in some parts of the United States, and

WHEREAS, It is believed that this comparative immunity from disease in Michigan has been largely due to enlightened efforts by sanitary officers, governments, corporations and individuals, not only in Michigan, but in our neighboring Dominion of Canada, in the States eastward of Michigan, in the United States Government, and in foreign countries, and

WHEREAS, This Board deems it wise to recognize these facts, to govern our future action accordingly, and to commend these agencies which tend toward the welfare of our own people, therefore

Resolved, That the Michigan State Board of Health commends the action of all those individuals, corporations, communities, and sanitary officers in Michigan, who have wisely done what was practicable to be done toward the prevention of the introduction or spread of disease in our midst, whether such action was sanitary surveillance of immigrants, sanitary inspections of premises, abatement of nuisances, or the prompt restriction of a dangerous disease.

Resolved, That the action of the Government of the Dominion of Canada, in providing for the disinfection of the baggage of all immigrants, is worthy of mention and commendation; that the action of the Grand Trunk Railroad of Canada in disinfecting all immigrants' baggage, carried by that railroad, destined to settle in Michigan, in accordance with the rules of this Board, is especially worthy of mention

and of hearty commendation; that the action of the Canadian Pacific Railway in disinfecting at Detroit, and also for a time at Sault Ste. Marie all such baggage destined to settle in Michigan, is also to be warmly commended, and it is regretted that such commendation can not properly be extended to its branches in the Upper Peninsula of Michigan.

Resolved, That the quarantine officers on our Eastern seaboard are to be commended for their apparent success in keeping out persons sick with cholera, and that the United States authorities are to be commended for the inauguration of systems of disinfection of immigrants' baggage at the foreign ports of departure.

Resolved, That this Board warmly indorses, as it has heretofore earnestly advocated, the plan for the disinfection of all baggage of all immigrants at all times, and for other diseases than cholera, as it was recently unanimously voted by the Sanitary Section of the Pan-American Medical Congress at Washington.

Resolved, That although sanitary measures have been and are increasing in efficiency, and the winter season is now approaching, yet cholera infection centers are scattered throughout Europe, and there is still danger of that disease reaching this country, and many of the communicable diseases most dangerous in Michigan are constantly liable to be brought in by immigrants, therefore this Board expresses the hope that all will continue to act for the exclusion of disease, and for the restriction of any dangerous disease within our borders, several of these diseases being of vastly more consequence than cholera.

The resolutions offered by Dr. Baker were not supported. The resolution offered by Prof. Fall was adopted.

At this meeting the Secretary read a paper on defects in the present quarantine law, considered from a social science standpoint. He thought it none too early, while the work under the law was fresh in mind to study the facts and reasons why some of the plans of the present law were defective, with the view of formulating amendments in time to have them well considered, discussed and perfected before the hurry incident to a meeting of the Legislature shall make such work impossible. As a starting point he read a proposed new section of law. One point in his paper was agreed to by the President, but no formal action was taken on the subject at this meeting. The next regular meeting of the Board is the second Friday in January, 1894.

The State Board of Health of Pennsylvania.—The State Board of Health, in a proclamation dated November 1, declares smallpox to be epidemic in Reading, and has issued orders and regulations looking to the prevention of the spread of the disease.

The Board calls attention to the fact that as the weather becomes colder the ventilation of houses and public conveyances will be diminished, and the tendency of the contagion to spread greatly increased, and that the germs of the disease can be transported the entire length of the State in twenty-four hours.

The Board orders that all borough councils which have not established Boards of Health, as required by law, do so without further delay. All Boards of Health are requested to report immediately to Dr. Benjamin Lee, Secretary of the State Board, the existence of the first case of the disease within their jurisdiction, and to make weekly reports thereafter of additional cases, deaths, treatment, vaccinations and precautionary measures, and also to publish a copy of the report in the local newspaper. It is also ordered that all Boards of Health determine on a location for an emergency hospital for use if necessary, and make provision for free vaccination of those unable to pay for the service of a physician.

County commissioners and poor directors are enjoined to be in readiness to provide emergency hospitals, nursing, medical attendance and food for persons stricken with the disease, not residing in incorporated municipalities and who are unable by reason of poverty to provide themselves with these necessities.

All city or borough councils or Boards of Health not having in force efficient regulations for the prevention or sup-

pression of smallpox are enjoined to adopt a set of regulations promulgated by the State Board of Health, which are declared in force in all places having no local Board of Health.

The regulations provide for the vaccination of adults and children who have not been vaccinated, and rule that no pupil shall be allowed to attend school who has not been vaccinated within seven years. School officers and teachers must immediately report the discovery of a case of this disease among the scholars, and any householder shall immediately report a case in his family. Physicians must also report cases that come to their knowledge. Every infected house should be marked with a placard or flag.

There are further regulations regarding the burial of persons dying from smallpox, the visits to public places of people from an infected house, the riding in public conveyances of the same, and disinfection.

For the purpose of the proclamation all cases of varioloid shall be considered as smallpox. Failure to obey or violation of the regulations is punishable by a fine of \$100.

To Hold Sanitary Conventions.—The State Board of Health of Iowa has decided to hold a series of sanitary conventions during the coming year.

Yellow Fever.—One new case of yellow fever was reported at Brunswick, Ga., November 6. Surgeon H. B. Carter of the Marine Hospital Service, is also reported as seriously ill in the camp near that place.

BOOK NOTICES.

The Cholera Epidemic of 1892 in the Russian Empire; With Notes upon Treatment and Methods of Disinfection in Cholera, and a Short Account of the Conference on Cholera held in St. Petersburg in December, 1892. By FRANK CLEMON, M.D., St. Petersburg, London and New York: Longmans, Green & Co., Chicago: The W. T. Keener Company. Price, \$3.00, 1893.

This book contains an account of the epidemic in Central Asia and Siberia, the epidemic in the Caucasus and European Russia, its distribution, method of spread, influences which determined the intensity of the epidemic, the famine and the cholera epidemic, the measures of the Russian Government (which includes an outline of the scheme of defense), measures on the Persian frontier, in Trans-Caspia on the Caspian Sea, and in the Caucasus, railways and water ways (particularly the Volga), the various notification forms and orders relating to disinfection, notes on the treatment of cholera in St. Petersburg and the prophylaxis there. The last chapter is given to the Russian Conference on cholera which was held in St. Petersburg, December, 1892. The governor of each province, or government throughout the country, was requested to select one or two physicians who had had personal experience of the epidemic in the previous summer. The total number of members thus summoned was 312. They met on December 13, O. S. (December 25 of our notification), and on all the seven succeeding days meetings were held daily in Michael Palace, and the sub-committees met in the medical department of the Ministry of the Interior. The transactions of this Conference fill a large volume and, says the author: "The experiences of the members, who it must be remembered came from North and South, East and West, from the snows of Siberia to the tropical heats of Central Asia, from the mountains of the Caucasus to the plains of the Volga, all fresh from a life and death struggle with the ravages of cholera, afford material of no little interest to any one who is able to read them in the language in which they were communicated."

It seems we, in this country, have had little knowledge of the disastrous ravages of cholera as it prevailed in Russia,

as the figures show the total of cases in the Russian Empire for the epidemic of 1892 was 555,910 and 267,880 dead. It should be remembered, in this connection, that the means of disinfection and the sanitary measures adopted were fully in accordance with the latest teachings on the subject. A reading of this book will increase our thankfulness that our country has again escaped a visitation during the present epidemic.

The Blot Upon the Brain; Studies in History and Psychology. By WILLIAM W. FLETCHER, M.D., Edinburgh. New York: G. P. Putnam & Sons, Edinburgh: Bell & Bradford. Chicago: A. C. McClurg & Co. Second edition, pp. 398. 1893.

This book is a study of diseased functions of the brain, such as hallucinations of sight and hearing, hereditary neuroses, fixed ideas, unconscious cerebration, wordless thought and relation of words to thought, left-handedness and right-handedness, mirror writing, and of the dual functions of the double brain. It is rare that an author is enabled to invest highly scientific literature with the charm of romance or with the attractions of historic details, but in this case, under the illustrations of the "Insanity of Power," the author has spoken of the debasing effect of unchecked power, and gives as examples the Claudian Julian family, Augustus, Drusus, Julia, Tiberius, Caligula, Mohammed, Ivan the Terrible, etc. Under hallucinations he refers to the character of the hallucinations of Mohammed, Martin Luther and Joan of Arc, and the cases cited through the book are of a most interesting character. The style of the author is unusually entertaining, and it certainly adds no little to the value of the book that one is able to read it, without at the same time undergoing severe mental discipline.

System of Genito-Urinary Diseases, Syphilology and Dermatology. By various authors. Edited by PRINCE A. MCKIM, M.D., Clinical Professor of Genito-Urinary Diseases in the University of the City of New York. Vol. II, Syphilology, pp. 917. New York: D. Appleton & Co. 1893.

In this volume, which has been devoted to the general study of syphilis, modern bacteriologic researches are given a prominent place, and the relations of syphilis to tuberculosis, rachitis, tabes, and many obscure diseases of the nervous system have received consideration. The relation of syphilis to the public health and its socio-economic aspect have been touched upon. The wants of the practitioner have been cared for by giving a practical turn to the various articles. The illustrations are superior to those ordinarily encountered in works of this class, and the publishers call attention to certain new methods by which photography and lithography have been combined. The type-gravure process in colors is employed in several of the works, and the illustrations, as a class, are finer than have appeared in any work submitted to us during the year. The half-tone reproductions are superior to any that we have seen elsewhere. We have no hesitation in saying that this volume surpasses any recent work on the subject which has fallen under our observation.

An Elementary Text-Book of Biology: Comprising Vegetable and Animal Morphology and Physiology. By J. R. ARNSWORTHY, B.A., Professor of Biology and Geology in the University College of Wales, Aberystwyte. With numerous illustrations and glossary. Second edition. Vol. II. Price 8500. London: Charles Griffin & Co. 1893.

This work is divided in two parts, of which Part I is devoted to Vegetable Morphology and Physiology, and Part II to Animal Morphology and Physiology. As a text-book, and not less as a book of reference, it deserves a place in the library. The work is especially valuable at this time, when our schools are demanding higher requirements as preliminary to continuation. It will be found almost indispensable

to those wishing to obtain a thorough groundwork for bacteriologic study. Two centuries have passed since Francis Redi published his classical experiments, *De Generatione Insectorum*, following William Harvey, who demonstrated that all life is from an ovum or seed. The little microscope of Redi, simple though it was, was the lever that lifted the dark veil, which hid the passageway to the biologic discoveries, now tersely set forth in this work of Davis. May the close of the next bi-centennial show as great an advance!

International Clinics. Vol. III. Third series, 1893. Edited by JOHN M. KEATING, M.D., JUDSON DALAND, MITCHELL BRUCE and DAVID W. FINLAY. Philadelphia: J. B. Lippincott & Co.

The series for this quarter includes clinics from the following American teachers: Edmund Andrews, John Ashburn, I. E. Atkinson, Norman Bridge, Henry T. Byford, William B. Canfield, I. N. Danforth, E. D. Fisher, Geo. W. Gay, Arpad Gerster, William Goodell, John B. Hamilton, Frederick P. Henry, M. B. Hutchins, E. F. Ingals, George M. Jefferts, M. D. Mann, Thos. J. Mays, Chas. K. Mills, W. O. Moore, Paul F. Mundy, Ohmann-Dumesnil, Roswell Park, E. S. Parsons, Wm. H. Porter, A. P. Randall, A. J. Skene, James Tyson, R. F. Weir and others.

The popularity of this series is growing year by year, and it is apparent that they are more useful on the subjects of which they treat (and what is not treated in the course of these clinics) than the ordinary text-book, for they represent the actual practice of gentlemen qualified to fairly represent the approved methods of the day. The publishing of the work is well done and the illustrations are excellent.

The Medical News Visiting List for 1894. Weekly (dated, for 30 patients); Monthly (undated, for 120 patients per month); Perpetual (undated, for 30 patients weekly per year); and Perpetual (undated, for 60 patients weekly per year). The first three styles contain 32 pages of data and 176 pages of blanks. The 60-Patient Perpetual consists of 256 pages of blanks. Each style in one wallet-shaped book, pocket, pencil, rubber, and catheter-scale, etc. Seal grain leather, \$1.25. Philadelphia: Lea Brothers & Co. 1893.

This visiting list is one of the most useful. The usual printed matter will be found. The tables are accurate, the decimal doses are given and it has a valuable index whereby any part of the book may be readily found. We notice the catheter gauge has the decimal or French scale and the alleged "American scale" as well. The latter was never adopted by any authoritative organization, or by any considerable number of individual surgeons. The decimal scale, founded on the subdivision of the meter, is now generally used even by the British themselves.

The Orum System of Voice Education.—By JULIA A. ORUM, Principal of the Philadelphia and Mountain Lake Park Schools of Elocution. Philadelphia. 1893.

This little book begins with a "simple elucidation of the elemental functions of the body in the expression of sentences." The author has been engaged in the study and teaching of elocution, based on the Fennell method, for the past sixteen years and is therefore in a position to write ex cathedra on the subject.

The action of the body in respiration is clearly stated, the philosophy of vocalization in singing, reading and speaking is given in easy lessons, and the work, on that account, will be found useful for young scholars, and perhaps for those children of larger growth whose habits of speech are not too firmly fixed to be changed.

The Physician's Chart Book. By J. A. HOWKINS, M.D. New York: Bailey and Fairchild. 1893. Price, 50c.

This, as its name implies, consists of blank charts of temperature, respiration and pulse rate; of pocket size, bound in one volume.

at the end of the book are written in the old system of weights and measures.

Outline of Physical Diagnosis of the Thorax. By ARTHUR M. CORWIN, A.M., M.D., Demonstrator of Physical Diagnosis in Rush Medical College, Chicago: The W. T. Keener Company, 1893. Price, \$1.00.

This consists in a series of tabular statements of the subject of physical diagnosis. It is intended for the use of students, and by them will doubtless be appreciated.

NECROLOGY.

Dr. G. N. Worley, Williamsport, Md., November 6.

Dr. C. A. Loose of Peabody, Kan., November 6.

Dr. Charles L. Reed, at LaCrosse, Wis., November 5.

Dr. Geo. N. Duzan, at Indianapolis, Ind., November 6.

Dr. E. E. Williams of Reedsburg, Wis., died at Janesville, November 4.

Dr. Thomas Cuddeback of Big Hat, N. Y., November 8. He was graduated at the Medical Department of Yale College, 1847.

Dr. Barrack Offutt of Rockville, Md., died suddenly of heart disease at his home in Potomac District, in the fifty-eighth year of his age.

Dr. Samuel Rowell, 72 years old, of Jersey City, was found dead in bed November 4. Heart disease is supposed to have been the cause of death.

Dr. Morton Robinson died at Newark, N. J., aged 69. He was born in Wakefield, R. I., and graduated from the Metropolitan College, New York, in 1856.

Dr. H. D. Lachenour was found dead on a couch in his room November 6, at Easton, Pa. Heart disease was the fatal ailment. The deceased was 55 years old.

Dr. R. B. Jessup, Sr., one of the best-known physicians and surgeons of the State, died November 9, at Vincennes, Ind. Dr. Jessup was a member of the late Gov. Hovey's staff. He leaves a large estate.

Dr. Stephen Crosby Martin of Brookline, died November 5 at the age of 33. He was a son of the late Dr. Henry A. Martin of Roxbury, and was a graduate of the Harvard Medical School, class of 1874.

Dr. John Magoffin, one of the oldest physicians in St. Louis, died November 3, at Kirkwood, aged 74 years. Dr. Magoffin had resided in St. Louis since 1854 and at one time had the largest practice in the city. Of late years he had confined himself more to his office, but was a hard worker up to about five weeks ago, when he suffered a stroke of paralysis.

Dr. James Belvin, formerly of Virginia, died in Belgium November 4. He was a graduate of the Medical College of Virginia and was a surgeon in the Confederate States Navy. After the war he went to Paris, where he practiced his profession with success. He was, however, forced by ill health to give up his practice and was engaged as the private and family physician for the Duke of Durham, and was traveling with the Duke when the latter married some time ago in Florida.

Dr. Chauncey M. Hulbert, one of the oldest physicians of Barnstable County, died suddenly at his home in South Dennis, Mass., November 6. Dr. Hulbert was born in East Sheldon, Vt., in 1818, was a student with Dr. Horace Easton, Governor of Vermont, and graduated at Woodstock, Vt., in 1841. He came to South Dennis in 1852, where he has since practiced. He has been President of the Barnstable County District Medical Society, and for the past eighteen years its Treasurer.

Dr. Charles Wesley Stanley, who died in New York city on the 26th ult., was born in Conway, N. H., on May 28, 1828. He received his early education at the Oneida Institute, and was graduated in 1866 from the Medical Department of the University of New York. In 1870 he removed to Chicago, where for over twenty years he was actively engaged in the practice of his profession. Dr. Stanley was quiet and retiring in disposition, and a devoted student. As a physician he was capable and sympathetic, and by his kindly nature he endeared himself to all with whom he came in contact. He was married in 1869 to Miss Harriet Armstrong, who survives him. A. L. G.

Dr. Abraham Clifford Wolf Beecher, who was stricken with apoplexy in the Masonic Temple, died November 7.

Dr. Beecher was born in Bainbridge, Lancaster County, March 26, 1859. He was the son of Jacob F. Beecher, for a number of years a wholesale dry goods merchant of this city. He removed to Philadelphia with his parents in 1852, and after studying in the public schools entered the Philadelphia College of Pharmacy, but later abandoned the study of pharmacy for that of medicine, graduating from Jefferson College in 1867. For two years thereafter he was resident physician at the Philadelphia Hospital, and later acted as assistant to the late Professors Wallace and Meigs at Jefferson Medical College, where he also became Assistant Demonstrator of Anatomy, holding the latter position for a number of years. About four years ago he resigned, devoting himself entirely to his private practice.

Dr. Charles Frederick Crehore died at Newton Lower Falls, Mass., November 8, aged 65 years. He was known throughout the State as a philanthropist, and was one of the leading citizens of Newton, having been engaged in manufacturing for over thirty years. He was graduated from Harvard Medical School in 1854, and practiced his profession till 1865, serving through the war as surgeon. Since 1865 he devoted his attention to the Crehore Press-Board Works, succeeding his father. Dr. Crehore was regarded with respect and veneration by the mill hands employed by him. His conduct toward them was always marked by the utmost generosity. It was his practice to pension all the old laborers in his employ who were unable to support themselves. He was a profound student of social questions and of medical science. Some of his papers on election methods and microscopic analysis of germs were considered especially valuable.

Dr. David Judkins for over a half century a physician at Cincinnati, died November 12. He was in his 76th year and until a year ago seemed hale and hearty. He then met with an accident which precipitated the end. He fell down on a slippery staircase and injured the back of his head. He apparently recovered, but not for long. The injury continued to reappear in the form of sleeplessness until the fatigue began to prey on his constitution. He was attacked by periods of extreme weakness, and only the other day fainted while on the streets. After this attack he was confined to his room. Some days since it became apparent he would not recover and his relatives were fully prepared for the end. He had been a Trustee of Cincinnati Hospital since it was built, in 1867. He was graduated at Medical College of Ohio in 1842.

Prof. Hermann A. Hagen.—Prof. Hermann A. Hagen of Harvard College, the famous entomologist, died at Cambridge, Mass., November 9.

Hermann August Hagen was born in Königsberg, Prussia, May 30, 1817. For the last two hundred and fifty years some ancestor of his has been connected with the University of Königsberg. Young Hagen was graduated from the university and received his medical degree in 1840. Later he studied also in Berlin, Vienna and Paris. He returned

to Konigsberg and for three years was First Assistant at the surgical hospital. From 1863 to 1867 he was Vice-President of the City Council and member of the School Board. Meanwhile he had been studying entomology, and was invited by Louis Agassiz to come to Cambridge as an assistant in entomology at the Museum of Comparative Zoology. In 1870 he was made professor of that science at Harvard. He was a Fellow of the American Association for the Advancement of Science and other scientific societies. His publications include some four hundred articles. As an entomologist Hagen was said to rank first in America.

HOW SHALL OUR LEPERS BE CARED FOR?

ABSTRACT.

Read before the World's Public Health Congress, October 6, 1893.

BY BENJAMIN LEE, A.M., M.D., PH.D.

SECRETARY OF THE STATE BOARD OF HEALTH OF PENNSYLVANIA.

The State Board of Health of Pennsylvania and the Board of Health of the City of Philadelphia have had some unpleasant experiences with lepers which have led both of these bodies to appeal to the general government to establish a colony or colonies, where these unfortunates might be provided with the comforts of home and medical care and nursing and, at the same time might cease to be a horrid menace to the health of those with whom they were thrown in close contact. In order to arrive at a somewhat definite opinion as to, first, the need for the adoption of such a measure, and secondly, the general drift of opinion on the part of those who had given the subject thoughtful attention, in December, 1891, I addressed circular letters of inquiry to the Secretaries of all State and Provincial Boards of Health in the United States and Canada, and to prominent dermatologists.

Replies to those inquiries have been received in twenty-three instances.

They indicate, briefly, that cases of the disease have been recognized and made the subject of official report in seventeen States and Provinces.

In ten States or Provinces cases exist at the present time under the observation of the authorities, namely, New Brunswick, twenty-two cases; British Columbia, seven cases; New York, six cases; Pennsylvania, four cases; Illinois, two cases; Iowa, one case; Minnesota, seven cases; Wisconsin, four cases; Louisiana, forty cases; California, twenty-four cases, making in all 117 cases.

At the well-known lazaretto at Tracadio in the Province of New Brunswick, provision is made for the comfort, care and treatment of these unhappy beings in a manner in harmony with the dictates of humanity and the requirements of modern science, while, at the same time, they cease to jeopardize the health and happiness of others. The United States has only gone so far as to make the affection quarantinable at the sea coast and to order those found suffering from it on arriving vessels to be at once returned to the ports from which they came. In the different States of the Union, the widest diversity prevails both in theory and practice. The only place in which segregation is practiced and at the same time humane provision is made for the shelter, maintenance, medical attendance and nursing care of lepers, is the city of Philadelphia. The manner in which the county authorities who have the care of the other case in Pennsylvania, discharge that duty is by no means in keeping with the dictates of humanity or the laws of sanitation.

While their numbers are few, no little rural community, very few States, even—feel justified in going to the expense of establishing a leper house or colony. Is it wise to wait until State after State finds itself compelled by their increasing numbers to take this step, or is it not rather the duty of the central government to gather them all into one properly supervised community where they can have the companionship of their fellows, the comforts of a thoroughly furnished home, and the advantages of the best medical and surgical skill?

Such is the distinctly expressed opinion of nineteen of the twenty-one eminent dermatologists who favored me with replies to my circular of inquiry.

In conclusion, I desire to say that in determining the importance of this question and the necessity for govern-

mental interference, the numerical method is entirely misleading. One case of leprosy outweighs a hundred of any other disease. If there were but ten lepers in the land instead of more than ten times ten, it would be equally the duty of Congress to initiate measures to prevent if possible, a single addition to the horribly afflicted company.

CORRESPONDENCE.

Biography of McDowell.

NEW YORK, NOV. 8, 1893.

To the Editor.—On page 710 of the *Journal* for Nov. 4, 1893, Dr. Thomas Hubbard states that copies of the life of Ephraim McDowell were not forthcoming to subscribers in Toledo. About two years ago I paid \$5.00 in advance for a copy of the work in question and have not as yet received the book. The publishers disclaimed any knowledge of my subscription a year ago. I took a charitable view of the matter and supposing that a woman's business methods might accidentally have been at fault, I decided to charge up the \$5.00 to loss account. Very truly yours,

ROBT. T. MORRIS.

ASSOCIATION NEWS.

Change of Date of Meeting—Official Notice.—In order to enable the State Medical Societies to send instructions as to their action in the matter referred to them by the AMERICAN MEDICAL ASSOCIATION at its recent meeting at Milwaukee, and for other reasons, the time of meeting of the ASSOCIATION at San Francisco has been changed from the first Tuesday in May to the first Tuesday in June, 1894.

WILLIAM B. ATKINSON,

JAMES F. HUBBARD,

Permanent Secretary.

President-Elect.

SOCIETY NEWS.

American Electro-Therapeutic Association.

The Third Annual Meeting Held in Chicago, Sept. 12, 13 and 14, 1893.

AUGUSTIN H. GOELET, M.D., President.

FIRST DAY—SEPTEMBER 12—MORNING SESSION.

The meeting was called to order at 10:15 A.M. by the President.

The first order of business was discussion and vote upon the amendment to the constitution; that Article III shall read: "The members of this Association shall consist of Ordinary Fellows, Honorary Fellows and Corresponding Fellows, who shall either be practitioners of medicine in good standing, or electrical experts,"—resulting in the adoption of the amendment.

Upon motion of Dr. W. J. HERDMAN of Ann Arbor, the article defining the privileges of Associate Fellows was amended to read: "They shall enjoy all the privileges of Ordinary Fellows, excepting to vote or hold office, but shall not be required to pay fees or dues."

The following persons were then elected members of the Association as Ordinary Fellows:

Dr. H. D. Lawhead, Woodland, Yolo County, Cal.; Dr. Frank P. Norbury, Jacksonville, Ill.; Dr. A. Brothers, 162 Madison Street, New York, N. Y.; Dr. A. Palmer Dudley, 640 Madison Avenue, New York, N. Y.; Dr. N. W. Webber, Detroit, Mich.; Dr. Homer C. Bennett, 8 Boone Block, Lima, Ohio; Dr. George L. Laforest, 274 St. Denis Street, Montreal, Canada; Dr. Wm. S. Gotheil, 25 W. 53d Street, New York, N. Y.; Dr. M. M. Weil, 125 E. 76th Street, New York, N. Y.; Dr. Fred H. Morse, 74 Boylston Street, Boston, Mass.; Dr.

Wm. F. Waugh, 1725 Arch Street, Philadelphia, Pa.; Dr. Flynn S. Hayes, Venetian Building, Chicago, Ill.; Dr. Horatio R. Wood, Chicago, Ill.; Dr. Elliot H. Woolsey, San Francisco, Cal.; Dr. D. R. Brower, Chicago, Ill.

ASSOCIATE FELLOWS.

Mr. A. E. Kennelly, Chief Electrician of the Edison Laboratory, Orange N. J.; Mr. J. J. Carty, Vice-President N. Y. Electric Society, N. Y.; Mr. H. Newman Lawrence, Member Institute Electrical Engineers, 5 Guilford Road, S. Lambeth, London, Eng.; S. W.; Mr. M. J. Jenks, Electrical Engineer, 44 Broad Street, New York.

HONORARY FELLOWS.

Prof. Edwin J. Houston, 1809 Spring Garden Street, Philadelphia, Pa.; Dr. Thomas Keith, London, England; Mr. A. E. Dolbear, President, Tufts' College, Boston, Mass.; Prof. H. Carhart, Ann Arbor, Mich.

PRESIDENT AUGUSTIN H. GOULET, M. D., read his address on INFLUENCES GOVERNING THE PROGRESS OF ELECTROTHERAPEUTICS.

Fellow-Members of the American Electro-Therapeutic Association.—Last year, in a spirit of humor, this Association was referred to as a vigorous infant. True, its growth has been somewhat astonishing, but when it is considered that it boasts of three parents its vigor is readily explained. No doubt each member of this Association feels so keen an interest in its welfare as to regard it in the nature of a tender offspring, and while it may have started out with but three, it now has many parents who will continue to nurture it until it develops and prospers beyond their most sanguine expectations.

In the beginning, it was said of this infant, that there was no place for it; that it could never prosper, but would always be feeble; and it was predicted that it would die young. Yes, even before the completion of its first dentition.

If its present state of healthfulness, and the fact that it has already passed the period of adolescence, may be accepted as evidence upon which to base a prognosis, it is destined to a long life of great usefulness and a ripe old age.

Henceforth our meetings have been held in New York and Philadelphia. But we have outgrown those cities, and for this reason have come to Chicago.

THE NEED OF AN ELECTROTHERAPEUTIC SOCIETY.

The inauguration of this Association marks an event in medicine quite as important as any that has occurred within the present century, since it succeeded in establishing a recognized position for an important and long neglected branch of therapeutics. The success of this Association is sufficient evidence that it was needed. Its future usefulness can be readily foreseen, not only by those directly interested in electro-therapeutics, but also by those interested in scientific investigation.

Many of you have realized the utter futility of presenting papers upon electrical subjects, particularly technical papers, before other medical societies, where the spirit of true discussion is lost in an unreasonable opposition to everything pertaining to electricity, or by feeble objections, devoid of both argument and reason. This teaches nothing and profits no one. Opposition of a reasonable nature is wholesome and acts as a stimulus to renewed investigation, but flat denials or personal contradictions on the part of those who know nothing of the subject, made apparently for the purpose of obstructing progress in scientific research, will never succeed in settling a disputed point, nor add one iota towards that end.

This has its origin in the difficulties besetting the general profession. The demands upon their time, the avalanche of new drugs requiring study, perhaps to be soon discarded, so engross as to make impossible research and trial of somewhat older electricity, which to many conveys but a name.

Here we meet upon common ground. We all understand electricity, or hope we do, and those who enter into the discussions do so with an earnest desire to bring out all facts and ascertain the truth. The avowed purpose of this Association is the development of electro-therapeutics; and a spirit of true investigation pervades our proceedings.

The work so far has been very creditable, in spite of its

being a young organization, embracing an entirely new field, about which there has been necessarily much uncertainty. We must fully realize, however, what we are endeavoring to do. We are building up an entirely new system of therapeutics, and our work must be of such character as to bear criticism. The mere fact that the results have been good will not suffice. A rational explanation for the methods adopted must be given. A rational explanation for the methods must bear investigation, and must bear the stamp of scientific reasoning. Our results may be doubted, but our methods, based upon scientific laws, can not be questioned. There has been too much empiricism about the older therapeutics, which still exists to some extent; but this would be no justification for anything of a similar nature in electro-therapeutics. Unless a very decided improvement upon older methods be demonstrated, there will be no reason for its preferment. Enthusiasm, though justifiable, should never lead to statements which can not be substantiated. Our assertions, on the contrary, must always be permeated with truth, which is beyond cavil.

We have many things to contend with in introducing electro-therapeutics to the profession, chief of which is an opposition to every new inroad upon old and established methods.

THE OPPOSITION TO ELECTROTHERAPEUTICS.

The progress of electro-therapeutics is retarded by a want of appreciation by the profession, born of unfamiliarity with electro-physics and electro-physiology, and is in a great measure attributable to restricted medical education. This, fortunately, is being gradually overcome; but progress must necessarily be slow until medical colleges can be impressed with the importance of including this branch in their regular curricula. Some schools have shown a progressive spirit and are endeavoring to meet the demand for a more thorough knowledge of the requirements for the successful application of electro-therapeutics. By far the larger number of medical colleges, however, appear to be blind to its importance and to their own interests. Occasionally, yet reluctantly, the attempt is made to impart some information concerning electro-therapeutics, but neither the instructor nor the student has any knowledge of electro-physics and the result is an ignominious failure.

Electro-therapeutics can not be appreciated, or successfully applied, without a thorough practical knowledge of the fundamental principles governing the action of electricity.

Restricted medical education has done more than anything else to retard the progress of electro-therapeutics, because the practicing physician, who feels inclined to adopt it, knows nothing of the physics of the subject, and usually goes about learning it in the wrong way. Instead of making himself familiar with the groundwork or learning the technique, he commences by purchasing a battery and trying it on a patient. If he chance to succeed at first, he will be encouraged to continue, and may eventually become impressed with the importance of learning something of the mysterious agent. This is learning electricity backwards. If he fails, he regards it as worthless, casts it aside, and never loses an opportunity to decry it on every occasion. You, my hearers, know this; but the outside world does not.

The medical graduate of the future may be more fortunate. He may be taught electro-physics and electro-physiology, and will thus be able to appreciate electro-therapeutics and employ it intelligently. If all practicing physicians to-day possessed this knowledge, they would—every one of them—use electricity in some form in their every-day practice, instead of ignoring its advantages and allowing their patients to go to the specialist for this form of treatment.

Another thing which militates against its more universal adoption by the medical profession, is that the application of electricity is regarded as complicated and troublesome. Such agents as antipyrin, phenacetin, viburnum and ichthyol or any of the new drugs, are employed by preference, because their administration involves no particular trouble or inconvenience to the attendant, and requires no special knowledge or training. No intelligent reason can be given for their preferment, nor can their action be explained. They are accepted, without question, upon the statements of the manufacturers, as put forth in the prospectus which announces the drug. What is to be said of one who objects to the use of electricity, when furnished a rational explanation of its action and abundant evidence in proof of its value, when he considers his own convenience rather than the interests of his patients?

Much of the prevalent opposition to modern electro-ther-

apenities is the result of the imperfections of the past methods, which certainly were unscientific. Many who have ignored it, or who have discarded it after having employed it, according to methods in vogue ten years ago, are not cognizant of the advances since made. Consequently it is frequently referred to, in a patronizing way, as a palliative measure. Electro-therapeutics of to-day present a wide difference by comparison with electro-therapeutics of even five years ago. The advance in this branch of therapeutics has been truly remarkable, thanks to some indefatigable workers among us, as well as those now so well known in France, the land which gave birth to the present scientific application of electricity to the cure of disease and the alleviation of human suffering. Until within quite a recent period, any one who ventured to employ this agent in the treatment of disease or expressed confidence in its capabilities was regarded as a charlatan. Now, the electro-therapist occupies an exalted position in the eyes of all, save a few opponents who can see nothing good in anything they do not understand. These would-be obstructionists are, however, rapidly decreasing in number, their own demise being accomplished by their very vigorous denunciation of the value of electricity, notwithstanding evidence to the contrary.

To deny the value of electricity because of failures which may be due to a misconception of its proper indication and application, or where it may be supposed, with a reasonable degree of certainty that the apparatus was faulty or the technique was imperfect, is equivalent to condemning a drug because one sample of it is found to be inactive, or because it failed when unwisely used where it could not be expected to produce an effect.

To say, as some do, that its merit can not be conceded, because the nature of its action can not be comprehended, is an acknowledgment of mental inferiority not to be expected of a medical man in this progressive and enlightened age.

If electricity has proved useful in the hands of those seeking to favor the progress of medical science, and this has been repeatedly verified, there is certainly reason for its claim upon the attention of the profession. If too much has been claimed for it, it is but a repetition of what follows in the wake of every new idea in medicine. After all, a better knowledge and understanding, resulting from subsequent investigation, may prove some of these claims not to have been exaggerated. If we oppose every new idea and deny its utility there would be no progress, and we would cease to be scientists.

We must contend with this opposition for the present. Eventually it will be overcome, but much depends upon the character of the work done by this Association, and upon the personality of its members.

THE OPPONENTS OF ELECTRICITY.

The opponents of electricity may be divided into three classes, viz: those who openly oppose it; those who profess not to believe in it, but use it only because their patients desire it; and those who believe it capable of curing every ill flesh is heir to.

Of these, its avowed opponents are, by far, its feeblest enemies. Their denunciation is an open confession of ignorance and is evidence of narrow mindedness which injures them more than it injures the agent they so vainly endeavor to suppress.

Those of the second class are very dangerous enemies. They use electricity, though professing no faith in it, only to please their patients. They claim to understand its application in all its details. Its use in their hands, though expertly employed, (?) is destined to prove to the patient its utter worthlessness as a therapeutic measure. If, by chance, the patient is benefited, it is attributed to some other agent coincidentally employed. No cognizance is taken of the actual effect produced, and if a good effect is observed it is carefully buried; care being taken that no record of it leaks out; for their interests, for reasons best known to themselves, are against electricity, and it would not do to admit anything in its favor. Doubtless every one of you are familiar with this class.

Those of the third class are, I believe, the greatest enemies of this agent. They employ it in every condition of disease, regardless of its applicability. Electricity to them is a magic wand which, without a why or a wherefore, brushes aside all obstacles in the shape of disease. They appear to believe electricity, no matter how employed, a power that disease can not resist. That, in other words, it is only necessary to inject it into the system as a drug is

injected under the skin, and all morbid processes are destroyed. They show an entire disregard for the pathologic condition or the cause operating to maintain it, trusting to the remedy to supply the place of brains. Their views carry them to extremes, and hold them up to the ridicule of sensible practitioners. This class must be suppressed, and it devolves upon this Association to accomplish it.

To defeat the second class is a more difficult matter. It can be done only by educating the masses to an appreciation of the advantages of electricity. They can then judge for themselves where to place the credit of a cure, and they will be able to decide who is competent to administer this agent properly.

We need not concern ourselves with the first class. They will eventually accomplish their own destruction.

"Quem deus vult perdere, prius dementat."

THE WORK OF THE ASSOCIATION.

This Association from its inception has shown a progressive spirit. At the first meeting, two important committees were appointed to investigate scientific questions. At the second meeting, these were increased by four, so that there are now six which report at this meeting. The result of this work has not been altogether satisfactory, owing to some, as yet, insurmountable obstacles. Eventually the work of these committees will revert greatly to the credit of the Association. Every member appointed should throw his whole soul into the work for the coming year, and your presiding officer will be thankful for any suggestions which will aid him in appointing those best qualified, that the committees may be composed of real workers who have an interest in the work.

The association with us of other scientists from the electrical world is a step in the right direction. It will have an important bearing upon the future of this Association. It tends to broaden the scope of our proceedings, and must certainly be productive of mutual benefit.

The fixed discussions which were inaugurated at our last meeting have been the means of bringing out many important points and removing many doubts and uncertainties. These discussions have been made a feature of this meeting also, and I hope they will be continued each year. Those appointed for this meeting involve questions of the greatest importance, and are well worth the consideration of the profession at large, as well as of this body. The Executive Council, to whom the credit of selecting these subjects is due, are to be congratulated upon the selections. They have foreseen that the general profession should understand what views are entertained by those most prominent in electro-therapeutics, upon subjects which have been under dispute, and have shown wisdom in their choice, both of the subjects and those appointed to discuss them. Let this good work continue.

I would direct particular attention to the discussion upon "The Possibilities of Electricity in the Treatment of Fibroid Growths," arranged for this meeting. The question will probably not be entirely disposed of in this discussion, but the latest views of those most prominently identified with it will be brought out, and the conclusions up to date will be reached.

The other discussion, "The Influence of Frequency of Interruptions and the Character of Induced Current Waves upon Physiological Effect," is of the greatest importance in the therapeutic administration of the induced current, and its selection for discussion shows that this Association has a conception of the scientific requirements necessary for the most satisfactory results in employing this agent. The fact that these points have not been considered before in a comprehensive manner shows, likewise, that past methods have, to a great extent, been imperfect, and that realizing this we desire to make them more perfect. In this manner, important advances in electro-therapeutic methods are suggested and worked out.

Within the past five years, scarcely a year has elapsed without the development of some new and important feature, involving the application of this agent in some one of its forms. As an instance of some of these advances, the metallic or interstitial electrolysis popularized by Gaultier, and the development of the alternating current by d'Arsonval, so it may be utilized satisfactorily for medical purposes, stand out conspicuously.

Metallic electrolysis, I regard as one of the most important additions to electro-therapeutics, and so expressed myself in a brief paper upon this subject which was presented at the June meeting of the New York Electro-Therapeutic Society. In this paper I drew attention par-

ticularly to the advantages of cupric electrolysis, and outlined many uses for zinc employed in the same manner. The effect produced by zinc electrolysis, as enumerated in the paper referred to, shows that it possesses distinct features which make it a valuable addition to our therapeutic resources. As contrasted with cupric electrolysis it possesses advantages which render it equally valuable.

For instance, in gynecological work the local action of the oxychlorid of zinc set free as a result of its decomposition by the current, when in contact with the tissues, may be readily appreciated. The local action of the zinc chlorid obtained in this manner is rendered more valuable because of the possibility of controlling the degree of action, as well as the penetration, by adjusting the current strength and duration of the application, thus varying the extent of chemie action. Additional advantage accrues from the fact that nothing is left behind to continue the action or provoke irritation, as is the case when a solution or pencil containing chlorid of zinc is employed. It was not recommended to be employed in a manner to produce extensive destruction of tissue, and for this reason a moderate current strength was advised. Thus it is possible to obtain the characteristic local action of the zinc chlorid with only a superficial caustic effect, and it is serviceable where the softening effect of the zinc is desired, and where the negative of the positive pole is demanded, or where the negative is contra-indicated. Another advantage, which appears to me sufficient to commend it, is the very moderate current strength needed to produce the local caustic action required, as compared with that necessary when the current is employed with non-attackable electrodes.

The softening effect produced by zinc electrolysis has been found useful likewise in keloids and fibroid growths, employed by means of puncture where the negative pole is contra-indicated. In some instances it was noted that the beneficial effect was greatly in excess of that attainable by simple electro-chemie decomposition of the tissues.

The experiments of d'Arsonval with the alternating current lead us to believe that, in thus revivifying, by improving and perfecting the necessary apparatus for its generation, an old and discarded form of the induced current, he has added another to our already numerous electro-therapeutic resources. Experiments show that this current is not only more easily borne, but is more soothing than the current from the ordinary induction coil, owing chiefly to the character of the wave produced.

The important improvements that have been made within the past two years in the induction apparatus for obtaining the interrupted induced current, otherwise known as the faradic current, deserves mention also. These improvements, involving an increased frequency of interruptions and an increased electro-motive force, render this current quite equal in point of value to the improved alternating current and quite as easily borne.

It will thus be seen that electro-therapeutics is continually progressing, and every year we are approaching nearer to a more exact science and perfect methods.

Though concerted effort for electro-therapeutics is still young, we already exert a decided influence upon the views prevailing in medicine. To maintain this we must resolutely continue the battle. We number among us men who command the respect of the scientific world, but we must ever seek stronger reinforcements. To that end, I would suggest, as an amendment to our constitution, that hereafter every candidate be required to present a paper which shall be submitted to the Executive Council previous to the annual meeting. They will thus pass upon his qualifications for membership before his name is proposed here to be voted upon.

If we would grow and prosper we must show continuous improvement. Let our motto, then, be, progress, and let us every year take an important step in advance.

By conjoint efforts we will bring electro-therapeutics to that scientific plane which will make its most strenuous opponents our most cordial coadjutors. We will then reap the reward; the satisfaction of having done our duty; the best, the noblest, the sweetest satisfaction which can be given our profession.

REPORTS OF COMMITTEES ON SCIENTIFIC QUESTIONS.

On Standard Cells.—Dr. W. J. MORGAN, the Chairman, said that the subject was so large that it seemed premature to make a report on what should constitute a standard cell. The physical and physiologic effects are bringing out new points each month. Such a cell can be manufactured, but we do not yet know all the effects which are desired from

On motion, the Committee was continued.

On Standard Meters.—DR. MARGARET A. CLEAVES of New York, Chairman of the Committee, read the report.

Mr. President and Fellows of the Association:—Your Committee on standard meters beg leave to submit the following report:

Your Chairman is personally indebted to Mr. W. J. Jenks, electrical expert of the Legal Department of the General Electric Co. of New York City, and Fellow of this Association under the amendment to the constitution and to his technical assistant, Mr. Edwin W. Hammer of New York City, for exceedingly valuable help in making the tests and this report.

Mr. Jenks was invited by the President to coöperate with your Chairman in this work by request of the latter.

The test has been made with the greatest care and every effort was put forth to make it one of absolute accuracy.

It was necessary, in examining the instruments submitted, preparatory to a test, that the requirements of a thoroughly good meter be kept in mind. These requirements, as suggested by the experience of many, might be summed up as follows:

1. A good meter should have a clear, legible scale, fairly uniform over the range, and not crowded at different points. The question as to whether it is desirable or necessary to have a scale divided into fractions of a milliampère, and whether it is an advantage to have a low and high scale on one instrument, is one which the Committee has not passed upon.
2. The scale should be so clear that the operator can read it, while working on his subject.
3. The internal resistance should be low.
4. There should be no tendency to overheat with the strongest current employed.
5. A shunt is always a disadvantage, when employed with a disregard, accidental or unavoidable, to the possibility of its heating and thereby changing its resistance. A shunt, per se, is not fatal to the accuracy of an instrument, but it is best to avoid them except in those higher priced instruments, in which the best talent and most expensive materials have been applied to the satisfactory combination of conditions.
6. The instrument should be capable of indicating in all positions. This is possible in only those instruments not of the galvanometer type, and even then a change from the most favorable position is at the expense of delicacy of indication. It is an easy matter to adjust a mirror so as to compensate for this shortcoming.
7. Any instrument whose indications depend directly upon the local magnetic force is objectionable, for the reason that its indications are liable to be affected by iron in the vicinity or outside magnetic influences. This is true of all instruments of the galvanometer type, which is that type in which the current to be measured passes, not through the armature coil, but around the electro-magnet which influences the position of a magnetic needle suspended within its field of force.
8. The suspension system should be delicate and sensitive, and at the same time be unlikely of derangement in use or shipment.
9. It is an advantage for the meter to indicate with the current passing in either direction. However, this is a consideration which should not take precedence at the expense of accuracy. It is possible, knowing the characteristics of a meter in this respect, to so connect it up in circuit with the other apparatus as to always have the current pass in the proper direction.
10. A meter should be easily carried about, and
11. It should not be readily broken or put out of order.

(To be continued.)

The State Medical Society of Maryland will hold its semi-annual meeting at Annapolis, Md., Tuesday and Wednesday, Nov. 21 and 22. There is a prospect of a full and interesting meeting.

At a Meeting held for the purpose at the University of Maryland, Baltimore, the Medical Society of the University of Maryland was organized with the following officers: President, Dr. J. J. Chisolm; Vice-President, Dr. C. W. Mitchell; Secretary, Dr. W. B. Canfield, Executive Committee, Drs. J. E. Michael, W. B. Platt and J. M. Handley. The Society will meet on the first Tuesday of each month,

and will be composed of the Faculty, Adjunct Faculty, members of the teaching and hospital staffs and graduates of the University.

WILLIAM B. CASFIELD, M.D.,

Secretary.

Fox River Valley Medical Association.—The fifty-second semi-annual meeting of the Fox River Valley Medical Association was held in Aurora, Ill., November 7. A feature of the program was a discussion of therapeutics by Dr. Charles F. Hawley of Chicago, and Dr. B. F. Bill of Genoa Junction, Wis. Following officers were elected: President, Dr. W. A. Nason of Algonquin; Vice-President, Dr. R. F. Bennett of Elgin; Secretary and Treasurer, Dr. H. L. Pratt of Elgin. The program concluded with a banquet at Hotel Bishop.

MISCELLANY.

Mr. Gladstone's Physician.—Dr. William Henry Broadbent has been appointed as physician to Premier Gladstone, vice Sir Andrew Clark, deceased.

Gift to Yale Medical School.—The Yale Medical School will receive \$25,000 by the will of the widow of Dr. E. Hart of Hartford.

Dr. J. H. Jenkins, formerly A. A. Surgeon in the United States Army, stationed in Arizona, was run down by a train at Hazelton, Penn., October 29, and fatally injured.

Harper Hospital, Detroit, celebrated the opening of the Swain Home and Duffield Memorial Cottage, to be used respectively as a home and training school for nurses, November 9.

The Chicago Clinical Review.—This interesting monthly has inaugurated a new department in the current number. That is a list of titles of the original articles and leading editorials that have appeared in the medical periodicals of the month.

Boston City Hospital.—This hospital secured a medal at the World's Fair for the excellence of its exhibit. The exhibit consisted of plans, photographs and other objects of interest in connection with the hospital service.

Dr. W. A. Brown was elected Demonstrator of Anatomy by the Faculty of Emsworth Medical College, St. Joseph, Mo., to fill the vacancy caused by the resignation of Dr. W. H. Wilson, who has been appointed Assistant Surgeon United States Army.

Irish Cholera Victims.—Archbishop Cleary of Kingston will cause the erection of a statue on a mound in the hospital grounds in memory of the Irish immigrants who died at Kingston, Canada, during the cholera plague, 1847, to the number of over 1,000, and many of whose remains rest near and under the mound. The statue will be a life size picture of an angel of pure Carrara marble, cut in Italy from a solid block three tons in weight. It will cost \$1,200.

To Abolish Coroners.—At a recent meeting of the Medical-Legal Society of New York, it was resolved to appoint a committee to prepare a memorial to be presented to the Legislature of the State, and to the approaching Constitutional Convention in favor, first, of abolishing "the office of coroner in the State of New York, and, second, the adoption of appropriate legislation and changes in the Constitution of the State that would remedy the defects in the existing system."

The New York Academy of Medicine at a recent meeting took action relative to memorializing the Legislature of that State, for the abolition of coroners, and the substitu-

tion thereof of men of examiners. The medical examiners have done well in Massachusetts where the coroners were dispensed with more than a decade ago. The State not only has saved money, but the service has been more efficient.

Professor Rudolf Virchow, the famous German pathologist and scientist, celebrated the fiftieth anniversary of his graduation from the University on October 21. The Berlin Medical Society of which he has been a member twenty-five years, elected him its Honorary President; the University of Berlin presented him an address in which he was called "the Prince among Physicians," and the Academy of Sciences and numerous German societies sent congratulations to him. Professor Virchow is one of the busiest men in Berlin. He is a member of the Reichstag and Landtag, rector of the University of Berlin, belongs to dozens of societies, makes speeches almost every day, and writes for a number of journals. He has a marvelous power for work, however, and never seems in a hurry.

Victory for Dr. Earl.—The jury in the \$25,000 damage suit of Miss Caroline T. Doss against Dr. Archibald B. Earl of Kansas City, returned a verdict for the defendant, in Judge Slover's court, November 3. Miss Doss broke her arm in 1892. She procured the services of Dr. Earl to reduce the fracture. She alleged that the arm was crooked to the extent that she was maimed for life. Miss Doss is 68 years old and Dr. Earl, the defendant, is 75, and retired from practice years ago. He set up as defense that he set the arm purely as an accommodation as he had retired from practice at the time. He further alleged that the plaintiff was responsible for the deformity, as she did not protect the arm properly after it was set.

Municipal Hospital of Philadelphia.—The new pavilion hospital and disinfecting tank has just been completed on the grounds of the Municipal Hospital. The disinfecting plant is one of the most complete structures of its kind in the world, and was erected at a cost of \$10,172. In this building all articles used in the hospital will be disinfected.

The new pavilion hospital was erected at a cost of \$15,352, especially for the treatment of cholera cases, and has accommodations for upwards of one hundred patients. It is intended to utilize the structure entirely for the care and treatment of cases of diphtheria, which can be kept entirely isolated from patients afflicted with other diseases. The structure has a number of rooms for private patients, where they may be even more comfortable than at their own homes, and will enable many families to allow their sick to be taken there for private treatment.

Swam from Scylla to Charybdis.—Dr. Judson Paland, who has been investigating the cholera epidemic in Italy and Sicily for the Health Officer of New York, writes the following:

"While in Messina searching for cholera, in order to keep our Health Officer well informed of the sanitary condition of Sicily, I read of the terribly strong current and whirlpool in the Strait of Messina, more especially at that point between Scylla and Charybdis. It occurred to me that it would make a good swim, more especially as the hotel-keeper, who had lived in the little fishing village called Faro for thirty-two years, told me that no one had ever swam across, in the memory of the oldest inhabitant, although many had tried and failed, including the hotel-keeper himself.

"I took to the water at 4:10 p.m. and arrived in good condition on the Italian shore at 6:30 p.m., a distance of six or seven miles. I started from the Sicilian side at Faro, which corresponds to the Charybdis of the ancients, passed the rock called Scylla and was forced by the powerful current to make a landing at a little village called Riggio on the Italian shore. The entire swim was made without stimu-

lants, and I restricted myself to the breast and side stroke, not using the back at all. I encountered during the swim strong currents running apparently in all directions, the direction changing every few moments. These currents were at times warm and at others icy cold. There was a high wind and a choppy sea, making it extremely difficult to breathe. I returned to Messina in good condition, and that evening went to the opera."—*New York Recorder*.

Yellow Fever.—The citizens of Brunswick, Ga., ask no more aid from the outside world, and formally withdrew their appeal November 1. The following is their touching statement:

"To the Press and the Charitable People of Our Common Country: Recognizing the fact that even charity, that divinest attribute of human character, at times reaches its limit, the Relief Committee of Brunswick is constrained, through that great medium, the public press, to announce that with a month's provision on hand, and enough funds, carefully and judiciously expended, to meet our immediate wants, that it would be unkind to a generous people to receive further contributions, which our actual necessities do not demand. It would be unjust to accept a greater amount than could be used in the present emergency. Times are hard, money scarce, and we desire no surplus left over. Let the future take care of itself. From all over this broad land our cry of distress has been answered; the charity of a Christian people has enabled us to care for our sick, to feed the hungry and bury our dead. We could not ask more. Words fail to express all we would wish to say to our countrymen, confined, as their generosity has been, by no lines, or sections, but the free-will offerings of the throbbing, sympathetic hearts of a great and noble people. From East, West, North and South came the answer: 'You shall not suffer;' from the banker, the merchant, from the gilded homes of wealth, from the cottage, from the hands of matron and maid, from widow and orphan, came the response to our stricken people's appeal.

To the press, which has so kindly aided us, without whose assistance our efforts would have been fruitless; the newspaper men, who made our situation known day by day; to those faithful guardians of the sick—the physicians—without whose skill and attention our fair city would have been desolated, we tender our profoundest gratitude and thanks, sustained as we are, by the assurance that we have tried to do our duty throughout the trying ordeal through which we have passed and are passing and with abiding faith in the protecting care of Almighty God and an early cessation of the epidemic. Whatever may be in transit, donated by the people of this country, will be gladly received. We are faithfully yours,

[Signed] T. W. Lamb, L. C. Bodet, Dr. F. Joerger, J. W. Smith, C. P. Goodyear, J. E. Part, M. J. Colson, H. A. Wrench, Rev. J. A. Thompson, Rev. Father J. Hennessy, Rev. Ed. F. Cook, William Anderson, S. C. Littlefield, W. F. Symons, Dr. J. A. Butts.

A vote of thanks was also passed to the New York World for sending its physician, Dr. Bowen.

THE PUBLIC SERVICES.

Army Medical School, Washington, D. C.—Session of 1893-'94. Order of Duties. Daily, except Saturdays, Sundays and holidays: 9 A. M. to 12 M., Instruction in Pathological Laboratory; 1 P. M. to 2:30 P. M., Instruction in Chemical Laboratory; 3 P. M. to 4 P. M., Lecture.

Saturdays—9:30 A. M. to 10:30 A. M., at Hospital Corps School of Instruction, Washington Barracks, Practical Instruction in Litter and Ambulance Drill and First Aid; 1:30 P. M. to 3 P. M., in Riding Hall, Fort Myer, Va., Practical Instruction in Equestrian.

The lectures will be delivered as follows:

Duties of Medical Officers, Wednesdays, Nov. 22, 1893, and Jan. 21, 1894.

Military Surgery, etc., Thursdays throughout the course.

Military Hygiene, Fridays, except Feb. 23, 1894.

Military Medicine, Tuesdays, Nov. 7 and 14, Wednesday, Nov. 22, 1893, and Jan. 21, and Mondays, Jan. 22, Feb. 5, 12 and 19, 1894.

Practical Instruction.—Bacteriology, General Sterilization, Mondays to and including Jan. 23, 1894.

Pathology, Monday, Jan. 24, 1894. Judge Advocate P. S. A., Tuesdays in the forenoon.

Practical Anatomy, etc., Captain J. C. Merrill, Medical Department, U. S. A., Tuesdays in the forenoon, December, 1893.

Medical Jurisprudence, Dr. Robert Fletcher, F.R.C.S., England, Tuesdays in February, 1894 (except the 27th); also Friday, February 23.

Parasites in Man, Prof. C. W. Stiles, M.D., Department of Agriculture, Tuesdays, Nov. 21 and 28, 1893.

Due notice of any change of program will be posted on the bulletin board.

WALTER REEF.

Capt. and Asst. Surgeon U. S. A.,

Secretary of the Faculty.

Army Changes.—Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from November 4, 1893, to November 10, 1894.

Capt. WILLIAM STEPHENS, Asst. Surgeon U. S. A., is granted leave of absence for four months. By direction of the Secretary of War, Major BLAIR D. TAYLOR, Surgeon, station is changed from the old post of Ft. Bliss, Texas, to the new post of that name, and he will report in person to the commanding officer of the latter named post for duty. By direction of the Secretary of War, the appointments of WILLIAM W. QUINTON, THOMAS S. BRATTON, DEANE C. HOWARD, ALEXANDER S. PORTER and WILLIAM H. WILSON, to be Assistant Surgeons with the rank of First Lieutenants, to rank from Oct. 26, 1893, are announced. They will report in person, without delay, to the President of the Army Medical School in Washington, D. C., for the course of instruction prescribed in general Order No. 78, A. G. O., Sept. 28, 1893.

Capt. FRANCIS J. IVES, Asst. Surgeon, is relieved from temporary duty with the medical section of the War Department Exhibit, William's Columbian Exposition, Chicago, Ill., and will return to his proper station, Ft. Sheridan, Ill.

First Lieut. JOHN S. KULP, Asst. Surgeon, now on duty at Columbus Bks., Ohio, will proceed to Jackson Park, Chicago, Ill., and report in person to the commanding officer, Camp Lamont, for temporary duty with the battalion of troops stationed there.

PROMOTIONS.

Capt. EDWARD T. COMEY, Asst. Surgeon, to be Surgeon with the rank of Major, Oct. 26, 1893.

First Lieut. JAMES D. GLENNAN, Asst. Surgeon, to be Asst. Surgeon with the rank of Captain, Oct. 29, 1893.

First Lieut. ALBERT H. BRADLEY, Asst. Surgeon, to be Asst. Surgeon with the rank of Captain, Oct. 29, 1893.

Navy Changes.—Changes in the Medical Corps of the U. S. Navy for November 11, 1893.

Surgeon WILLIAM MARTIN, ordered before Retiring Board.

P. A. Surgeon N. J. BLACKWOM, from Navy Yard, New York, and to Norfolk Hospital.

P. A. Surgeon T. C. CRAB, ordered to Navy Yard, New York.

P. A. Surgeon E. P. STONE, from Naval Hospital, Chelsea, and to Marine Rendezvous, Boston, Mass.

P. A. Surgeon G. B. WILSON, from Marine Rendezvous, Boston, and to Naval Hospital, Chelsea, Mass.

Medical Inspector R. H. KIMBER, promoted to grade of Medical Director.

P. A. Surgeon JAMES E. GARDNER, promoted to grade of Surgeon.

P. A. Surgeon MILLARD H. CRAWFORD, promoted to grade of Surgeon.

Passed Assistant Surgeon.—Passed Assistant Surgeon Charles W. Rush, United States Navy, (retired,) died November 9, at Annapolis, Md., after a lingering illness, of consumption. Dr. Rush married a daughter of Prof. W. W. Fay of the Navy, at whose house he died. He had been in bad health for a long time. He was appointed from New York, and was made Assistant Surgeon in July, 1883. Last June, owing to ill health, he was put on the retired list after having served a year on leave. His disease was contracted in the line of duty.

LETTERS RECEIVED.

(A) Antikamnia Chemical Co., St. Louis, Mo.; Andrews, Edmund, Chicago, Ill.; Allport, Frank, Minneapolis, Minn.; Allen, Marie E., Philadelphia, Pa.; Atkins, E. C., Colorado Springs, Colo.; (B) Beadles, Chas. H., Lewistown, Ill.; Benish, E. F., Mt. Vernon, N. Y.; Bares, C. St. Louis, Mo.; Bates, Mott, Chicago, Ill.; Agency, New York City; Bangs, H., Chicago, Ill.; Bailey, Fairchild & Co., New York City; Dr. Bienfait, Liege, Belgium; (C) Cameron, D. E., Toronto, Canada; Criley, B. H., Dallas Center, Iowa; Clark, E. C., San Francisco, Cal.; Castle, Wilmot & Co., Rochester, N. Y.; Chausse, E., St. Louis, Mo.; Chausse, Hardy, Denver, Col.; Chum, N. D., Cheviot, N. Y.; (D) De Schweinitz, G. E., Philadelphia, Pa.; Davis, Thos. B., Pittsburg; Doyle, O. M., Seneca, S. C.; Duffield, S. P., Dearborn, Mich.; (E) Ely, J. S., Lucasville, Ohio; Elce Bros, Galena, Ill.; (F) Frohman, F. W., Rowland, Pa.; Fessenden & S. B., Philadelphia, Pa.; Fish, Wm. B., Baylis, Ill.; FitzHugh, J. A., Amesbury, Mass.; (G) Garlock, C. L., Ann Arbor, Mich.; Gibson, Maris, Wilkesbarre, Pa.; Girard, A. C., Fort Sheridan, Ill.; Gihon, A. L., Washington; (H) Hausmann, Wm., Kew-Forest, Wis.; Heath, F. A., Miami, Fla.; Heide, C. C., Philadelphia, Pa.; Holmes, Jayard, Chicago, Ill.; Hummell, P., Carmele, Philadelphia, Pa.; (I) Imperial Granum Co., New Haven, Conn.; (K) Knox, S. B. P., Santa Barbara, Cal.; King, Chas. Lee, Lamanda Park, Cal.; (L) Leach, F. A., Mt. Vernon, Neb.; Leach & T., Philadelphia, Pa.; (M) McLaughlin, C. F., Aiken, S. C.; McLeathur, Hypophosphite Co., Ansonia, Conn.; Maltine Mfg. Co., New York City; 2, Mattison, J. B., Brooklyn, N. Y.; Matthews, J. M., Louisville, Ky.; Morris, R. T., New York City; (N) Newlin, L., Hatter, Tex.; (O) Ochsner, C. E., Philadelphia, Pa.; (P) Patton, Ella M., Quincy, Ill.; Parke, Davis & Co., Detroit, Mich.; Post-graduate Medical School, New York City; Patton, E. M., Quincy, Ill.; (R) Rogers, S. F., Troy, N. Y.; Rouvier, Jules, Beyreuth, Syria; Reed, C. A. L., Cincinnati, Ohio; Rimbold, T. F., San Francisco, Cal.; (S) Schlegel, Aug., Louisville, Ky.; Storch, T. C., Es New York City; Sanders, Emu, St. Louis, Mo.; (T) Toner, J. M., Washington, D. C.; Tuley, Henry E., Louisville, Ky.; (W) Wheeler, W. G., Chelsea, Mass.; White, J. A., Richmond, Va.; Waterman, O. M., Milwaukee, Wis.; (Y) Yocum, J. B., Tacoma, Wash.

Blank Applications for membership in the Association at the JOURNAL office.

The Journal of the American Medical Association

VOL. XXI.

CHICAGO, NOVEMBER 25, 1893.

No. 22.

ORIGINAL ARTICLES.

INTUBATION AND TRACHEOTOMY IN DIPH- THERITIC CROUP, WITH REPORT OF CASES.

BY WALTER R. JOHNSON, M.D.

SURGEON TO THE PATERSON EYE AND EAR INFIRMARY, PATERSON, N. J.

The operation for intubation of the larynx is growing in favor in this country and abroad, although it is not calculated to, and does not, fulfill all the expectations of some of its most enthusiastic advocates; it is an operation, which if performed with reasonable skill and delicacy, is attended with the minimum amount of danger and results in a high percentage of recoveries, considering the dangerous complications which occur in the course of the frequently fatal diseases for which it is performed.

The operation of tracheotomy still has its field of usefulness, and will certainly maintain an important position on the list of scientific surgical procedures, even though it is at present, by many authorities, placed in a secondary position, and in the opinion of the writer of this paper should rarely be performed until after intubation has been thoroughly tried and failed.

Could all the statistics of the operations for intubation of the larynx, performed since the time of its introduction and adoption by the medical profession be gathered together and presented, they would certainly show that hundreds of little sufferers, who would have died of strangulation, have been saved from that, at least, by the timely introduction of a tube. For, while the percentage of recoveries varies from 27 to 34 per cent., according to the statistical reports of various authorities, the percentage of cases in which the operation was a scientific success and accomplished its mission in relieving the dyspnea, and in rendering the patient comfortable, even though death eventually ensued, would be very high. Many cases which could never have been reached by any other method have been intubated in consequence of the more general use of the intubation tube, in comparison to the use of the tracheotomy tube, before or during the time of the adoption and performance of intubation.

Even though the percentage of recoveries after intubation, were not higher than the percentage of recoveries after tracheotomy, the number of lives saved would be as much greater, as the proportionate number of intubations would exceed the possible number of tracheotomies which might have been performed if intubation had never been suggested.

Since 1880, when intubation was first proposed by Dr. O'Dwyer, the number of intubators and the number of intubations have increased until they number thousands and there is hardly a city of any impor-

ance in the country where the operation for intubation is not performed.

During the time passed in the development of intubation, the number of advocates of tracheotomy as a primary procedure has materially decreased, and the operation has been performed in a comparatively small number of cases, although there are still a considerable number of eminent surgeons who prefer it.

The indications for intubation, are the presence of the characteristic symptoms of laryngeal stenosis and the operation should be performed immediately after these symptoms have developed, and not after the dyspnea has become so severe that great cyanosis and carbonic acid poisoning are present, to complicate the condition, although no case in which the operator is satisfied that dyspnea is due to stenosis should be declined, even though it were apparently *in extremis*, as the operation almost always gives comfort to the patient, and recovery may result in cases seemingly hopeless.

The age of the person should not be especially considered, as the comparative percentage of recoveries after intubation, in cases under three years of age is proportionately very large. The instruments for intubation which have been especially devised by Dr. O'Dwyer are apparently of the best possible size and shape, no suggestion of material value having recently been made, except a change in the shape of the tube, which consists in a decided rounding and flattening of its distal end, which is designed to prevent accidental false passage of the tube through the ventricle of the larynx.

Great care should be taken in the selection of instruments, and only those manufactured by reliable manufacturers and made after the most approved and latest pattern accepted. They should be kept perfectly clean and carefully sterilized after each operation and always ready for immediate use. It is very common for the tube indicated as the correct size for a child of a given age, to be difficult of introduction, in which case the substitution of the next size smaller is admissible, as there is very little possibility of the tube passing below the vocal cords, and it is practically impossible for it to pass through the sub-glottic constriction of the larynx without the employment of unjustifiable force.

In addition to the intubation instruments, a complete set of trachea tubes and the necessary instruments for performing tracheotomy should always be carried in the same bag, in order that life may not be lost when the operation for tracheotomy is neces-

Since writing the above, the set of instruments for intubation presented at this meeting of ASSOCIATION by Dr. F. E. Waxham, has been examined and is a decided improvement over the old set, particularly the introducer, which can be thoroughly sterilized and has an obturator attached made from a watch spring which can not kink as it is withdrawn from the tube.

sary, or indicated by the occurrence of one or the other of the accidents which may happen during intubation.

The difficulties which attend the operation for intubation and which are still insurmountable are: the presence of partly adherent membrane, which might be removed were it possible to devise some suitable method of reaching it; the pushing down of membrane before the tube during its introduction which will always be a source of danger, although if proper attention is given to detail in operating, and especially in holding the tube exactly in position during the extraction of the introducer and the subsequent removal of the string; the presence of membrane in or below the tube, occluding it, which must result in the immediate death of the patient unless the tube is coughed out or removed at once. The presence of membrane in the bronchi is a complication which can not be affected, either by intubation or tracheotomy.

Coughing out the tube can not be prevented; it may fall upon the floor or be swallowed, which is not serious as it indicates a probable decrease in the laryngeal edema, and in nearly all cases dyspnea will not return until ample time has elapsed for the intubator to be summoned and to re-introduce the tube. The removal of the tube may be easily and readily accomplished when indicated by the pressure method suggested by Dr. Cheatham of Louisville.

If dyspnea return after relief has occurred from a previous intubation, the tube should be removed on trial and re-introduced, this procedure frequently being beneficial in loosening partly detached membrane. The tube may be removed on trial some time between the fourth and sixth day if the symptoms are favorable, although it is generally safe to leave it, if the patient is doing nicely, until the pharyngeal deposit has cleared up.

The operation for tracheotomy, if for any reason intubation seems impracticable, should be performed at once: when there is irritability of the larynx preventing retention of the tube; when partially detached false membrane frequently embarrasses the breathing; when frequent plugging of the tube with thick viscid mucus and shreds of membrane persists; when membrane is pushed down before the tube and can not be expelled; when the tube has entered the ventricle of the larynx, making a false passage; when the tube has passed below the true vocal cords and can not be extracted; when there is inability to sufficiently nourish the patient; when there is continued irritation of the bronchi from the excessive aspiration of food.

The difficulty in feeding and properly nourishing the patient after intubation, is one of the most important factors, and certainly militates against a favorable termination, although some improvement has been made and the danger somewhat lessened by the adoption of the posture method of feeding, suggested by Dr. W. E. Casselberry of Chicago.

The inability to sufficiently nourish the patient is undoubtedly a serious drawback to the operation. The feeding should be carefully considered, the physician in charge making it an invariable practice to personally instruct the persons who are to care for the patient, indicating the amount and kind of food to be administered, the proper intervals of time between feeding, and observing that the ability exists to carry out the directions. For it is quite

possible that the patient should become discouraged, and the case lost, through violent cough superinduced by injudicious efforts at feeding.

A thorough and complete knowledge of the requisite medical treatment is very essential to the favorable termination of the disease and each step must be carefully marked, and in addition to the general medication, any special symptoms or complications appearing during the progress of the disease must be immediately combated.

The fact that intubation and tracheotomy are purely mechanical procedures, only calculated to carry the patient along until such time as the appropriate medication shall have had the desired effect, must never be lost sight of, and strict attention given to every detail of the medication, nourishment and care.

There is no question but that the prognosis in either intubation or tracheotomy is materially affected by the variety of the disease, and the presence or virulence of the epidemic, the mortality always being greater at the height of the epidemic, when the ratio of deaths from all causes is greatest and severe complications more apt to be present.

If the dyspnea comes on considerably after the onset of the disease, and membrane has been present in the fauces and disappeared, the prognosis is particularly favorable, especially if the patient is not suffering from severe complications, serious exhaustion or fatal systemic poisoning.

Case 1.—June 29, 1891, in the practice of Dr. D. T. Bowden, a stout, robust, male child, who had been ill five days, although the parents did not think of diphtheria; his throat was sore but he played about until twenty-four hours before present date, when the laryngeal symptoms began to develop and they have increased steadily until present time, with hoarseness, croupy cough and considerable restlessness. Intubation was positively indicated, and was performed at 11:30 A.M. The tube was readily introduced on the first trial but did not give full relief to the dyspnea at first; there was great irritability of the larynx, cough, and occasional stoppage of the expiration, until ten minutes after the tube was introduced, when a complete ring of membrane was expelled about the size of the lumen of the trachea, and about one-half an inch long. After this the relief was complete, the pulse being 130, and the respirations 24 per minute; the temperature 100.

June 29, 5 P.M. The child was fairly comfortable, pulse 142, respiration 28; the air entered lower lobes of the lungs freely; there were some moist râles; was able to take nourishment in Casselberry position; the medical treatment—nourishment, stimulation, bichlorid and calomel.

June 30, A.M. Dr. Bowden has examined his water and reports albumen present in considerable quantity.

June 30, P.M. Child not doing well; respiration increased to 45, and marked sinking of the epigastric region; interference with the respiration. Some bronchial breathing; pulse 160 and feeble. The child has taken fair quantities of nourishment; the tube was removed by the pressure method of Dr. Cheatham of Louisville, without any difficulty or distress, after which a piece of membrane about the size of the first, evidently from the trachea, was coughed up; the dyspnea slightly increased and the tube was re-introduced; there was no improvement, the respirations continued to grow more rapid and shallow and the child died at 7 A.M. July 1, the tube having been retained forty-four hours. In this case the tube failed to reach the disease.

Diphtheritic membrane was present in fauces when first seen by Dr. Bowden; the 3 to 4 tube was used and worn forty-four hours. The principal complication and cause of death was extension of the disease to the bronchi.

Case 2.—June 30, 1891. Hageman, age 2 years 11 months, a strong, healthy female child, has had diphtheria five days; a patient of Dr. B. C. Magennis. Laryngeal symptoms, thirty hours. Membrane in fauces well marked. The child was almost moribund; respirations catchy.

The tube passed into the esophagus on first trial; tube 2-year size used and passed on second trial; respiration

The cases here reported, nineteen in number, are tabulated for ready reference. There were six recoveries, all of one of which resulted from an operation for Tracheotomy, which was performed after Intubation had failed. The Tracheotomy was considered necessary in consequence of a feeling of uncertainty regarding the whereabouts of the tube.

Date.	No.	In the Practice of	Age	Duration of Illness	Time from Onset of Illness to Intubation	Cause of Illness	Complication	Result	Remarks	
June, '91.	1	Dr. D. E. Bowden	M.	3 yr. 10 mo.	24 hrs.	5 days	Extension to Bronch.	Died 14 days after Intubation.	3 to 4	Present till later.
June, '91.	2	Dr. B. C. Magennis	F.	2 yr. 11 mo.	20 hrs.	5 days	Extension to Bronch.	Died 14 days after Intubation.	2	Present till later.
Aug., '91.	3	Dr. P. A. Harris	M.	3 years	24 hrs.	1 day	Sepsis.	Died 14 days after Intubation.	3 to 4	Present till later.
Sept., '91.	4	Dr. W. S. Hurd	F.	11 months	24 hrs.	1 week	Asphyxia.	Died 14 days after Intubation.	1	Present till later.
Oct., '91.	5	Dr. G. Terriberry	M.	3 yr. 6 mo.	5 days	5 days	Extension to Bronch.	Died 14 days after Intubation.	3 to 4	Present till later.
June, '92.	6	Dr. G. W. Terriberry	F.	3 yr. 6 mo.	30 hrs.	1 week	Cardiac Paralysis.	Died 14 days after Intubation.	2	Present till later.
Sept., '92.	7	Dr. Colfax	F.	1 year	1 day	3 days	Cardiac Paralysis.	Died 14 days after Intubation.	3 to 4	Present till later.
Sept., '92.	8	Dr. J. M. Stewart	M.	3 yr. 6 mo.	1 day	1 day	Cardiac Paralysis.	Died 14 days after Intubation.	3 to 4	Present till later.
Oct., '92.	9	Dr. J. H. Banta	F.	8 years	21 hrs.	1 day	Sepsis.	Died 14 days after Intubation.	3 to 4	Present till later.
Oct., '92.	10	Dr. R. Neer	F.	9 years	1 day	1 day	Pneumonia.	Died 14 days after Intubation.	3 to 4	Present till later.
Dec., '92.	11	Dr. Fliteroff	F.	8 years	2 days	3 days	Exhaustion.	Died 14 days after Intubation.	3 to 4	Present till later.
Jan., '93.	12	Dr. P. A. Harris	M.	3 yr. 6 mo.	2 days	2 days	Dyspnea.	Died 14 days after Intubation.	3 to 4	Present till later.
Jan., '93.	13	Dr. Wm. Blundell	M.	3 yr. 1 mo.	2 days	1 week	Exhaustion.	Died 14 days after Intubation.	3 to 4	Present till later.
Feb., '93.	14	Dr. J. H. Banta	F.	6 years	48 hrs.	3 days	Pneumonia.	Died 14 days after Intubation.	3 to 4	Present till later.
Mch., '93.	15	Dr. D. T. Bowden	M.	3 yr. 6 mo.	3 days	2 days	Sepsis.	Died 14 days after Intubation.	3 to 4	Present till later.
Mch., '93.	16	Dr. Geo. Fischer	F.	3 yr. 6 mo.	24 hrs.	18 hrs.	Exhaustion.	Died 14 days after Intubation.	3 to 4	Present till later.
Apr., '93.	17	Dr. J. M. Stewart	M.	2 yr. 7 mo.	18 hrs.	5 days	Exhaustion.	Died 14 days after Intubation.	3 to 4	Present till later.
Apr., '93.	18	Dr. Geo. Fischer	M.	3 yr. 7 mo.	1 week	1 week	Exhaustion.	Died 14 days after Intubation.	3 to 4	Present till later.
May, '93.	19	Dr. Thos. Paton	F.	3 yr. 10 mo.	1 week	1 week	Exhaustion.	Died 14 days after Intubation.	3 to 4	Present till later.

artificial, and raw branny in mouth finally stimulated cough and child came around; relief of dyspnea complete. Child restless and pulse not good; ordered feeding by posture method; medical treatment, calomel (gr. $\frac{1}{2}$ every two hours).

July 1. Patient has done very well since operation until about 4:30 p.m., when the respirations grew more rapid and difficult. At 5:45 the tube was removed, by Cheatham's pressure method, without difficulty; some pieces of membrane came away with it and in about ten minutes a complete cast of the trachea, which looked much thinner on the lower end as though it had been expelled entire; it was about two inches in length. The child breathed some easier but the cough was very croupy. At 7:30 was hastily called and found the child considerably cyanosed; re-introduced tube and respirations became very quiet and comfortable; the patient was much exhausted and wished to be let alone; did not cough much although there was mucus in the tube; would not expectorate; pulse somewhat irregular; respirations 40 per minute.

July 2. Child passed a very comfortable night, breathing evenly and slowly; the parents report that she took a large amount of nourishment and in the morning was very bright and looked much better; pulse stronger, slower and regular; 140; respirations 36 per minute. In the afternoon the child's respirations became more hurried and restlessness developed, with considerable swelling of the glands of the neck; there was decided evidence of a stoppage from the presence of membrane in the trachea as shown by the puffing out of the suprasternal space at each expiration.

The tube was again removed; she expectorated some pieces of membrane but no cast.

The tube was re-introduced in about an hour. The patient was much exhausted and rallied very slowly; she still had symptoms of stoppage below the tube and the string was left attached to remove tube in case of necessity, but she grew worse until 11 p.m., when she died.

She wore the tube three days and six hours. The disease undoubtedly extended to the bronchi.

Case 3.—August 3, 1891. T. B., male, aged 3 years; in the practice of Dr. P. A. Harris. Was taken ill on Thursday four days before first seen; the case was rather obscure and the parents did not think it very bad; first developed

croupy symptoms during Monday morning which increased during the day until evening.

At about 10 p.m. and less than twenty-four hours after the onset of the dyspnea, the child was greatly distressed and could not get sufficient air; had marked episternal sinking and also great sinking over the diaphragm, crowing respiration, and a very stridulous cough. Has been constantly upon the biclorid treatment.

After being placed in the proper position intubation was attempted but did not succeed until the third trial, the tube passing into the esophagus twice. There was almost immediate cessation of the dyspnea, and the child, soon after the operation, seemed to feel very comfortable. The pulse was 144, the respiration 28, the color good and no stridor on respiration.

August 4. Dr. Harris reports respiration 27, pulse 150; the child is taking very little nourishment and has a severe cough at every effort. Advised Cassellberry's method of feeding, and that the head be held low enough to make it absolutely impossible for food to pass into the trachea. In afternoon when coughing, the tube was expelled; the feeding had been easily and successfully accomplished by the Cassellberry method.

The child breathed about as comfortably after the tube came out. Five hours afterwards the patient was breathing fairly well, but Dr. Leal stated that the child had lung complication; pulse 150, respiration about 30. The parents would not consent to have a re-introduction of the tube, even if it became necessary; at the time there was not sufficient obstruction to make it advisable. The child had no return of the dyspnea that indicated a re-introduction of the tube, but grew gradually weaker and finally passed quietly away.

Death, caused by sepsis and pulmonary complications, occurred on Wednesday morning, about thirty-six hours after the intubation and fourteen hours after the tube was coughed out.

Case 5.—Sept. 21, 1891. M. D., female child, age 14 months; a patient of Dr. W. S. Hurd. Child had been ill one week; with symptoms of stenosis about twenty-four hours. Had been strong and well but was extremely cyanosed, or rather had the appearance of a child having more difficulty in expiration than in inspiration.

The tube was introduced three times, slipping on two occasions into the esophagus, and when in the larynx not seeming to afford any relief. The child died during the efforts to introduce the tube.

The cause of death was membrane in the trachea which was pushed down before the tube and could not be expelled.

Case 7.—Oct. 9, 1891. Patient of Dr. C. Terriberry; male, 4½ years old. Diphtheritic symptoms first started in larynx five days before; some faucial patches second day after. Moderate temperature. Bichlorid treatment commenced at once; patient gradually grew worse from Saturday until Thursday evening, when he was intubated with instant relief; no difficulty in operating, tube passing in easily. Patient had a good night, taking considerable nourishment.

In the morning Dr. T. reported his temperature 99.1-10, pulse 120, tongue coated, bowels and kidneys acting, the urine being somewhat scanty and very high colored. Breathing about 30, and very comfortable.

At about 3:30 p.m. patient had a choking spell in which he became very much cyanosed and after a severe struggle for breath and hard coughing he quieted down again so that at the time of making visit he was breathing very comfortably; he also spoke in a moderately loud voice, and it seemed as if the tube might have been coughed up and swallowed.

Was sent for at 6 p.m. and was informed that the child had had two such spells, and decided to re-intubate. On examination found the tube in situ, and removed a considerable quantity of mucus; concluded that there was membrane below the tube and that the tube must be removed.

Sadly only expiration ceased and shortly after inspiration also; he became extremely cyanosed. The spasm came on while trying to induce him to open his mouth to allow removal of the tube; the jaws tightly closed and could not be opened; it seemed as though he was about to die, when finally his jaws were separated and the tube was removed without much difficulty by Cheatham's pressure method; by producing artificial respiration he was induced to breathe again and did so quite comfortably.

At 9 p.m. visited the house again, found him breathing rapidly and with difficulty; he had taken considerable nourishment but the larynx was evidently obstructed. Intubation was suggested but the mother would not consent as she was convinced her child must die. The patient, however, continued to take the medicine regularly and gradually improved. He finally made an excellent recovery, the tube having remained in place only twenty-four hours.

Case 8.—June 19, 1892. Dr. G. W. Terriberry's patient. Female, age 3½ years. One week ago the mother first discovered that the child had sore throat (she is slim, with small neck for her age); she seemed to get on nicely until the afternoon of the 18th, when she began to get hoarse; she gradually grew worse until I saw her on the evening of June 19. Immediate intubation was advised; the procedure was accomplished, the 2-year tube introduced, the impression being that the child was only 2½ years old; it was passed in readily on the second trial with immediate relief of the breathing; she was able to swallow without much difficulty in the Casselberry position, and the string was removed one-fourth of an hour after the intubation.

The child slept well all night and was in good condition in the morning. In consequence of inability to procure the services of a nurse, the child took very little nourishment after the intubation; she seemed to be more restless during the afternoon and evening; the breathing was very comfortable, although considerable quantities of mucus were present; a nurse was secured. The medical treatment consisted of milk and whisky and one thirty-second of a grain of bichlorid every two hours.

June 23, a.m. The child has been fairly comfortable since last note, but has taken only small amount of nourishment; the membrane has about disappeared from the fauces; her pulse has ranged from 121 to 150, and her temperature from 101 to 102.5; it came down readily after alcohol baths. Had some difficulty with breathing, for two or three hours last night, due to membrane probably about the head of the tube; her respiration has ranged from 24 to 30; her tongue is still very much coated and she complained of some soreness about the throat.

June 24. Patient had a more comfortable night and has taken somewhat more nourishment. Temperature, 100.2-5. There's some to be some reformation of membrane in the pharynx; I have used a spray of the peroxid of hydrogen solution. During the afternoon had two or three attacks of cyanosis apparently due to cardiac failure, the respiration being then normal at those times.

The tube was removed and rectal alimentation resorted to; the respirations were not impeded but she continued to sink, and died of exhaustion five days after intubation.

Case 9.—September, 1892. Female, 4 years of age. Dr. Colfax, attending physician. On the fourth day of the disease the patient had a sinking spell with considerable dyspnea in the morning, and Dr. C. thought the child was dead; she rallied, however, and when first seen was laboring with marked dyspnea, pale and anxious look, feeble and irregular pulse; immediately proceeded to intubate, which was done without any great difficulty on the second trial, although the child became very much exhausted.

There was considerable swelling of the epiglottis; in about twenty minutes the breathing became perfectly easy and the child said she felt very comfortable; she had a very fair pulse and died fifteen hours after the operation, from cardiac paralysis, the respiration having been entirely comfortable and easy to the end.

Case 10.—Male, 4½ years old, patient of Dr. J. M. Stewart. Was called on September 1, p.m. to see the child. He was at that time cyanosed, and had marked sinking on respiration, in the epigastric and suprasternal regions; had cough and difficulty in phonating. He had trouble with the larynx four days, at which time the whole difficulty seemed to commence, he having been playing about all the previous day and had not complained of feeling ill. On examination there was some little deposit on the fauces; the tongue was coated.

The operation was performed without much difficulty but was followed by vomiting of curdled milk. The boy had no trouble in taking a considerable quantity of nourishment in the Casselberry position, or even in eating ice when sitting up at any time during the disease. The tube seemed to cause some cough; his temperature was not high, 100, and he was quite comfortable; he had no complication or drawbacks of any kind. He coughed out the tube on the sixth day, Sept. 7, 1892. September 8, p.m. The tube remained out thirty-six hours, when there seemed to be a return of the bad symptoms, increased temperature and pulse, with difficulty in breathing; decided to re-introduce the tube in the evening; there seemed to be edema about the epiglottis, so that it was difficult to introduce the tube and a 2-year size was tried and introduced easily, but was soon coughed out again when the regular size was again tried and introduced. September 12. The tube is still in place; patient takes his nourishment fairly well; has a temperature varying from 99½ to 101 in the axilla; no deposit in the pharynx, tongue again clearing. September 13, a.m. Tube coughed out; temperature normal; pulse good; the child hungry; breathing comfortable. Uninterrupted recovery.

Case 11.—Oct. 13, 1892. Female, 8 years old; Dr. Banta attending physician. Has had sore throat for four days; trouble with respiration for twenty-four hours; is small for her age. First seen in the morning; better at dinner time. Intubation made at night. Could not introduce the regular sized tube but used a small one 3-to-4-year size, instead of 5 to 7. Relief marked, tube remained in twenty-four hours when it was coughed out followed by increasing dyspnea. Again intubated at 9 p.m.; succeeded in introducing the 5 to 7 tube with immediate relief. October 15, Doctor reports her having had a good night and her condition improved. The child lived until October 16 a.m., never having any difficulty with breathing and died of sepsis.

Case 12.—Nov. 17, 1892. Dr. R. Neer's case. Female, age 9 years. Patient had increasing hoarseness and cough for four days; there was no indication of a diphtheritic deposit in the pharynx. Her tongue was coated, she had a rapid pulse and great difficulty, especially in inspiration. Marked supra-clavicular sinking; a very hoarse stridulous cough. November 18. The trouble had increased, the dyspnea was attended by the anxious look, but there was still no deposit in pharynx; the pulse was 150 and of poor quality. Intubation was advised and afforded immediate relief. The tube, 5 to 7, was introduced with perfect ease at the first trial. November 19. Dr. Neer reports the case as progressing favorably; pulse and temperature slightly accelerated; great difficulty experienced in the feeding, a slight amount of milk causing her to cough.

November 20. Child bright and feeling very comfortable; says she did not mind the introduction of the tube; that it did not hurt her and made her feel much better; she can take milk in the Casselberry position without coughing much, but she does not like to take it; she drank a wine glass of milk and whisky while Dr. Neer was present. On examination it was thought that there was a suspicion of deposit upon left tonsil. Bowels moved twice during the day.

November 21. The child has been very restless and wanted the tube removed; she has some dyspnea, although the day before there was none; there was a characteristic membrane in the fauces. The tube was removed; there was nothing in it; the disease was below the tube. The child died in the evening from pneumonia, having been twelve hours without the tube, the dyspnea not having been marked.

Case 11.—December, 1892. Dr. Lilecroft, attending physician. Female, 8 years old. Had been ill three days; the laryngeal symptoms had been present two days and were very severe; the child was very much exhausted before the operation and the pulse was very rapid and irregular. The diphtheritic deposit was very great. Intubation was performed in the usual manner, a 5 to 7 tube being used. The dyspnea was entirely relieved, but the child never rallied and grew continually weaker until six hours after intubation, when she died from exhaustion.

Case 12.—Jan. 20, 1893. Healey, male, age 1½ years, patient of Dr. Harris; duration of diphtheria forty-eight hours. Membrane below the tube. Death resulted in twelve hours after efforts at intubation. The child had excessive diphtheritic deposits which seemed as if they had been much longer in coming than the history indicated; the tongue was very much coated and brownish. Patient cyanosed and breathed with great difficulty. The intubation was made six different times, the length of time which the tube could be retained varying from one to four or five minutes, when the expiratory movement would be accompanied by a decided flap of loose membrane over the distal end of the tube; the parents objected to further efforts and the patient was left to die. Tracheotomy was advised but not permitted.

Case 13.—Jan. 24, 1893. Dr. Blundell's patient. Male, 3 years, 4 months old. Patient had had laryngeal trouble every night for a week, but seemed in good health until the evening of the 23d, when he was first seen by Dr. Blundell. At noon on the 24th his dyspnea was so marked that intubation was advised; a small tube (2 years) was used and placed in position without any difficulty, giving great relief until three and one-half hours after, when he had a coughing spell and coughed up a considerable piece of membrane; this effort was accompanied with such severe strangulation that his mother thought he was dying. The dyspnea returned and was as severe as before intubation. On examination the tube could not be found, and as it was small for his age it was feared it might have passed below the vocal cords, and when the tube, size 3 to 4, which was tried, did not slip easily into the larynx, no force was used, but tracheotomy advised and performed in the usual manner.

January 25. He had a fair night and took considerable nourishment. He expectorated during the night a moderate quantity of diphtheritic membrane. Looked very comfortable and did not make any complaint. January 26. Has had one or two attacks of coughing, expelling considerable quantities of diphtheritic membrane; has taken a fair quantity of nourishment; says he has no pain. Temperature 101, pulse 120; has a sore on his lip with diphtheritic deposit on it which seems to be thinning; has taken ½ grain calomel every one and one-half hours. January 27. Has had a temperature of 101.7-10 during the night, coughing more frequently than on the night before. Has a considerable swelling and some deposit about wound which has gaped a great deal since swelling came on and is somewhat red about the edges. He looks well; his tongue is clearing at the end; can not breathe through mouth yet. Temperature 100, pulse 112. January 28. Wound affected with considerable deposit, swelling and redness. Had a hemorrhage from the nose last night, considerable blood came from the tube. His general appearance is good, tongue is clearing and is taking some nourishment. His temperature has not been higher than 100 and his pulse 116; this morning his temperature is 98, pulse 102, respiration 28 or 30; has swelling about the wound. Ordered peroxid of hydrogen, 15 volume solution to be applied to wound. January 29, p.m. Swelling about wound very much diminished and deposit nearly cleared; he passed a very comfortable night and day; deposit on lip nearly all gone; he is taking increased quantity of nourishment. He had a hemorrhage from the tube, during the night, about one-half teaspoonful of bright red blood; the highest temperature, 99. This evening the temperature is 98.1-10, his pulse 100; his general condition good; he passed intubation tube from bowels; he will not take his medicine.

January 30, a.m. Very comfortable, a few drops of blood coughed up in the night at about 10 a.m., tongue and mem-

brane clearing, increased quantity of nourishment. Pulse 100, respiration 21, temperature normal; he can breathe through larynx with tube closed. January 31 and February 1. Condition has remained the same, have great difficulty in getting him to breathe through his mouth, pulse 100, temperature 98 to 98.7-10, respiration 21 to 25, taking nourishment; no deposit on wound; tongue rather more coated than it has been before. February 2. Condition about the same, except somewhat improved, especially the wound; slight bleeding at times with expectoration. Some milk has passed down and been coughed out of the tube, his urine, which has been scanty is more profuse, his bowels are regular. February 4, a.m. This afternoon removed the tube; it was followed by such great dyspnea that it was necessary to introduce another. The smaller sized tube was used; in introducing the cannula during the afternoon a piece of granulation tissue seemed to have been cut off. It was about the size of the fenestra and one-thirty-second of an inch thick.

He seemed in good condition this evening; his pulse ran up during and after the re-introduction of tube. In swallowing food, regurgitation of some of the food portion occurs. February 5. Temperature ran up to 102, with pulse 120, respiration 26. Child was not restless, gave quinine, ordered mild cathartic as bowels had not moved; had coughed up a great deal of mucus. February 6, a.m. Temperature normal, pulse 100, respiration 30. Bright and feels quite comfortable. February 7. Very well in morning; at noon, temperature 101, respiration 36, pulse 132; granulations around wound very pulpy and large; is talking in whispers through mouth; will not permit tube to be corked. February 10. Has had no elevation of temperature since. Each night at about 1 a.m. has a sweat with considerable depression, his pulse becoming soft and much slower. Using glycerine on the wound and applying nitrate of silver to granulations. His urine is clearer, his tongue still coated; he can speak much better and has had a cork in the tube for half an hour without difficulty of breathing; has less trouble with food passing into the tube. On the nineteenth day after introducing the tube he was induced to have the cork in, which he did and kept it there all day and did not want it removed. In the evening the tube was removed and he has made an uninterrupted recovery.

Case 14.—Feb. 18, 1893. M. Dunning, 6 years; female; patient of Dr. Banta; diphtheria three days. Croup forty-eight hours, increasing; there was some question as to the presence of any diphtheria in this case, no membrane having been seen. February 18, 12 m. was called to see child; seemed fairly nourished, had great dyspnea, some cyanosis, history of previous attacks of inflammatory croup. No membrane in the pharynx; after steaming and slacking time for two hours and no improvement taking place, her respiration being 37 to 40, her pulse 150 to 160, intubation was ordered and performed, tube, size 5 to 7. The tube necessitated the use of a slight degree of force but was introduced on the first trial. She had immediate relief from dyspnea but did not get into a good sound sleep. She was able to take her nourishment and did so during the night. February 18, 2 p.m. Child found in great discomfort, breathing rapidly and very shallow with some apparent effort but not sufficient dyspnea to indicate any closure around or stoppage in the tube. Her pulse was 180 or more, her temperature 100½. She undoubtedly had a very severe attack of pneumonia from which she died twelve hours after intubation.

Case 15.—March 4, 1893. Dr. Bowden's patient, male, 4½ years of age. Duration of disease four or five days. Duration of laryngeal symptoms two days; was a strong well-nourished child. Dyspnea very marked, great supra-clavicular sinking and depression of epigastrium on inspiration. Very dark-looking membrane, which was separated during the intubation; the urine was reported scanty and containing considerable quantities of albumen. He has a fairly good pulse; complained of severe headache. The intubation was performed and a piece of membrane from the fauces was drawn into the tube; several trials were made the tube passing into the esophagus; it was finally introduced and afforded immediate relief. March 5, a.m. Child slept well after the intubation, but was somewhat delirious during the night; takes his nourishment well in Cassell-berry position. He looked very badly; has a pulse of 100 or more, and rapid respiration without any special dyspnea; no lung trouble apparent; temperature 103, axillary. The child continued to sink and died of sepsis in the afternoon, having no further laryngeal stenosis.

Case 16.—March 29, 1893. Dr. Fischer's patient. Female, 3½ years old. Forty-eight hours since onset of disease and twenty-four hours since laryngeal symptoms developed. Made the intubation without difficulty at 9 a.m. Great dyspnea was present and some cyanosis. The relief was instantaneous. Coughed up considerable mucus, the tongue was coated and the tonsils had considerable membranous deposit. Child went to sleep immediately after the operation.

March 30, a.m. Temperature 100, pulse 130, respiration 24; coughed up some mucus. Dr. Fischer is alarmed at the character of the pulse, which is feeble; otherwise the child is doing fairly well, taking considerable wine and milk. April 2. Child had done well since; respiration 18 or 20; pulse 95, but feeble; temperature from 99 to 100; is troubled by much coughing; takes fluid nourishment fairly well, also wine and brandy and ice-cream. April 4. The child has been very comfortable, the pulse ranging from 95 to 120 and full, the temperature 99 to 99½; the tongue and tonsil have cleared and the child has taken a fair quantity of liquid nourishment and stimulants; there has been but little difficulty with the feeding. The tube was removed by the Cheatham method without difficulty, and the indications pointed to a speedy recovery, the respirations being free and even, and the condition favorable; convalesced rapidly; she wore the tube six days before removed.

Case 17.—April 6, 1893. Male, age 2 years 7 months. Dr. Stewart's patient. Five days since onset; has only had difficulty of breathing about eighteen hours; had great cyanosis and dyspnea. Intubation was made and there seemed to be stoppage at head of tube; could not expectorate a thick ropy mucus; respiration rapid and somewhat difficult in the inspiratory movement; no difficulty in expiration. After about an hour seemed to be getting plenty of air and string was removed. April 7. Had a restless night with severe cough; coughed up tube at 8 a.m. At 10:30 was breathing quite comfortably. The child grew gradually worse and was re-intubated at 4:30 p.m. with instant and great relief. April 8. Child has had a comfortable night, has slept well and is in good condition. Temperature normal; has taken considerable nourishment. In the evening Dr. Stewart reports that the child had a severe spell of choking; the parents thought he would die, but was doing well when he saw him shortly after. Great difficulty was experienced in taking food, the paralysis of the fauces causing it to come up through the nose. April 10. The child coughed up the tube four days after intubation. He continued to improve each day from this on, and finally made a perfectly satisfactory recovery.

Case 18.—April 22, 1893. Patient of Dr. Fischer, age 6 years 7 months, male. Diphtheria one week; seemed to start in larynx. Has had frequent attacks of croup and the parents took this for one of the same and did not immediately call a physician. He continued to grow worse and Dr. Fischer was called; he made a diagnosis of diphtheria and in a few days found membrane in the fauces; the croupy symptoms gradually increased, and all night and the day of the operation were very severe; the child was cyanosed and there was a marked sinking of the epigastric region at each inspiration and a great amount of suprasternal depression. Intubation was advised and an effort to introduce tube was made; the patient was very docile but all efforts failed. The 3 to 4 tube was then tried and introduced at first trial with immediate relief; he took considerable nourishment in the usual posture, and did not have severe cough, although he did cough up a considerable quantity of thick mucus just after the intubation. He grew steadily better each day and on Thursday the sixth day after the operation he coughed up the tube, after which he improved steadily. His temperature never ran higher than 101 after the operation. Three other children developed the disease after he did; two of them died of sepsis.

Case 19.—May 12, 1893. Dr. Eaton's patient. Female, 3 years and 10 months old. Duration of disease one week; dyspnea gradually increasing. Very much cyanosed and nearing dissolution. There was no evidence of diphtheria.

The first attempt at intubation failed; the second was successful and was followed by coughing and expectoration of a considerable quantity of mucus; the breathing was rapid and the child was extremely depressed and had some sickness of the stomach with slight vomiting, but she said she felt comfortable.

May 14. Child seemed better than yesterday when the pulse was 130 and the respiration very rapid. Is taking large quantities of nourishment; pulse 120, respiration 12; seems bright and well; coughs somewhat and expectorates small pieces of very thick yellow mucus; there is a decided

membranous deposit in the throat on last visit; temperature not taken.

May 14, p.m. The child passed quietly away, without any struggle or difficulty in respiration. Death caused by exhaustion and possible lung complication, two days after intubation.

EIGHT CASES OF SYPHILITIC STENOSIS OF THE LARYNX CAUSED BY WEB FORMATION, OPERATED BY MY METHOD OF COMBINED TUBAGE AND THE KNIFE.

Read in the Section on Laryngology and Otology, at the Forty-fourth Annual Meeting of the American Medical Association.

BY J. MOUNT BLEYER, M.D.

NEW YORK, N.Y.

LARYNGOLOGIST TO THE WEST SIDE GERMAN CLINIC; MEDICAL EDITOR ELECTRICAL REVIEW, ETC.

Syphilitic stenosis of the larynx usually presents to us a pathologic narrowing of its passage, and so to a large degree acts as an interference to free respiration, and thus becomes a condition of alarming danger. Little attention was paid to the pathology of this form of stricture or stenosis, and much less special attention to its treatment in the early years of the century. Nevertheless, in 1828 we find the great Liston dilating strictures of this kind after performing preliminary tracheotomy, through the tracheal opening, and about that time, too, Bouchut and Horace Green began to operate in a similar way, believing that all forms of stenosis were amenable to treatment by dilatation by means of tubes passed through and held between the stenosed parts. Their theories and practices met with much support by the surgeons of that day. Even Trousseau once thought of practicing it, but somehow it fell into disfavor, largely because the operation had neither the system nor the instrumentation we now have—and, one by one, they abandoned it, and so it was left to a comparatively recent period.

The discovery of the laryngoscope was largely responsible for the revival of Bouchut's and other forms of operations. The first disciples of Bouchut and Green were Marduel in 1863, and Delore who took up tubage for stenosed larynges a year later. Gradually such famous laryngologists as Stoerck, MacKenzie, Tuerck, Schröter, Weinlechner, Hering and in our own country, O'Dwyer, began to study the pathology of stenosis of the larynx and its treatment, and the great honor and credit of perfecting the treatment of stenosis of the larynx belongs to O'Dwyer who made tubage of the larynx, a feasible, safe and effectual treatment of stenosis of the larynx.

"But honor to whom honor is due." To Bouchut, therefore, we must always look as the father of tubage for stenosis of the larynx.

Stricture of the larynx, according to its locality may be placed in one of three classes: the supra-glottic, the glottic and the infra-glottic, and thus be best studied with regard to causes which bring about the stenosis.

The one to be considered here and which forms the subject of this paper is caused by the cicatrices, the scar tissue which results from the healing of ulcers about the larynx, forming web and bands of tissue that narrow and draw together the lumen of the organ in its narrow parts. This condition we all know obtains this in the healing of syphilitic ulcers

of the larynx. There are other forms of suddenly oncoming and gradually increasing dyspnea, such as occur in croup, diphtheria, tuberculosis of the larynx, and particularly in the acute form of laryngeal syphilis. Of these forms we already know a great deal and I need not dwell upon them further, but may pass at once to the cicatricial form, where the opening of the larynx is much narrowed by bands or web of cicatrix tissue. Many operations and modes of treatment of this form have been devised from time to time, with the most disappointing results, and the later re-discovery of tubage, however, bears riper fruit and puts into the shade the work of Bonchut, Schrötter, Weinlechner and the others.

The profession at large are thoroughly acquainted with the indications and the steps in the surgical practice of tubage of the larynx, and so I need consume no time with a detailed description of the steps in the operation.

I wish only to add to intubation as it is generally known as my own modification, or combined if you please, of operation and tubage.

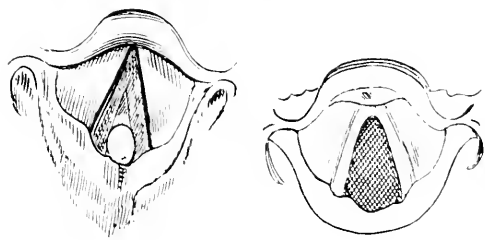


Fig 1
Web forming the Stricture.
Before Operation.

Fig 2
After Tubage and Operation.



Fig 3

Showing the Tube in position after the Cicatricial Web has been operated upon, and the continued dilatation in progress, until the edges of Web are healed.

Below I give my method and the result of eight cases I so treated since 1889. The first case I operated and reported was before the AMERICAN MEDICAL ASSOCIATION in that year. This procedure has served me well, and I am sure it is a far more satisfactory and radical plan of treatment than that of tubage and dilatation of syphilitic cicatricial bands alone, and gives a better chance of permanent cure without in any way increasing the risks of the operation.

In the accompanying drawing is shown the pathological condition of the first case I had the honor of reporting, as I observed it under the laryngeal mirror, and also the same larynx after operation and tubage. The drawing conveys to you a better and clearer idea than the most skillful word painting from my pen; also a third cut which explains itself, and the Lennox Browne knife.

The patient, a female age 35, was operated upon

March 27, 1889. In this case the stenosis was very marked. (I therefore present it as a typical case for my method of operating.) On laryngoscopic examination an inflammatory syphilitic adhesion was seen, which existed between the cushion of the epiglottis by a tight fibrous band, uniting the vocal cords along the anterior two thirds of their free border and reducing the glottic chink to the size of a goose quill. The right cord was much inflamed and the side of the larynx generally was thickened; respiration was harsh and whistling but regular during the day; there was much dyspnea; on light exercise, at night and during sleep loud stridulous breathing on inspiration. The examination of the lungs elicited dullness over both apices.

The patient was placed on large doses of the iodids and cold applications to the throat. These conditions of the throat within three weeks' time were much improved. Most of the inflammation disappeared.

Now for the treatment of the cicatricial tissue. Dilatation was tried for three months, by means of the O'Dwyer tubes. These were worn for two weeks at a time and then changed for larger sizes. Under this mode of treatment and dilatation the patient showed much improvement. She gained in weight. Her lungs again on physical examination the second week showed a very marked change. After two months the tubes were discontinued and the patient was discharged. Two months later the patient came again under my notice and complained of her breathing, saying that it was not as free as a month previous. I again examined her by the laryngoscope, from which I learned that the cicatricial web again began to interfere with normal respiration, closing around as before treatment. I concluded from the condition of affairs that it would be best to operate, and thereby if possible, give her permanent relief. These were the steps taken for the permanent cure of stenosis of syphilitic cicatrices.

This patient was one well trained for laryngoscopic examination and who could stand any amount of laryngeal manipulation. A good light was thrown upon the operating field, and thereby the entire condition thoroughly explored before any operative procedure was undertaken. A 20 per cent. solution of cocaine was sprayed over the pharynx, post-pharyngeal wall, soft palate and larynx, in order to produce a complete local anesthesia of the entire surrounding localities. A gag was inserted on the left side of the mouth. This instrument should be made use of in all such operative maneuvers, so that one may be able to control the opening of the mouth, and not trust to the patient. An assistant should control the head of the patient against an ordinary head rest. These are the preliminary steps that I generally pursue.

The cutting is done with Lennox Browne's laryngeal dilator with cutting blades. This instrument possesses these advantages over the Whistler cutting dilator: in passing tubes into the larynx many difficulties are encountered, and especially through a cicatricial stricture are much greater than generally stated. This instrument of Browne's possesses the advantage of being a hollow tube of Schrötter and the cutting dilator of Whistler, so that the surgeon in operating is always sure by the outward passage of air, when the hollow tube is in the larynx; is able to incise with more certainty as to what he is cutting and,

moreover, in case of spasm the air passages are not entirely obstructed.

A large size laryngeal mirror is necessary in order to procure a good laryngeal image. The Lennox Browne cutting dilator was introduced with ease and the cicatricial web cut through. The breathing during the introduction of this instrument was momentarily disturbed; after its complete passage normal breathing was carried on through the hollow opening in the dilator. Hemorrhage was very slight.

differed but slightly in the degree of stenosis and the amount of cicatricial web. They were treated exactly in the same way. The web, after being cut through in each case and kept dilated by proper fitting tubes healed kindly, and the opening of the larynx restored to its almost normal size.

The conclusions I feel justified in arriving at from my operation are these:

1. In the first place the destruction of the cicatricial web, by means of the knife, is preferable in

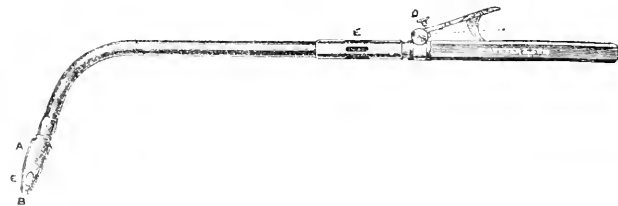


Fig. 4. The Lennox Browne Hollow Laryngeal Dilator, with Cutting Blade.
A—Terminal of the Hollow Dilator, containing the Cutting Blade, B, the extent of which is regulated by the screw at D. C—show openings for passage of air.

After the incision the instrument was withdrawn and the larynx thoroughly sprayed out. A few minutes later a large size hard rubber intubation tube was introduced into the larynx and kept there for three days without its removal. Cold applications by means of compresses were used for forty-eight hours with irrigation of the larynx, also spraying with a 10 per cent. solution of cocaine for the relief of pain; this was continued for two days with much relief to the patient. Iodid of potash was again resorted to. Three days later the tube was removed and again replaced. An examination after the first removal of the tube showed a great improvement and healing of the wounded cicatricial web. The cicatrix was diminished, and the size of the opening made by the incision was thus kept open by the continued dilatation of the larger size tubes, until the edges of the cicatricial tissue were well healed. The time of healing of these edges lasted seven days. The tubes should be worn for two weeks at least after their first introduction, and should be removed daily for cleansing. Astringent solutions should be used in spray form for after treatment.

This patient shown you made a complete recovery as the result of this operation. It is now four years since the tube has been permanently removed, and from what you can see by the condition of his larynx which remains in the same state as after the incision, is certainly gratifying. The patient is in excellent health and breathing at a normal rate.

This method of treatment seems to me to be of a permanent value as compared with other methods. There is no necessity for a preliminary tracheotomy. The tedious dilatation with dilating instruments for an indefinite length of time, and then with a view of a permanent success.

I do not mean to say that every case can thus be treated, but there are cases which come under our notice for treatment, where such treatment by this method here introduced deserves a trial.

There are other cases that came under my observation which were practically similar, in all respects to the one I have just reported. They were treated in the same manner and private practice, and

every way to the older operation of simple dilatation.

2. It is a more radical procedure and the obstructing tissue is destroyed quickly, instead of being pushed aside and thus allowed to absorb.

3. The operation saves time, a cure being effected with less chance of a recurrence of the difficulty, without increasing the risks of operation, than by means of simple dilatation.

These advantages in themselves seem to me to be sufficient to give my operation some consideration before the plan of surgical interference is finally decided upon.

118 E. 16th Street, New York City.

THE TREATMENT OF HAY FEVER.

Special Discussion before the Section of Laryngology and Otology Pan-American Medical Congress, Washington, September, 1893.

By DR. D. BRYSON DELAVAN, New York; PRICE BROWN, Toronto; JOHN O. ROE, Rochester; S. S. KOSER, Williamsport, Pa.; JAMES E. LOGAN, Kansas City, Mo.; F. C. COBB, Boston; J. H. BRYAN, Washington; E. FLETCHER INGALLS, Chicago; and JOHN N. MACKENZIE, Baltimore.

DR. D. BRYSON DELAVAN, New York City.—No more formidable task can be imposed upon one than to open a discussion upon the subject of hay fever. I want, however, to draw you out on the treatment of hay fever, and I hope the discussion will be confined to the local and general treatment. There are two conflicting opinions; one is that hay fever is essentially a local condition. I think, however, there are comparatively few who entertain this idea. On the other hand it is largely conceded that however much local influences may have to do with the production of hay fever, there is broadly speaking, in the majority of cases at least, an underlying condition of some sort which tends to the production of this disease, and in so far it is necessary that we should shape our treatment accordingly. If we concede that there are general causes underlying hay fever, then we can not rely entirely upon the treatment of local conditions; we must look at the general, as well as the local state of the patient. In my opinion it is necessary, in order to treat hay fever successfully, to look into the general well being of the patient, and find whether he is suffering from lithemia, malaria, or any serious disorder of the heart, lungs or kidneys, and to find out the condition of his

digestive tract, and to improve these, or any other general or dietetic states which could contribute to the local trouble.

The local treatment of hay fever may be broadly summed up under two heads; that is to say, plans of treatment. Under the first plan we use various heroic therapeutic and surgical measures. Under the second plan we use various general therapeutic measures which are not heroic, the chief object of which is to subdue local irritation; and we also have surgical means which have exactly the same end in view. I believe that where conditions exist in the nose which contribute directly to the irritation of the nasal passages, such a condition as a distinct organic occlusion of the nose, then surgical means may be of great use. But on the other hand, I think that nasal surgery in this department has often been carried too far. I think it is extremely unwise to interfere in a case in which we can discover no good cause for interference, simply because the patient desires to be cauterized or have a specula of bone removed which he supposes is there, or any other operation. Where there is not present a condition which distinctly calls for surgical interference I believe it is wrong not only the removal of apparent obstructions, but the use of the galvanocautery as applied to the nasal mucous membrane. It may be unnecessary to state here that the wholesale destruction of the nasal mucous membrane is not a good means of curing the disease, yet there are men who in a case of hay fever will destroy far and wide, by means of caustics or the galvanocautery, the mucous membrane. I regard that as a pernicious thing which no man who understands the disease will do.

With regard to the use of cocaine; every good thing seems to have its other side; the most valuable drugs, opium, for instance, may become the most dangerous, and so with cocaine. It is doubtless a great boon to a person suffering from hay fever, but its indiscriminate use in hay fever is productive of serious evils; I am not sure but one would be justified in saying that in these cases cocaine improperly used would do vastly more harm than good, and I would like to go on record as distinctly and vigorously opposing its indiscriminate use in these hyperesthetic cases.

To recapitulate: I think if we confine our discussion to a few of the points I have brought up we will have enough to do this afternoon, and I would like to call your attention especially to the recognition and treatment of coexisting conditions. I would also call your attention to the abuse of surgical interference, and the proper and improper use of cocaine. I think this discussion should include the best means of treatment, the most practical, the least theoretical and most useful. It seems to me the discussion comes in opportunely here, because this meeting represents such a wide diversity in every way.

DR. PRICE BROWN, Toronto.—I suppose I am particularly qualified to speak on hay fever as I have been subject to it for the last ten years. I don't know, in my personal history, that I have suffered organically in any other way; I don't know that my system has been deteriorated; I don't know that my kidneys or lungs or organs generally have been at all out of order, but I know that periodically about the middle of August I have an attack of this disease. I may say, however, that before I ever had hay fever, frequently with the slightest cold I suffered from closure of the nasal passages to a certain extent; I would find the greatest difficulty in breathing through the nose in cold weather and this finally developed into an attack of hay fever. For two or three years I did nothing special for it, then I used a little cocaine; but four years ago the attack I had was most intense; I remember that it did not seem as if I had the power of thinking or feeling anything except the intense sensibility produced by the disease; and I determined to

operate upon myself, if I could find the part of the nasal cavity where the thing originated. I felt the turbinates in the back part of the left naris, after snoring about one hundred times, I sprayed the left naris with a one per cent. solution of cocaine, and passed probe into the passage. I found at the back end of what I assumed was the inferior turbinate, a sensitive spot, with another about the middle of the passage. I then passed the cautery blade to the posterior spot and turned on the electricity and snaged it; then to the next spot and snaged that. The result was that for the rest of the year my paroxysms of hay fever were not so severe. The following year the trouble commenced in the back of the right nostril, and when most intense I operated in the same way. I might say in passing that I have had many cases of hay fever under treatment at different times; and one of the prominent symptoms has been exceeding irritation of the palate, particularly the uvula, the patient desiring to scratch the uvula and rub his tongue over it; the result is there is great elongation of this organ. The following year I amputated half of my uvula, which resulted in great benefit. Last year my attack of hay fever was not very severe; this year it has been less than ever, and I have had no operation. It came on about the 24th, instead of the 14th, and I had no hay fever of any account until I started from Toronto, but on my first night in the hot dusty car coming South the attack became intense. I got almost the moment I heard of it.

The treatment I generally use is a slight solution of cocaine, giving it myself. I use the cocaine first and afterwards menthol in alcohol. It seems to me the action of menthol in from five to ten or even twenty grains to the ounce has the effect of lengthening the action of the cocaine. Lately I use menthol more than I do anything else in my cases; this year I personally used no cocaine whatever. I find it more beneficial to apply the menthol to the throat, and have the patient breathe in through the mouth and out through the nose.

In regard to any occlusion producing hay fever, I mentioned a case this morning where the columellar cartilage pressing against the wall of the nostril caused hay fever, and the removal of that cartilage removed the hay fever.

From the effect that alumnol has had upon me to-day I think it will prove a good thing and I shall try it in future.

DR. JONX O. ROE, Rochester, N. Y.—In every case of hay fever there is more or less disease of the nasal mucous membrane, and the more I see of hay fever the more I am convinced of the correctness of this assertion. I have yet to see a patient in whom disease of some portion of the nasal mucous membrane does not exist, and when I hear a case reported in which the patient suffered intensely from hay fever, but without any local disease in the nose, I think that the doctor is in error and did not discover the local lesion, perhaps on account of making only a cursory examination. When we consider that the nasal mucous membrane in adults covers a region of about twenty-six square inches, it is not surprising that disease may lurk in some portions and remain there undiscovered, unless a most thorough examination is made. Hay fever may be considered a neurosis; pardon me for an allusion to the neurotic theory, but we have a great many neurotic people who do have hay fever, and there are many people who have a great deal of disease in the nose who do not have hay fever; but when a person who is intensely neurotic has a good deal of trouble with his nose, he is quite sure to have hay fever. There are a great many, as in Dr. Brown's own case, who have hay fever when there is apparently no neurotic element, and in such cases the disease is, I believe, as much a local disease as any disease can well be. Disease in the nose, that may be the seat of the irritation, is not necessarily confined to

any one region, as it has been believed to be confined to the region of the anterior turbinated bodies, either the anterior or posterior end. The part that I have found to be most sensitive in these cases is the nasal septum, and this undue sensitiveness has been usually excited by an intermittent or constant pressure of the turbinated bodies. The exciting cause of these neurotic conditions I believe to be in nearly all cases intranasal pressure—either from intermittent or constant contact between the different portions of the interior of the nose. It is, however, not necessary for this pressure to exist between the turbinated bodies and the septum, for it may exist between the turbinated bodies themselves, or the inferior turbinated body and the floor of the nose. In the latter instance the extreme sensitiveness is confined to these bodies.

The galvanocautery in the treatment of these cases is frequently the most serviceable agent we have, but there are many conditions of the nose in which its use is not advisable. It is useful in vascular turgescence, but can not be employed to advantage in firm hypertrophy or osseous excrescences. It is usually not advisable to institute treatment during the attack, although in some instances the abnormal conditions in the nose are emphasized during the attack and should be attended to at that time.

The beneficial effect of local treatment can not be better illustrated than by the case of a young lady whom I treated last summer one year ago. She was about twenty-three years of age, distinctly neurotic and neurasthenic and her mother was also neurotic. She had suffered from hay fever severely for seven years and was willing to have anything and everything done that would relieve her of this distressing complaint. As it was so near the time of her attack, I advised her to have the nostril in which she had the most difficulty treated, as she was unable to go through the necessary treatment for the removal of the difficulty from both sides at the same time. There was pressure of both the inferior and middle turbinated bodies against the septum. This I relieved and carefully treated the nose. The result was that she passed through the summer without any trouble in this, her left nostril, while in the right nostril which had not been treated she suffered from hay fever quite severely, although, the left nostril being free, respiration remained unobstructed and she did not suffer the distress experienced when both nostrils were completely blocked up. Later in the season after the hay fever period had passed, I treated the other side carefully and she has passed through the hay fever season this year without any disturbance from hay fever.

In all cases of hay fever, more or less constitutional treatment is advisable, as the local disturbance has a marked effect in lowering the tone of the system, independently of the neurotic trouble with which it is frequently associated. The tonics proposed by Dr. Mackenzie are excellent, and I have found them of great service. One thing that is of importance is nutriment to build up the system, and one of the best nutriment I have found to be eggs. By breaking an egg into a glass and having the patient swallow it whole he will take from five to ten eggs or even twenty a day. Many patients will be very much improved, and their attacks somewhat modified by increasing the resistance of the system to local irritation, or frequently by the employment of a sedative that will abolish to a great degree the response of the nervous system to the local irritation, but in addition to this there is in all cases some localized disease, which should be found and carefully treated. Therefore, however much you treat the person generally and build up his nervous system, or however much you may improve the condition of the vascular system, you must attend to the local condition of the nose, be it ever so severe or ever so slight,

if you wish to relieve your patient positively and permanently from hay fever.

Dr. S. S. KOSER, Williamsport, Pa.—I am glad to note on the part of this Section, the depreciation of the free and undue use of cocaine. It was only a week ago that a pharmacist of my city mentioned to me that he had regularly several customers for cocaine, and added that he was quite sure that the habit was first contracted in all of them from using the tablets at home that the market is now flooded with for these nasal cases. I believe the position taken this afternoon in the matter of prescribing cocaine, not permitting the patient to use it at home, is wise. It is a terrible thing to be the means of establishing cocaine inebriety in any case. In connection with this discussion, I wish to call attention to a couple of articles that have done me good service as temporizing agents in mitigating the severity of hay fever. One is terebene. I have certainly found it quite valuable as a mitigating agent. I would also like to call attention to an old remedy, but one that has not been referred to in this discussion, and that is the inhalation of a strong solution of carbolic acid, camphor and chloroform, used in a smelling bottle.

In fact, these cases come to us at such a stage that I rather prefer to palliate them first. I do not believe it is good surgery to rush into an operation on the nose when the engorgement is so great; that is, I do not believe proper conditions exist for good surgical repair. I would rather say it is good practice to first palliate the case and watch for one of those opportunities which the gentleman from Toronto (Dr. Price Brown) referred to as the conditions present prior to developing hay fever symptoms, and to operate on the turbinates at some other time than during that attack. Preeminently, in my experience, the operation that does the most good is to gently clip the lower ends of the turbinated bones, and this is more permanent. This in my hands yields the most lasting benefit, and I have frequently preceded an operation with the use of the cautery, so that there might be less tendency to hemorrhage following the operation itself.

The point then, I wish to make is, that in my experience, I have had better results in operative procedures if I deferred the operation until the intervals of the attack. I believe, then, that the permanent results are better, the parts will heal kindlier, and in all respects will do our patient a greater good.

Dr. JAMES E. LOGAN, Kansas City, Mo.—I wish to confirm Dr. Roe's experience in hay fever. Living in a country where hay fever is prevalent, I have seen a great many cases, but I have yet to see a case uncomplicated with hypertrophic rhinitis, or rhinitis in some form. I read an article before one of our medical societies in 1886, in which I made the statement that I did not believe hay fever could exist without a previously existing rhinitis of some form, and after years of experience I am willing to support that statement to a considerable extent, for I have never seen a case where there has not been some such trouble, either from a deformed septum, exostosis, hypertrophic rhinitis, or some disease where there was a soil in which this idiosyncrasy was produced.

The treatment I have used for the last few years has been the cautery. I begin the cauterizations about a week previous to the first attack and continue them at intervals through the period of hay fever, and by continuing these cauterizations after the period has passed, relieving whatever condition, mechanical or otherwise that existed there, and in succeeding year continuing a mild course of cauterization through the period of hay fever, I have relieved quite a number; I have recorded some cases of very pronounced recovery in this respect. A lawyer, who has an

colle next to mine, who was a constant sufferer for sixteen years, suffering the tortures of death almost from hay fever, and had traveled the world over seeking relief, is a standing monument of the efficacy of the treatment of hay fever as I have suggested it, and to-day he has no trouble whatever from it, and there are a number of cases of a similar nature. The neurotic tendency, which I believe exists in nearly every one of these cases, whether it be perceptible to the physician or the patient, is a certain latent element which must be corrected by medicinal means during the hay fever period. Beginning a week previous to the attack, I administer a preparation of nitrate of sodium with a half grain of camphor, continuing that six weeks after the attack has passed; I have found it to be an admirable sedative and can heartily recommend it. My mother was a great sufferer from hay fever and asthma, and in 1855 I removed from her right nostril a large tumor, after which she had no trouble from hay fever or asthma until two years ago, when I found there was considerable hypertrophy existing in the left nostril, also in the right, together with a deflected septum, that by reason of my position in the family I had to refuse to operate upon. About six weeks ago I removed an exostosis of considerable extent, and she writes me she has had no hay fever this season so far, and no asthma. I think there is great progress yet to be made, and many things to be found out in the treatment of hay fever.

DR. F. C. COBB, Boston.—I would like to know whether, in hay fever, the writer includes vaso-motor or hyperæsthetic rhinitis? I have had some cases of that kind, and although in a good many of them I could not find any very marked nasal obstruction, yet cauterization, not of a very wide area but usually over the lower turbinated and points opposite to it on the septum, which seemed to be especially hyperæsthetic, appeared to give great relief, and a year later I heard from these cases that they had had very little if any hay fever. But those cases which were complicated with asthma still had the asthma; there was very little relief from that. These were hospital cases operated upon year before last, and they all had a great deal of trouble; some were complicated with polypi, which of course were removed. But all to whom I wrote reported very little nasal trouble, so I believe that cauterization, at least to a limited extent, is of considerable value.

DR. J. H. BRYAN, Washington, D. C.—I think there must be two conditions or else we would not have such diametrically opposite ideas. One is due to a morbid condition of the nose, which of course is relievable, but those cases in which, in the interval of attacks there is no morbid condition, I do not believe can be cured by local treatment, yet the symptoms can be greatly palliated. I think in this locality we have as much hay fever as anywhere in the country, and I have seen quite a number of cases. Those which have been dependent upon exostosis or pressure of the turbinated bodies have been easily relieved and have not returned, but those which are entirely neurotic in character where, in the interval of the hay fever attacks, as far as observation goes, it is impossible to see any morbid condition excited invariably return, in this part of the country, about the 15th of August. I can not understand why there should be a discrepancy of opinion. Dr. Roe and Dr. Logan are positive the condition is not due to anything but intranasal disturbance, but I have two cases in which I think it is impossible to find anything existing in the nose in the interval of the attacks.

DR. E. FLETCHER INGALLS (Executive President), Chicago.—I did not intend to say anything upon this subject, but I am so heartily in accord with the last speaker that I wish to amplify and support what he has said. I have thought for a long time that where there is nothing discoverable in the

nose during the interval of treatment of the hay fever is useless; where there is something that gives the patient discomfort, treatment of the nasal cavities may be valuable. I have seen several cases where there was no hypertrophy or other form of obstruction, in which there was hyperæsthesia, and in these cauterization has been beneficial.

As to the time of cauterization, my plan is to complete it at least two or three weeks before the attack is expected, so as to allow the mucous membrane to become healed before the onset of the disease. The cauterizations are rarely made oftener than once in five days, and each covers an area of not more than a centimeter in diameter. The burn is superficial, never destroying the mucous membrane. Such cauterization has an effect similar to that of a blister on the skin, and after the treatment is completed it is impossible to find cicatricial tissue. In some cases where there is much swelling, deeper linear cauterizations are necessary.

I do not favor removal of the turbinated bodies in the way suggested by one of the speakers, believing that it is not best to destroy so much of the mucous membrane. If I wished to remove the turbinated bone I would run a trophine or burr through it, beneath the mucous membrane, thus removing enough of the bone so that the soft tissue would fall to the side of the meatus and be out of the way. I have seen one case in which soothing treatment alone, carried out daily by the patient for a period of two years, prevented recurrence of the attacks. I have seen one case where no topical or general treatment was employed, in which the patient, when the attack came on, by force of will never sneezed if he could possibly avoid it, and persistently refrained from blowing or wiping the nose. As a result of this course he had only a slight attack the first year it was tried, and the next year practically none.

I hope some of the other gentlemen will tell us what can be done by general treatment. It seems to me that half of the cases can be relieved, perhaps cured, by local treatment during the interim, but if the patient comes to us after the attack has been established local treatment is not important, excepting to soothe the parts. A day or two ago, a physician who has been troubled with hay fever told me that he has a rheumatic diathesis for which he has recently taken a few grains of salicylate of soda, which he feels confident is preventing him from having hay fever this season. It may be that the gouty diathesis causes hay fever in some cases, the rheumatic condition in others, and I have no doubt that digestive disorders have much to do with it in some instances.

For relief of hay fever that can not be prevented by local measures, I rely much upon a general tonic and sedative treatment somewhat similar to that recommended by the late Morell Mackenzie, consisting of the phosphate of brucia combined with camphor, hyoseannus, salol, and sometimes with valerianate of quinin. I have used this treatment for two or three years, I think with much advantage. I have the patient commence it three or four weeks before the attack is expected and continue it throughout the season.

DR. JOHN N. MACKENZIE, Baltimore.—I have been very much interested in the discussion, and I am very much pleased that the word pollen has not occurred in the remarks made. The day is dawning when we will find a solution of this problem in the study of pathologic law and not on an inquiry into the processes of plant reproduction. It is difficult to disassociate the pathology of hay fever from its treatment, because the latter depends upon what is conceived of the former. The pollen theory I regard as the greatest bar we have had to the march of therapeutics in this disease, and next to that I am afraid we are having another barrier set up in the too exclusive theory of the

nasal nature of the malady; if we view it from the higher vantage ground of general pathology and laws of health we may catch a very much broader glimpse of the protean aspects of the problem, and be in a much better position to relieve our patients than if we follow the beaten track of the pollen theorists. I certainly see cases in which there is no respiratory lesion whatever during the interregnum between the attacks. When I first began to investigate this matter I was allured by the new theories concerning the disease, and for a long time was completely under their dominion, but further examination and broader conceptions of the disease have taught me the lesson that in a goodly proportion of the cases there is no appreciable local respiratory lesion whatever. Another point: it is not the nose alone where these lesions are found; the area in which the nerve storm breaks will depend upon the seat of the local pathologic process; for example, take a neurasthenic with a polyposis in the rectum; the nervous disturbance produced by the polyposis would be referred to the lower bowel, whereas in the case of a polyposis in the nose the impressions would be referred to the upper respiratory tract. These lesions, when they do exist, as they undoubtedly do, may exist in the nose, pharynx, retro-pharynx, larynx, bronchial tubes and trachea even. The point I wish to make is that the nose alone is not the only part of the respiratory tract that is responsible for the outbreaks of the disease falsely called hay fever. A great deal has been said in recent years about pressure irritation, but it seems to me that instead of producing hypertrophy it is more likely to produce atrophy. Take, as an illustration, cases in which the middle turbinate bone is enormously developed; as it gets larger and larger instead of producing hypertrophy of the septum it produces atrophy and goes through to the other side.

Dr. Cobb has brought up the question of the identity of these different forms. They are all blood relations, coryza, vaso-motor, hay fever, rose cold, June cold, and if we could classify them as one disease it would simplify matters very much.

As to the plan of treatment: my rule has always been to examine the patient, going over him from head to foot, finding out any peculiarity, any disease, local or general, that might be the source of any systemic, local or remote irritation. They are all different like the stars, and in that way you get at a more rational plan of treatment. Having done that, I look carefully after any disease, either gross or microscopic, in the respiratory passage; not in the nose alone, but all through the tract, from the tip of the nose to the bronchial tubes. After having found the general condition I treat according to the circumstances of the case.

Dr. Ingals wishes to know about the general tonic treatment. I can not give any rule. I feed the nervous system; it is always broken down; you may not recognize it, as Dr. Brown has said, but nevertheless there is something nervous in his constitution. We not always find conspicuous nervous phenomena among hay fever patients, but there is always a nervous organization—a screw loose somewhere in the nervous mechanism. I generally start out with a pill containing about one-sixteenth of a grain of phosphide of zinc, about two grains of quina, one-fourth grain of extract of nux vomica, to be taken before meals, and after meals three to five drops of Donovan's or Fowler's solution in water. Very frequently I have to substitute some other nerve-tonic, but the main point is that the nervous system must be built up. If there be disease of the respiratory organs it must be treated as possible. If there be no apparent disease and if the experimental stimulation of different portions of the mucous membrane no sensitive areas are to be found, the nose alone. But if on the contrary, as is frequently

the case, we can localize these areas, I treat them by cauterization, and for this purpose the galvano-cautery transcends all other methods. We find these sensitive areas not only in the places where I have located them in the nasal passages, but also in other portions of the respiratory tract, in the posterior wall of the pharynx, in the arytenoid, commissure and the posterior wall of the trachea. Why is it that the removal of a nasal polyposis, for example, will dissipate hay fever permanently? The explanation it seems to me is this: take an illustrative case; the patient consults his physician, perhaps suffering from violent paroxysms of sneezing, obscure cough and other symptoms referable to some reflex producing agency. The patient goes on unrelieved, day after day. Asthma is finally added to his symptoms, and finally he blooms out into a regular "hay fever" patient. If it is summer the physician tells him he has hay fever; if it is winter he is told he has asthma. At this stage of the disease a polyposis is discovered and removed, and the reflex symptoms are dissipated and the patient gets well. What is the explanation of that? No attention has been paid to the central nervous apparatus; simple operation work in the nose has secured the result. In this class of cases the way in which the nervous system is influenced is through the constant irritation by the foreign body in the nose; the irritation of the nerve centers, the weariness they experience at being forever called upon to discharge their functions. With the removal of the polyposis the irritation is taken away and *physiologic rest* secured for the centers, and in that way the patient gets well. If the polyposis remains unrecognized, the condition goes on for years; other organs are included in the arc of reflex disturbance, changes occur in different organs which are impossible of eradication, and local treatment done will lead to temporary relief, but will not effect a permanent cure. In regard to surgery, it is called for when surgery is necessary, and it is only necessary when there is something pathologic to be removed from the respiratory apparatus. I omitted to make an important point, and that is that hay fever does not exist only at one time of the year; I believe it is like epilepsy—with you day and night summer and winter. One of the worst cases of hay fever I ever saw was a lady in Baltimore whom I treated for four successive Januaries. She never had it in any other month; it was a marked case of hay fever with asthma. My plan is not to commence with a tonic at the period of attack, but I commence from six to eight weeks, sometimes three months before the expected attack and I feed the nervous system for all it is worth during that time; and I not only do that but I treat the patient throughout the year at certain intervals, depending upon the patient, the character of the case, etc. I treat them during the entire year as if they were just on the verge of a paroxysm, and one of the chief difficulties I have is to follow my patients. They will get apparently well, and will think, "this is all humbug; I don't feel nervous; I am not going to have a paroxysm for six or eight months and I will let the thing drop."

Dr. J. BRYSON DELAVAN, New York City.—The Doctor has brought out the most important point I had in mind in bringing forward this discussion, and I think it can not be too vigorously emphasized. We so often see patients and physicians putting off the treatment of the disease until the attack begins. The golden opportunity for treatment, according to my experience, is in the interregnum; that is, in those cases where there is present any nasal or constitutional trouble. I have seen cases in which during the intervals between the attacks the nasal condition seemed to be normal, and although I have used my best endeavor to find an abnormality I have not succeeded. However, we commonly have hypertrophic conditions—catarrh, exostosis,

nasal polypus and various other deformities present in these cases, and these conditions persist to a greater or less degree throughout the year.

We can all agree to the following propositions: first, that the general condition of the patient should be kept up to the best possible limit; second, that the best opportunity for relieving the patient will be found between the attacks, when abnormal conditions of the nose should be treated, whether by surgical or therapeutic measures, to be determined by the nature of a given case; and, third, that during the attack the treatment applied should have for its prime object the alleviation of the existing symptoms.

In regard to treatment during the attack: I think it would not be unwise for this body to place itself on record as distinctly opposed to the indiscriminate and careless use of cocaine. What one of the gentlemen said with regard to this matter in his locality, might have been said I think by every one present. We all find it commonly used and commonly abused, and I know that it is a source of a great deal of injury, and I wish we might go on record as opposing the evil.

Finally, the fact has not been touched upon, although we all recognize it, that when we have exhausted our therapeutics and surgical means we have done all that lies in our power for the patient. But if we do not succeed in relieving him we can almost invariably help him by sending him to some locality where he will enjoy immunity from his attacks. I believe in this class of cases, where the patient can be sent away during the time he is having his attacks, where he can be treated between the periods of expected attacks, that in time the attacks may be entirely done away with in a large majority of instances.

DR. JOHN N. MACKENZIE, Baltimore.—I wish to indorse what Dr. Delavan has said in regard to the use of cocaine. I have long since given it up in the treatment of this disease, except as a purely palliative measure. At a meeting of the Laryngological Association some years ago, in Detroit, I called attention to the fact, shortly after the drug was brought over to this country, that the time came sooner or later when cocaine dilated the blood vessels in the mucous membrane of the throat and nasal passages, and I think that point is now perfectly well established and Dr. Delavan's denunciation of its indiscriminate use is correct. But there is another point not generally known, namely, the evil effect menthol sometimes produces. I know of two cases in the practice of a fellow practitioner in which menthol has given rise to brain symptoms similar to those cocaine produces. They were both singers and had learned that a little menthol squirted into the nose with an eye dropper, just before they were going to sing would make their voices more resonant, so it had become their practice every time they were to sing to drop in a little of this seemingly harmless thing, and finally the friends of one of them noticed that she was having hallucinations and that her mind was becoming otherwise affected. This was spoken of to a physician and when she ceased taking the menthol all her bad symptoms disappeared. The other case was affected in the same way and on discontinuing the use of menthol became well again.

ABUSES OF COCAIN IN NASAL TREATMENT

Read in the Section on Laryngology and Otolaryngology, at the Forty-fourth Annual Meeting of the American Medical Association.

BY GEORGE WILKINSON, M.D.

OMAHA, NEB.

The ability of this drug to astringe the mucous membrane of the nose and in ordinary catarrhal troubles, (namely hypertrophic conditions of the membrane) to give immediate relief, is being taken

advantage of by the unscrupulous to such an extent that the matter is assuming very grave importance.

That the use of these catarrhal snuffs, strongly impregnated with cocaine, is the most harmful aspect of the cocaine habit has no doubt been brought to the minds of many of the profession ere this. The amount of the drug used in these proprietary or patented remedies is out of all proportion to their use simply for contracting the turbinate bodies, as is proven by the fact that a very few insufflations of the powder lead to an appetite and a craving, and frequently the unwitting patient is rendered a slave almost from the start to its seductive charms.

This can be readily understood when consideration is given to the fact that cocaine is most seductive as a narcotic to many persons, and this, coupled with the fact that it temporarily clears the head, makes it an insidious means of weakening havoc, and the greatest recent triumph of the devil.

An assay of one of these products of his Satanic Majesty gives a result something like this: estimation of cocaine in a powder containing bi-muth, menthol, carbonate of magnesium, bicarbonate of sodium and sugar of milk. Take fifty grains of the powder, put into a mortar of at least eight fluidounce capacity, fill with two drachms water, add gradually diluted muriatic acid until the liquid is distinctly acid to litmus paper, avoiding loss by effervescing. Stir well and pour through a small filter into a two ounce vial, rinse two to three times with a little water which is to be passed through the same filter. Wash the filter with water, using just a little at a time, till the whole will be about one ounce; add one-half ounce sulphuric ether; shake for ten minutes (to remove the menthol); pour into a glass separator. When the ether has separated draw off the aqueous fluid into the same vial; the ether in the separator is to be rejected. Repeat the washing two to three times more, or until the menthol is removed. Then render the fluid alkaline with ammonia water, shake with one-half ounce ether as before. After complete separation pour the aqueous fluid into the same vial. The ethereal fluid which contains now the cocaine in solution, is to be passed through a small filter into a weighed glass breaker, capacity about one ounce. Place on a water bath till the ether is evaporated. Repeat the operation three or four times, then dry to constant weight and weigh as pure cocaine.

Thus, to every drachm of a very insoluble powder-mixture, composed mostly of bi-muth, there was nearly three grains of hydrochlorate of cocaine. When it is taken into consideration, that in a number of instances your essayist found that the dose of these snuffs being taken ad libitum; and consequently users of the same are found to habitually have used as much as two to three ounces per nasi, or forty and sixty grains a day in this manner; there is surely time for a halt to be called by the interference of the law.

I propose in this paper to give a general sketch from a study by personal contact with a colony of cocaine habitués in the city of Omaha, all instituted by the use of one preparation highly advertised as a snuff and a cure for catarrh.

It is not every one of these who have found it difficult to break off from using the drug; indeed, many claim, although they were using thirty and forty grains a day, and that as soon as the nature of the remedy became known to them, that they easily

stopped abruptly. But the result in the end is by no means always so happy as this, and to quote Shay: "Once a man does to obtain for relief from cares that annoy, he generally continues with such rapid strides toward such complete subjugation to its bewitching thrallhold, as but few will ever be rescued from by any power of will which they may be able to bring to their aid," has been in some of the cases referred to well exemplified. It is not necessary for me to dwell upon the toxic symptoms more than to point out two primary effects of the drug when used as a snuff. The craving for it is simply pitiful; the habitué will have it about him at all hazards. He carries it about in his pockets, and the effect is so temporary and seems so unsatisfying that he is continually snuffing it, and in many cases he soon learns that he can get better results by taking it on his tongue and thus he begins to eat it. The first annoying symptom which these people complain of is insomnia, and here for the first time they realize the pernicious nature of the habit they are forming.

The attempt to break off in the most instances begins at this time, and the success or defeat is simply a repetition comparable to the same experience in the habit of drink. To dwell further on cocaineism is beyond my theme. What I desire to specifically dwell upon, and from an experience with those who have been led into the cocaine habit by its use in nasal catarrh is this: how far should we be allowed to go in placing in the hands of patients the cocaine spray? What quantity is safe, and yet effective? My experience is that, absorbed by the nasal mucous membrane, in the quantities which we might use there is no danger, yet we must always remember that it is not always the quantity but the susceptibility of the patient. Some people will soon learn, if not already told, what the drug is and the hint is enough for them to increase the dose. It is the old story of the physician's liability for instituting the habit, as with morphin.

RHINITIS ATROPHICA FETIDA (OZENA GENUINA.)

Read at the Section on Laryngology and Otolaryngology at the Forty-fourth Annual Meeting of the American Medical Association.

BY O. M. WATERMAN, M.D.

MILWAUKEE, WIS.

CL. ASSISTANT TO DR. JOHAN S. FRANK, CHIEF OF CLINIC.

The years from 1878 to 1888 having been remarkably fertile in the contributions of specialists to the subject of rhinitis atrophica fetida, commonly called ozena, the diligent observer is surprised to note how little has been written since that time about this not uncommon disease. After reviewing the articles from every standpoint, we come to the conclusion that the knowledge we possess of the etiology, as well as of the therapy, of the disease is a very uncertain one. Notwithstanding the abundance of material, scarcely two observers have come to the same conclusion; and the variety of the different curative methods and remedies suggested is now in vogue, none of which, however, have proved unquestionably successful, showing that the present mode of treating the disease is certainly discouraging; but the fact that the cure is so deserving of pity and that the physician is so desirous of finding a cure for this disease, more than is desired as they are

The views in regard to the character of the disease are widely differing, and while some maintain that rhinitis atrophica fetida is a condition consequent upon a simple atrophic rhinitis, others contend it is a morbus sui generis, and still many others hold that the predecessor of an atrophic rhinitis is always a hypertrophic one. The latter theory seems to be the one most acceptable, as I shall endeavor to show in the following pages. The opinions as to the constitutional character of the ailment differ also very materially, and while a number of pathologists distinguish only three: ozena tuberculosa, ozena scrofulosa and ozena luetica; (Seiffert of Wurzburg cites one hundred cases, collected by him, in which no constitutional anomalies could be detected, the majority of this number being persons of excellent general health); others, trustworthy observers like Scheech and Bressen, claim that dyscrasia and scrofulosis would beyond doubt be etiological factors; and Scheech says he has never seen an otherwise healthy individual afflicted with ozena. To refute Scheech's claim is hardly possible, in view of the fact that only a very small fraction of humanity can be considered absolutely healthy.

The literature from an anatomical standpoint is rather meager, the most explicit being the monograph of Zuckerkandl, "Normal and Pathological Anatomy of the Nose and its Pneumatic Appendices." He also presents the view that the atrophy of the mucous membrane and the turbinated bones is always preceded by a hypertrophic condition (Polypöse Wucherung) and that in the atrophy following, that of the bones is prevailing. He distinguishes different stages of atrophy, in the mildest of which only the turbinated bones appear thinner and more fragile, secondarily the size of the bone is reduced, and the free edge is no longer convex but plane or even concave, until, finally, of the bones so attacked, only a small projection remains. The external nasal walls are also affected by this atrophy, and frequently become so thin that the canalis palatinus descendens and the lacrymal nasal duct disappear. The nasal cavity gains so in size that in many cases the sphenoidal cavity, as well as the foramina ethmoidalia are visible. Zuckerkandl remarks further on the change of the fibers of the olfactory nerve that the lamella of the ethmoidalis is shortened, which is very important, as this lamella carries the branches of the olfactory nerve. He and Fränkel are of the opinion that rhinitis atrophica fetida is the sequel of a hypertrophic nasal catarrh, and as an indisputable proof he, Zuckerkandl, calls attention to the nine drawings in his book, all of cases where, in addition to atrophic changes, hypertrophic parts such as polyps or polypoid degeneration could be seen.

The findings of postmortem examinations made by E. Fränkel corroborate Zuckerkandl's opinion. Neither of these two give any clinical data, but Seiffert at the International Medical Congress at Berlin had a report of cases where he dissected parts of the turbinated bones with mucous membrane, from living subjects, and examined the same under the microscope. He defines two varieties of cases; those of simple rhinitis atrophica without fetor, and those of rhinitis atrophica fetida. In the former, he reports that the cylinder epithelium was sometimes intact, sometimes it was changed to different layers of cubic epithelium; change into pavement epithelium he found in none of these cases. The sub-epithelial

layers showed considerable infiltration of the cells. The condition of the secretory glands in some cases presented a normal appearance; in others they were infiltrated; and in still other cases the number of the glands was reduced. The increase in the connective tissue was so large that the degree of the atrophic change could be judged thereby. In the cases of the second class the microscopic examination gives quite a different result. In the cases only slightly affected, the cylinder epithelium was partly infiltrated with new cells; there were also present many layered pavement epithelium with a horny condition of the upper layers. In the severe cases the cylinder epithelium was entirely gone, and only pavement epithelium with a horny surface existed. Glands and connective tissue were degenerated or infiltrated. Of the blood vessels the veins were often considerably enlarged. Regarding the fetor, he thinks that the degeneration of the dead pavement epithelium is the most important factor causing it, microorganisms being only of secondary importance. Schuchardt sees the cause of *ozena* in the change of the ciliary epithelium of the nasal mucous membrane into pavement epithelium. He remarks that in a catarrhal condition of the ear, and also of the uterus, a transformation of the epithelium into pavement epithelium occurs and in consequence a fetor makes its appearance, quite similar to the one in *ozena*. Berliner came to another conclusion in regard to the etiology of *ozena*. He thinks the primary cause of the disease is the hypertrophic middle turbinated bone pressing against the septum, producing thereby stagnation of the secretion and successive atrophy of the mucous membrane. The fetor, Berliner thinks, is caused by the contact of the stagnated secretion with the atmospheric air and its microorganisms. H. Krane found the intima and E. Fränkel the adventitia of the nasal arteries obliterated. Moldenhauer claims that *ozena* is caused by the degeneration of the blood vessels supplying the nose. Zaufal thinks *ozena* is the result of a congenital malformation in the turbinated bones. I, myself, found in a microscopic examination of pieces of mucous membrane, taken from patients of the "Allgemeine Wiener Poliklinik," that the ciliated epithelium had undergone a change into layered pavement epithelium, and here and there a cylinder epithelium could be detected. Fibrillary connective tissue was abundant and also accumulations of cells, which contained fat corpuscles. In all probability these were cells of the mucous membrane, fatty degenerated. I found a moderate number of leucocytes.

I might mention here, the excellent article of Dr. M. Hajek, which deals with the microorganisms of the nose. Among others he describes especially one, of which he made cultures. These bacilli *ozene* Hajeki emitted a penetrating fetid odor, similar to genuine *ozena*. Hajek himself, however, does not believe that this bacillus is the sole agent producing the fetor. Inoculation experiments gave a negative result.

Passing over now to the clinical analysis of the symptoms of the different stages of *ozena*, I found in but slightly affected cases, comprising the first stage of the disease, that only the mucous membrane of the inferior turbinated bone and the tissue intimately connected with it appeared atrophic, while the middle turbinated presented a hypertrophic condition. Crusts were abundant, especially in the

posterior part; and the fetor was sometimes so intense, that full six hours after the examination of a patient it was still attached to my clothes. The mucous membrane is very much inclined to small hemorrhages and exoriations are quite frequently to be found. The patient's complaint of a dull heavy feeling in the head, and loss of smell, though both symptoms may be more or less wanting. Dryness in the nose and nasopharynx are never missed, and in all cases the crusts cover in a measure the posterior walls of the pharynx. Examination with the probe shows that in this stage of the ailment, the already altered mucous membrane is tightly attached to the bone, which is itself not yet atrophied to any considerable extent.

After longer or shorter intervals follows the second stage; the pronounced atrophy of all parts affected. The inferior turbinated bone is now changed into a small glittering band and the middle turbinated is also much reduced in size. The whole nasal cavity is covered with greenish gray crusts, frequently mixed with blood, and on the posterior walls the condition is the worst. The sense of smell has entirely disappeared and the dryness is very disagreeable to the patient. The crusts reaching into the nasopharynx keep up a constant irritation and especially in the morning an ardent desire to vomit is present. Because of the disgusting fetor the sufferer is shunned by society, and thus often the hope and ambition of the person afflicted is destroyed, so that a secondary psychical influence is of no rare occurrence, and melancholia and its consequences have been not infrequently observed in those suffering from *ozena*. It is worthy of remark that the disease attacks preferably the female sex. In seventy cases treated under my supervision, there were sixty-eight women and only two men. Considering this, and the result arrived at by Jurasz, that *ozena* patients exhibit a much stronger fever during the time of menstruation, and further that in a large percentage of women suffering from *ozena*, catarrhal conditions of the sexual organs exist, we come easily to the conclusion that some relationship exists between the mucous membrane of the nose and that of the sexual organs.

How far the alteration of the ciliary epithelium into pavement epithelium is responsible for the creation of the fetor, I shall try to establish. A special agent creating the fetor I believe does not exist; the latter is rather the symptom of certain diseased conditions; and only under such circumstances does it appear reasonable that pathologists should speak and distinguish between *ozena serofulosa*, *ozena tuberculosa* and *ozena syphilitica*; in other words, inflammation of certain parts of the nose upon a serofulous, tuberculous or syphilitic basis. All these conditions are followed by ulcerative processes which in turn produce the putrid fetid crusts.

Somewhat different is *ozena genuina*, or rhinitis atrophica fetida. There is nothing remarkable about the hypertrophy, now well recognized as the first symptom.

Hypertrophic conditions of the turbinated bones of the nose are very frequent, and might exist for many years without any change for the better or worse. But in *ozena genuina*, atrophy, the second stage, soon appears, and the question naturally arises. Why does this change from hypertrophy occur only in certain individuals? The explanation is, I believe,

that in certain individuals, loci minoris resistencie exist which give a disposition to atrophic conditions. The case of the atrophy itself would be found in neurotrophic disturbances, which influence successively the different parts of the nose. Whether this degenerative process of nerve fibers exists during the hypertrophic stage, or occurs afterwards, is an open question for the present.

The first effect of the degeneration is manifested in the epithelium of the mucous membrane; the normal ciliary epithelium is changed into pavement epithelium and the glands which lack their necessary nourishment, undergo, in a great measure, a fatty degeneration. The nerve fibers of *nervus profundus petrosus major*, belonging to the sympathetic, share in the degeneration, which explains the vaso-motoric disturbances of which Frankel, Krause and Moldenhauer make mention. At length the bony part, not properly nourished by the blood vessels tributary to them, participates in the atrophic condition. Some one might ask here why all secretory glands do not become fatty degenerated or infiltrated; but S. Meyer proved in 1881 that certain nerve fibers in the peripheric system, having once perished, are regenerated, a fact which might well be considered in the premises. The sensory fibers supplying the nose belong to the trigeminus; and it is well known that after resecting them, the greatest trophic alterations have taken place resulting in inflammation and atrophy of all parts supplied by the respective nerve branch. Naturally the anastomosis between sympathics and trigeminus plays an important part, as the peculiar riches in venous blood vessels of the mucous membrane of the nose is known; and that in rhinitis atrophica fetida the sense of touch is very much impaired all observers agree.

The pathologic secretion and its fetid odor can likewise be easily explained in connection with the foregoing. The normal mucous membrane has, as has been said, undergone a process of degeneration, and by this process the ciliary epithelium was changed into pavement epithelium which covers the newly produced connective tissue. The pavement epithelium is unable to keep in a fluid condition the highly albuminous secretion which comes from the intact glands; it must have the effect of a foreign body on the pavement epithelium; it must irritate the same and dry upon it and disintegrate, coming as it does in contact with the external air and the microorganisms contained therein. The microorganisms have, as producers of the fetor, a secondary importance; a primary influence which Loewenberg believes they have is out of question.

Considering now the therapy of *ozena genuina*, I must say that a specific remedy for its cure does not exist; new remedies, greatly praised, sporadically make their appearance, but as quickly are abandoned. The cauterizing in this disease with chemicals as well as with the galvanic-cautery is wholly to be condemned, although it is still practiced in a good many instances; for by cauterizing the surface we can not expect to revive an atrophied mucous membrane; on the contrary, only the remaining normal elements are destroyed, and we cannot place a centralized connective tissue.

The fundamental principles have to guide us in the treatment of the disease. I, the indicative causalis; the symptomatica. To satisfy the former,

we have to look for a constitutional anomaly, and if such is found in the form of anemia, scrofulosis, etc., it has to be corrected by internal medication with iron, iodine, arsenic or cod-liver oil; a change of air, or a suitable watering place is to be recommended. Attention must be paid to catarrhal conditions of the sexual organs of women, and such ought to be included in the treatment. The importance of constitutional treatment is easily recognized, if we consider that in cases where the mucous membrane is still partly intact the improvement in the physical condition, the richer condition of the blood, etc., will exert their influence upon nerve and other tissues to stimulate them anew.

The indicatio symptomatica must fulfill two conditions: 1. the removal of all old crusts and the prevention of the formation of new ones; 2. the removal of the fetor. Both conditions are intimately connected, but the majority of all medicinal curative agents considers the removal of the fetor; and that seems but natural, as the patient, whose sense of touch is very much impaired prays the physician to destroy the bad smell, everything else being of no paramount importance to him.

The remedies principally tried are those of the order of disinfectants; and every one has been tried carbolic acid, sublimate, salicylic acid, creolin, boracic acid, resorcin, iodoform, thymol and lysol; they all and many more have been used, but all with the same success; that is, with none. Some prescribed medication in powder form, others in solution, and still others preferred the insertion of medicated nasal bougies; yet I do not believe that a single case of genuine *ozena* has been cured by the application of these remedies alone. Irrigations of the nasal cavities with disinfecting fluids might be used with advantage for disinfecting purposes, but they ought to be performed by the physician himself, as middle ear inflammations are not a rare occurrence if the instrument is used by unskilled hands. I have never observed that larger crusts could be dislodged by the use of the nasal douche or syringe; I always prefer an instrument called "Kornzange." Without any trouble I cleanse the nose of all crusts and, after having done this wipe the whole nasal cavity with a cotton tampon impregnated with a mild disinfectant fluid. This has to be done cautiously and without rubbing the mucous surface, in order to avoid bleeding or injuries to the mucous membrane. After the nose has been made dry, the second part of the treatment is attended to. This is the vibratory massage of the mucous membrane.

The first to try practically and advocate massage of the mucous membrane of the respiratory organs was Kelgren in 1888, although Heider in 1853 in a monograph, "Vibration as a Remedy and Diagnostic," mentioned it. After Kelgren it was M. Braun who called special attention to massage of the mucous membrane, as a remedy in all diseases of the respiratory organs. Lately, Laker has described massage of the mucous membrane as a panacea for all diseases of the nose, pharynx and larynx, and claims to have made very remarkable cures with it. My own experience has not been so glowing, as I have always been taught by it that an atrophic mucous membrane could never be changed into a normal condition; but where the atrophying process is not too far advanced, I must acknowledge that vibratory massage is the only rational treatment. By means

of the short vibratory movements, those parts of the mucous membrane which have a tendency to atrophy receive fresh stimulation, a further progress of the atrophic conditions is prevented, and the result is that the remaining healthy parts suffice to supply the secretory glands, keeping them intact.

The method of performing vibratory massage is very simple. A small cotton tampon, impregnated with disinfecting and, at the same time stimulating solution, is fastened to the end of a flexible silver probe conducted into the nose, and vibratory movements coming from the biceps muscles of the right arm, should strike every part of the nasal cavity to be reached. Care must be taken not to injure the mucous membrane, so as to avoid bleeding and consecutive excoriations. Every treatment ought to last from two to three minutes and must be repeated daily at least from four to six weeks, after which time it might be performed every second or third day. Until recently two formulæ have been used for the treatment of ozena patients at the "Wiener Allgemeine Poliklinik;" the first,

Iodi puri	0.4
Kali jodati	2.0
Glycerini	15.0

The other, Peruvian balm, in diluted condition. If either of the medicines was used alone the result was unsatisfactory; but with vibratory massage at the same time it was in a number of cases very encouraging. Some time last February I thought I would try a chemic product, peroxid of hydrogen, H^2O^2 , used in America to clean out pus cavities, and I selected ten cases of rhinitis atrophica fetida for such trial. The history of these ten cases, eight of which exhibited good results (in the remaining two the remedy had to be discontinued by the direct wish of the patient), shows that further experiments in this direction are in order. I may mention here, that the treating physician has to pay attention to the quality of the peroxid of hydrogen. The preparation to be used has to contain ten volumes of H^2O^2 equal to three weights. With this solution, the cotton on the end of the probe should be impregnated, and the massage performed, and then the surface brushed slightly with

Sol. hydrogenii superoxid	20.0
Albolini puri	5.0

The physiologic action of the remedy fulfills the requirement in both respects; firstly it is a mild disinfectant and microbe destroyer, and secondly it stimulates the mucous membrane without irritating it. After a certain term of daily treatment as described above, the patient might be prescribed an etheric oil like ol. terebinth. ol. citr., or ol. bergamott, of which he should put 5 drops in about a pint of hot water, cover the top of the vessel with a cloth, leaving only sufficient space for his face, and now inhale the ethereal oil energetically through his nose. Three times at intervals of five minutes each the oil should be added to the hot water, so that altogether 15 to 20 drops are used at each sitting. To repeat this procedure morning and evening suffices. This method is indicated, as ethereal oils set free H^2O^2 . The patients willingly undergo this treatment, as it is agreeable and can be done at home. In harmony with the aforesaid, a faradic brush might be useful, but I have never tried it in my practice.

The following is the history of some of the cases treated according to the above described method:

Case 1.—Anna K., 18 years old, saleswoman, presented herself Feb. 4, 1892, for treatment of the nose. Patient had suffered for two years. For eighteen months she could not breathe through her nose; had pain in the temporal region changing from right to left now and then; these pains being constant, sometimes extended to the occipital region. For over a year the sense of smell was reduced, resulting after six months in complete anosmia. Since that time patient was able to breathe through her nose and only the bad smell, of which those surrounding her complained, compelled her to seek medical aid. Patient had menstruated pretty regularly for twenty-one months, the menstruation lasting two to three days. Examination: patient made the impression of a chlorotic individual. Physical examination of heart and lungs negative. The nostrils were not as large as usually found in ozena patients. The mucous membrane was covered with immense crusts, reaching from the apertura pyriformis to the choanae, great fetor. The lower turbinated right, as well as the left, was atrophic; the middle turbinated bone moderately hypertrophic. The mucous membrane was very fragile and had a tendency to bleed. Treatment: removal of crusts with "Korngänge," vibratory massage, tampons impregnated with iodine glycerin solution. After two months' treatment no noticeable change. After that, treatment with hydrogenium superoxidum, as described. Two months later hardly any formation of crusts, the fetor considerably diminished and only at long intervals noticeable. Patient felt in every respect better and her sense of smell was very much improved.

Case 2.—Theresa Z., dressmaker, 42 years old; has had nasal trouble, to her recollection, for eight years. Sometimes unable to breathe through her nose. She could smell fairly well. Physical examination of heart and lungs negative. Examination of nose showed atrophic condition of the right lower turbinated bone, of which only a small projection remained; nearly the same on the left side. Middle turbinated hypertrophied more on the right than on the left. Large crusts from the anterior part of the nasal cavity to the posterior. Fetor very pronounced. Patient had since her first visit, been treated with peroxid of hydrogen as described, and after five days of daily treatments was so much improved that she presented herself only once or twice a week for inspection and treatment. This patient suffered from headache and palpitation of the heart. Both have disappeared. She had also a purulent blennorrhoea, which improved since her nasal trouble got better. The mucous membrane in the naso-pharynx was moderately atrophic and patient complained of dryness and constant irritation. Here, also, vibratory massage and local applications of H^2O^2 mixed with 25 per cent. glycerin improved the condition. Internally sol. Fowleri.

Case 3.—Anna T., domestic; very anemic person; suffering for three years back from nasal trouble and neuralgia in frontal portion of her head; felt very weak and had spells of melancholia; she was unhappy because of the bad odor she emitted; she could not retain any position. The nasal examination showed atrophic surfaces of the mucous membrane, and here and there small hypertrophies were apparent. The interior parts of the nose were covered, like wall paper, with green and brown crusts extending into the pharynx. The fetor was horrible. Patient showed atrophy in lower and middle turbinated bones in a moderate degree. She was anemic. This girl had been treated for six months by application with diluted Peruvian balm without apparent change, when I concluded to use peroxid of hydrogen and vibratory massage. After a daily treatment of two months, patient was better in every respect; even her mental condition was improved. The anemic condition was corrected by internal medication, arsenic in the form of Fowler's solution, and lactate of iron having been prescribed.

Case 4.—H. W., private; 18 years; very robust looking; had suffered from ozena for two years. Examination of the nose revealed the typical picture of the disease; the inferior turbinated were atrophic, the middle hypertrophic. Headache and anosmia not present. Patient had been treated with different remedies without satisfaction. For one week she was treated with H^2O^2 . She claimed she felt no improvement and asked the physician in attendance to revert to iodine glycerin solution, with which she had been treated before.

Case 5.—Marie C., 19 years; private; suffering with what she termed chronic catarrh; three years ago became gradually anemic and has nearly constant headache in the frontal region, also frequent attacks of palpitation cordis. Examination of heart and lungs negative. Menstruates

since two years, but only one to two days' duration each time. Fluor albus. Neither conjunctiva nor gums appeared chlorotic. The people coming in contact with her had been complaining for five months of her smelling badly. Examination showed genuine ozena in moderate degree. After two months' treatment with hydrogenium superoxidatum, crusts and fetor had disappeared, the mucous membrane showed a nearly normal condition and the secretion, though thick, nevertheless, was liquid. Patient then came only once a week and used at home oil of citri, as described in the foregoing. Headache and palpitation were much better and she could smell nearly as well as before she had the trouble.

Of the remaining five cases, four showed marked improvement under the vibratory massage treatment, combined with peroxid of hydrogen applications; one case did not yield and the patient abandoned the treatment after two weeks' trial.

Summing up everything brought forward we come to the conclusion that:

1. Our knowledge of the etiology of genuine ozena is quite incomplete, and none of the hypotheses offered can be accepted unconditionally.

2. A so-called ozena syphilitica, ozena tuberculosa or ozena serofulosa can not be brought into the same category with ozena genuina.

3. While the atrophy in ozena genuina is preceded by a hypertrophic condition, this hypertrophy is not the ordinary rhinitis hypertrophica chronica.

4. The cause of rhinitis atrophica fetida is neurotrophic alterations of certain peripheral nerve ends, sensitive and vaso-motoric.

5. The formation of crusts is caused by the change of ciliated cylinder epithelium into pavement epithelium, after the secretory glands have suffered by neurotrophic disturbances.

6. The origin of the fetor is to be found in the disintegration of the strongly albuminous secretion, which is exposed to the microorganism in the atmospheric air, the secretion acting as a foreign body on the altered mucous membrane.

7. No therapeutic attempt to cure rhinitis atrophica fetida is considered absolutely successful, but cauterizations are to be condemned.

8. The leading principle in treating the disease is vibratory massage, this promising the best results obtainable.

9. Peroxid of hydrogen is strongly recommended as a remedy at once stimulant, disinfectant and non-irritant.

10. 11 Loan Trust Building.

OPERATIONS ON THE NASAL SEPTUM.

Read in the Section on Laryngology and Otology at the Forty-fourth Annual Meeting of the American Medical Association.

BY H. HOLBROOK CURTIS, M.D.

NEW YORK, N. Y.

It was not my intention to dignify these observations with the name of a paper; I would prefer to call it an outline sketch to elicit a discussion upon a subject of interest to the Section.

If an experience of over two thousand cases of operation upon deviated septa constitutes a sufficient apology for my remarks I beg leave to make a few suggestions as to the *modus operandi*.

The questions one asks before operating, are:

1. Is the patient a bleeder, or is there a family history of hemophilia?

2. What is the condition of the patient's blood?

3. Is there a suitable reason for operating?

4. Does a gouty diathesis exist, or has the patient secondary syphilis?

5. Is albumen present in the urine?

If the patient is a hemophile, the septum should not be touched if it can be avoided.

In no other locality of the body is persistent hemorrhage more difficult to control. If there is a question as to the blood state, the hematoscope or hematometer will settle it at once. Never operate in a case where there is shown to be less than 7 per cent. of oxyhemoglobin in the blood. We see many people who get along in comparative comfort through life with badly deflected septa. We should not interfere with a deflection unless there are reflex or direct troubles arising from the stenosis produced. Amongst these we may casually mention, chronic conjunctivitis, occlusion of the nasal duct, etc., or the induced respiratory affections as, chronic pharyngitis, laryngitis, trachitis, bronchitis, etc., or aural complications as, Eustachian catarrh, chronic otitis media, tinnitus and the like. In young persons the relief of a nasal stenosis is often an important factor in the cure of a long existing anemia, while in pulmonary affections, oftentimes including phthisis, the restored nasal respiration is frequently the beginning of a permanent cure. Ten years ago these views would have been considered empirical. To-day they stand as established facts, as undeniable as the axioms of geometry.

In secondary syphilis we must be careful not to operate until we are sure of healthy granulation tissue.

In three cases we have seen a severe attack of gout develop within three days after a septal operation on a gouty subject. In neither of which cases had there been an acute attack for several months. In diabetic patients and in Bright's disease, the severity of the constitutional symptoms must be taken into consideration, as well as the actual blood state.

Having decided that an operation is necessary, we may consider for a moment the preparatory and after treatment, as well as the manner of operating.

The necessity of treatment with a view of making a nostril aseptic is problematical, to say the least, for in nearly every case where trouble enough is being caused by the stenosis to warrant an operation, the accessory sinuses are continually giving off secretions laden with microbes which keep the nasal chambers in a more or less septic condition. In cases where a purulent ethmoidal discharge is present, we need not be deterred from operating on account of the presence of unhealthy pus, for experience shows that the nostril becomes so habituated, so to speak, to the poisonous surroundings that the wound is not apt to become infected. My experience in this has been authenticated by several observers with whom I have communicated on the subject.

Turbinate hypertrophies causing pressure, and erectile tissues should be treated before operation in order to enlarge the air space. The general health should be looked after and the blood put in as healthy condition as possible by internal exhibition of iron. Should we wish to remove a septal ridge for example; immediately before operating we use an antiseptic wash freely, then apply a thin layer of absorbent cotton, wet with a 10 per cent. solution of cocaine solution over the ridge, so that every part of the tissue to be removed is covered; we then allow the patient to wait for at least fifteen minutes before operating. In this way the least constitutional

effect from the cocaine is obtained and the most complete anesthesia. The wad may be molded over the deflection by means of a flat wire applicator. Such an applicator as is used for applying chromic or trichloroacetic acid, which may be easily made by hammering flat the last inch of an eight-inch length of No. 14 copper wire. This wire fits in the handle of the ordinary laryngoscopic mirror, and may be put to various uses.

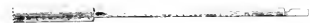
When ready for operation remove the wad, again spray the nostril with antiseptic solution, and by means of the flat probe bent conveniently at the end ascertain the depth of the ridge.

Usually the ridges are oblique ascending, according to the writer's classification.¹ Fix in your mind the direction of the floor of the nasal cavity. Operate from below upward in order that bleeding may



Curtis' Nasal Speculum. Modification of Kramer's Aural.

not obscure the field. If a trephine is used, always steady the head by the left hand, using a speculum in which the trephines will fit the groove of the lower lip, and never use a trephine with a lateral opening in the barrel. The opening for cleansing purposes should be behind the shoulder to prevent all possible jumping.



The Writer's Trephine.

In using a saw begin, if possible, from below and saw upward. The trephine leaves as flat a surface as the saw, provided the operator has sufficient skill in the use of the speculum as a guide—for by conjoined manipulation the surface may be *planed* perfectly smooth.

In case of profuse bleeding do not complete the operation until the first hemorrhage ceases, for in only rare cases does it come from but a single point, and the temporary plugging of the track of the trephine is a simple procedure. In ordinary bleeding the operation should be completed at once.

After the deflection is removed, allow the patient to hold the head over a basin, breathing through the mouth until the bleeding ceases. Try to preserve a clot over the wound, not washing afterwards, but carefully removing the blood from the floor in order to allow air to pass through the nostril, carefully preserving the blood clot. Usually in thirty minutes this is readily accomplished. Then blow a little aristol over the wound and direct the patient to remain perfectly quiet for a half hour. Never, if possible, leave any foreign body or plug in the nostril as a source of infection. Don't blow the nose for five hours, and then only gently. The following day direct the nostril to be sprayed four times, or every three hours with Dobell's or other antiseptic solution, and if possible covered with aristol. Too much fussing after operation is to be condemned. The best results are found in patients who go into the country the day after operation and have very little after treatment.

The great bugbear of nasal surgery is the possi-

bility of hemorrhage, and in the treatment of hemorrhage the skill of the surgeon comes into play. My observations have led me to the following rules for controlling the same:

1. Find the bleeding point.
2. Introduce absorbent cotton, dusted with Monsel's salt, above the seat of bleeding. Then make downward forcible pressure with a straight Wagner sound against the floor of the nostril, to include laterally the bleeding vessel; if the bleeding is not controlled, pack with absorbent cotton upward, making pressure of the pack between the septum and middle turbinate to obtain pressure on vessels coming from above.
3. If bleeding resists these anterior packs, apply shawl straps about the thighs at the perineum, and small ropes or rubber tubing about the arms at the axilla and draw up tightly, though not tight enough to interfere with the arterial supply, our object being to stop the venous return. This will usually stop the hemorrhage within two minutes. Care must be taken when each extremity becomes cyanosed and mottled, to loosen its strap gradually, and when relieved, tighten it up again, keeping one arm and one leg strapped, while the others are being relieved in this manner. By means of this simple method the awful results of post-nasal plugging may be avoided. Since devising this means I have never had to employ the post-nasal plug.

A NEW PATHOLOGY AND TREATMENT OF NERVOUS CATARRH.

Read in the Section on Laryngology and Otology at the Forty-fourth Annual Meeting of the American Medical Association.

BY SETH SCOTT BISHOP, M.D.

CHICAGO.

An excess of uric acid in the blood causes nervous catarrh (hay fever). Attacks can be stopped, by precipitating the excess of uric acid from the blood by rendering the latter less alkaline with an acid treatment. Attacks can be prevented, by reducing the amount of uric acid in the body to the normal, and maintaining it there.

Uric acid exists in the blood in the proportion of about 1 to 33 of urea in health. When this proportion is disturbed by a relative increase of the uric acid, certain disturbances of a vascular and neurotic character arise. The effects of uric acid in producing these disturbances have been the subject of an extensive and interesting series of experiments by Alexander Haig. For years he was a sufferer from migraine, and studied in his own person the relation of uric acid to the production of attacks of this disease, and the effects of anti-uric acid treatment in subduing attacks, and of diet in preventing them. I desire at the outset to acknowledge my great indebtedness to this painstaking of server for many of the facts adduced in this paper.

First, let us consider what the effects of an excess of uric acid in the blood are. The disorders of the nervous system, that Murchison associated with lithemia are: aching pains in the limbs, and lassitude; pain in the shoulder; hepatic neuralgia; severe cramps in legs; headache; vertigo and temporary dimness of vision; convulsions; paralysis; noises in ears; sleeplessness; depression of spirits; irritability of temper; cerebral symptoms and typhoid state.

¹ See Nasal Stenosis, Rep. 9, International Medical Congress.

Haig maintains that the presence of uric acid in excess accounts for the exacerbation of pains in rheumatism and gout, and he even contends that these diseases are primarily due to the action of this acid on the brain, the spinal cord, or the solar plexus of nerves. In persons suffering from intense pruritus, uric acid and the urates have been found in excess.

Elstein believes that uric acid deposition acts as an excitator of inflammation in the tissues in which it is deposited.

Quinquand studied the effects of uric acid on the skin. He administered three to six grains a day to the human subject. The most common results were boils, and patches resembling eczema, the dermal analogue of coryza.

Thomas J. Mays attributes attacks of angina pectoris to "the increased formation of uric acid, which is incidental to the gouty and rheumatic diathesis." He agrees with Haig in attributing migraine to the irritating effects of uric acid.

Conklin details a number of well-marked cases of nervous, mental, nephritic and other diseases, that support the proposition that they are the result of the action of uric acid.

N. S. Davis, and others, add the following to the list of manifestations of uricacidemia: loss of appetite; nausea and vomiting; flatulent indigestion; diarrhea; intense itching; asthma; blindness; deafness; numbness of the skin, and creeping sensations; hyperesthesia and pain in the skin; impaired memory; melancholia; delirium; epilepsy and coma.

Observe the symptoms of uric acid irritation that are closely allied to paroxysms of nervous catarrh: asthma; intense itching; over-sensitiveness; and other nervous disturbances of the skin; neuralgia; sick headache; irritability of temper, etc. The first three symptoms often characterize attacks of nervous catarrh, and highly moral persons, like the late Henry Ward Beecher, are seized with an almost irresistible impulse to accompany their storms of sneezing with a shower of profanity. Sick headache sometimes alternates with these attacks, and at other times takes the place of them.

While suffering from migraine, Haig found the uric acid increased to the proportion of 1 in 20 or 25 of urea, whereas before and after attacks he found it as 1 to 40, and the headache was proportioned to the excess of uric acid over the urea, and not to the amount of alkali used to bring the uric acid out. The mental condition varied directly with the relative amount of uric acid in the urine. The excretion of the acid was greatly diminished before the attacks, i. e., during mental exaltation.

I have learned while writing this paper, that Lelavie analyzed the urine before and during attacks of hay fever, and found uric acid in great quantity just before the attack, and half that quantity during the attack. Some of this may have been washed out of the system through the profuse perspiration that occurs during the violent sneezing.

Haig says: "Uric acid in the blood contracts the arterioles and capillaries all over the body, producing the cool surface and extremities, raising tension of pulse and, according to Marey's law, that pulse rate varies inversely as the arterial tension, slowing the heart. Headache is a local vascular effect of the uric acid. Excretion of this acid may even relieve the mental depression and irritability, and

their results in the excess of suicides and murders in July. There is an excessive excretion of this acid in the warm months, and a minus excretion in cold weather. During plus excretion there will be high arterial tension with anemia of the brain, bad temper, etc. At this time a dose of acid would free the brain circulation from the power of the uric acid and produce, as Roy and Sherrington have shown, an increase in its size, and a free flow of blood in its vessels."

Peiper says that alkalescence of the blood is diminished in all fevers. Corroborative of this, Haig found during an attack of influenza in 1890, that there was a rise in the acidity of his blood, urine and tissue fluids, thus driving the uric acid out of these fluids, diminishing its excretion and causing its retention in the body.

Bertillon says that suicides increased 40 per cent. in France after the influenza epidemic. This may be accounted for by the accumulation of uric acid in the body during the diminished alkalinity of the blood, and when the blood regained its normal alkalinity the stored acid was taken into the circulation and produced its characteristic irritability and depressing effects.

In health, about five to eight grains of uric acid are secreted every twenty-four hours, and it is readily soluble in the blood, which is slightly alkaline. If there is increased formation of this acid no harm results, so long as it is promptly eliminated and the ratio between it and the urea is not disturbed.

Haig found that by diminishing the alkalinity of the blood he freed it from uric acid, relaxed the arterioles, relieved headache and mental depression. Increasing the alkalinity, increased the acid excretion, contracted the arterioles, slowed the circulation of the blood and caused languor, depression, headache and, in epileptics, a fit. Epilepsy, migraine, spasmodic asthma, etc., are, like neurotic catarrh, functional nervous diseases. What Haig says concerning epilepsy and migraine may be affirmed of asthma and nervous catarrh: "They may come on early in life, last for years, or the whole of life, tend to recur at more or less regular intervals, are met with in members of the same family, may afflict one and the same patient—now a fit, now a headache—alternating or together. Epilepsy and headache, gout and rheumatism are very commonly met with in the same family."

Broadbent thinks that the convulsions of epilepsy are brought on by the slowing of the circulation, and consequent cerebral anemia, in the same way as convulsions after great hemorrhage. As we have seen, the effect of an excess of uric acid in the blood vessels is to contract them, which, in the vessels of the brain, produces cerebral anemia. This condition appears to obtain in nervous catarrh, and the attacks are relieved by such remedies as nitrite of amyl, etc., which relieve anemia of the brain.

This uric acid theory of nervous catarrh is not antagonistic to the present status of medical opinion or surgical treatment, but on the contrary, explains questions that were inexplicable before. As a tumor or hypertrophied bone may give rise to convulsive seizures in epilepsy, and as its removal may be followed by relief, when no other structural cause exists, so in nervous catarrh, where new growths and other lesions of the nasal mucous membrane are present, the attack may be started by the accumulation, and

the suddenly setting free of uric acid. This precipitates the paroxysm by its irritant action, which finds expression in the group of symptoms characteristic of nervous catarrh or asthma, instead of some one of the other allied diseases. The particular form of manifestation may be determined by the growth, or seat of irritation, located in the nasal cavities. Where this is the only determining factor of the nature of the morbid symptoms, no other organic disease having resulted from the long-standing trouble, the removal of such a peripheral source of irritation may give relief from these symptoms, but it may not prevent the uricacidemia from switching off into other kindred lines of disturbances, if it be not corrected.

This uric acid theory makes clear the reasons why some persons suffer from attacks of nervous coryza under certain favorable conditions in winter, as well as during the warm months. It also unifies all the various forms of hay fever. They are all variations of nervous catarrh.

Patients of this class are sometimes affected more or less by functional aphasia. Haig's father suffered from time to time for a large part of his life from this trouble, and in old age had organic aphasia with right hemiplegia. The same functional disturbance afflicted Haig very markedly, at times of excess of uric acid in the blood, with mental depression, lethargy and headache. The histories of such cases are paralleled by the histories of nervous catarrh in many families.

The periodicity of nervous catarrh has a counterpart in migraine that comes once in every seven, ten, fourteen or thirty days for years or for life. It may last one day or less, rarely two, and is worse in the morning.

In the last published paper of the late A. Reeves Jackson he expressed his convictions that various neurasthenic symptoms, sleeplessness, headache, vertigo, neuralgia, muscular twitchings, vaso-motor disturbances, vague pelvic symptoms, etc., are dependent really upon the lithic acid diathesis. He wrote: "If this fact were duly recognized it would remove some of the cases from the list of those which are an opprobrium."

L. C. Gray says: "Influenza, ague and other fevers store up uric acid in the body."

There are several causes that determine the manner in which the irritation produced by an excess of uric acid may express itself. These are central, peripheral and hereditary causes. "The structure of the nerve centers and the distribution of its vessels not only determine the kind of disturbances which uricacidemia will produce in any given case, but also explains why one individual suffers in this way from functional nervous disorders, while another with about as much uric acid in his blood and body escapes. When the nervous system is depressed by fatigue, deficient food, etc., a smaller amount of uric acid in the blood will suffice to produce disturbance of function than at other times. If uricacidemia is prevented, the nervous system will not itself originate disturbances. This knowledge of the effects of lithemia gives complete power to produce or remove the vascular conditions, and the nervous disorders which are secondary (consequent upon) these conditions, by proper diet and treatment." (Haig.) The arguments that apply to migraine are just as forceful in the case of nervous catarrh. The peripheral causes, neoplasms,

hypertrophies, etc., have already been considered. Heredity is probably the chief factor in determining the direction in which the uric acid diathesis will afflict an individual, whether it result in migraine, angina pectoris, asthma, nervous catarrh or some other neurosis; but undoubtedly accidental or acquired conditions may act as directing or localizing agents. For example, of the latter class: a student who is predisposed to such a neurosis accidentally inhales the fumes of burning phosphorus in the laboratory, and this excites the first attack of his nervous disorder, which naturally under these conditions takes the form of asthma. On the other hand, many attacks of severe cold, or some injury to the nose, or the development of a polypus, may determine the nasal form of neurosis, or nervous catarrh. I have such cases in mind.

I believe we can produce and control attacks of nervous catarrh at will by treatment and diet, the same as we can migraine. I was first led to experiment with an anti-uric acid treatment of nervous catarrh by my endeavors to find a solution to the problem, why paroxysms of this disease attack sufferers regularly in the morning. These attacks come on about the same time, morning after morning; although the previous afternoon and evening may have been free from suffering, and the night one of restful repose, with no direct access of dust-laden atmosphere from without, and no change in the contents of the sleeping apartments. The following facts appear to answer this question: the blood is the most strongly alkaline between the small hours of the morning and 9 A.M., when it reaches its greatest alkalinity. The more alkaline the blood, the more freely soluble is the uric acid. Therefore, in the morning hours the blood is the most heavily charged with this irritant, and during these hours patients suffer the most from angina pectoris, migraine, asthma, nervous coryza and other functional nervous disorders.

The blood is the most acid during the hours of bodily activity, and it reaches its maximum of acidity about midnight. During this time there is only a small secretion of uric acid, and the amount circulating in the blood is minute. As the blood begins to increase in alkalinity in the morning it dissolves the uric acid out of the more alkaline tissues in which it has been stored, the liver, spleen, cartilages, joints and fibrous tissues, and with the increasing alkalinity and solvent properties of the blood it becomes rich in uric acid until it produces the drowsiness, heaviness or other nervous phenomena peculiar to any given case.

ABORTIVE TREATMENT.

With these facts in mind, I attempted to break up the morning attacks of sneezing and nasal stenosis, by doses of acid at bedtime and on first awakening in the morning. The experiment was a success. A series of wretched mornings was followed by freedom of respiration and a sense of well being that seemed like a physical millennium. After this result of preventing the morning increase in the alkalinity of the blood, in order to prove the correctness of my deductions, I used an alkaline treatment, and was both delighted and disgusted with the results. The old enemy raged again, but here was clinical proof of my first proposition. I have successfully repeated these experiments until I am satisfied of the correctness of these conclusions.

The first acid I used for these experiments was the dilute sulphuric acid in doses of twenty or thirty drops in water, but on account of the griping pains and diarrhæa that it produced in the early morning, I was obliged to substitute another. It occurred to me to try Horsford's acid phosphate that I had used for other purposes some years since, on the recommendation of the late Dr. Jewell. I used teaspoonful doses of this without any ill effects, and with the result of giving complete immunity from suffering. One or two teaspoonfuls in a glass of water at bedtime, and on first awakening in the morning were sufficient to break up the habit entirely. In a few days after the symptoms ceased to appear in the morning, this dose was omitted. The night dose was continued until the habit seemed to be entirely broken up. If any nasal irritation reappeared, a dose or two would dispel it. By adding sugar to this acidulated drink it makes an agreeable lemonade, but it is better to avoid the sugar, and as much as possible all other uric acid-producing substances.

While I have depended on the mineral acids to keep down the morning alkalinity of the blood, Bence Jones claims that citric acid (lemonade) will accomplish the same result. I have made it a point to have the morning dose well diluted with water, for the purpose of starting perspiration, for I have observed that as soon as a patient has sneezed violently enough to produce free sweating, the symptoms either decreased or disappeared. The sweating carries off uric acid and helps to free the blood.

I am aware of the differences of opinion that exist concerning the influence of an excess of dilute phosphoric acid on the elimination of uric acid, the effects of acid on the tubules of the kidneys, and the relation of a meat and vegetable diet to the formation of uric acid; but I am careful to use only so much acid as is required to prevent the maximum of alkalinity from occurring. The acid is used, not with the expectation of eliminating, but of clearing the blood of uric acid, for the purpose of preventing attacks during the season of suffering. If the over-wrought nerves are relieved from this source of irritation, they are much less likely to respond to other excitants, and if the morbidly susceptible condition of the nervous centers is due to the action of the uric acid, its over-sensitiveness to all excitants may be relieved by correcting the uricæmia. After relieving the suffering with the acid phosphate, I have produced it again by neutralizing the acid with an excess of bicarbonate of sodium, and employing the usual doses. This converted the acid into a ready solvent of uric acid, flooded the blood with it and produced the attacks. In turn I have followed this up with the acid, relieved all the catarrhal symptoms by precipitating the uric acid from the blood into the tissues and produced the characteristic gouty pains. Again, by substituting drachm doses of phosphate of sodium for the acid, I have precipitated all the symptoms of a severe nasal catarrh.

Some other remedies produce effects parallel to the acid treatment. Nitro-glycerin, nitrite of sodium, 1 per cent. of amyl, antipyrin, etc., have a similar effect. They increase the acidity of urine, diminishes the viscosity of the blood and reduces the amount of uric acid. They relax the capillaries and improves the circulation of the brain. Iron and lead have a similar effect. Mercury produces the excretion of uric acid in the secretion of paps and produces diuresis.

If opium is used the ill effects that follow should be prevented by following up its use with salicylate of soda for a few days to free the system of uric acid. Quinin, so generally used is contra indicated, for according to Quain, it brings uric acid into the blood.

There is one remedy that has proved in my hands invariably unfailing in giving relief, especially when given at the beginning of an attack of nervous catarrh, or common colds. It is for temporary use only, like the acid treatment. I have employed it for the last twelve years or more, and published it a number of times, but in this case it is, like old wine, the better for age. I refer to a combination of atropia and morphia, in the proportion of 1 part of atropia to 50 of morphia. The ordinary adult dose is from one-sixteenth to one-eighth of a grain of this mixture, according to the severity of the attack. It may be repeated in an hour or two, if the first dose does not entirely relieve the sneezing, running at the nose and stenosis. I do not believe it has ever failed to stop an attack when properly adapted to the case. No person has ever acquired the drug habit through my prescribing it. I never write a prescription for it, nor allow a patient to know the composition of the remedy, not for mercenary purposes, for I have more often given it away than I have charged for it, but in order to obviate the possibility of being responsible for a drug habit. The morphia clears the blood of uric acid, diminishes the nervous irritability, suppresses over secretion from the muciparous glands and stimulates the circulation and activity of the nervous centers, while the atropia elevates the tone of the blood vessels, quickens the pulse, decreases all the secretions except the urine, sustains bodily temperature, stimulates the respiratory center, counteracts the constipating effects of the morphia and acts as an antispasmodic.

LOCAL SELF-TREATMENT.

The most useful self-treatment I have found is, first, the use of a convenient pocket inhaler that I have devised for patients who take cold easily. It is called the camenthol inhaler. It can be used in an inconspicuous and expeditious manner in public places where it would be impracticable to combat a sudden seizure with other and slower measures. Several gentle, prolonged inhalations should be taken through one nostril while the opposite one is closed, until the irritation is relieved.



The breath should not be allowed to pass back through the inhaler, but through the mouth instead. The camenthol inhaler does not become irritating to the membrane, like menthol alone, after having been used a considerable time. It is blander and more soothing than the menthol crystals, iodine or carbolic acid. When the throat is involved, it can be inhaled through the mouth for throat treatment. Second, for home treatment morning and night, I usually prescribe a solution of camphor-menthol in lavolin or benzoined to be sprayed into the nostrils and throat. The 1 and 3 per cent. solutions are most satisfactory. It is best to begin with the weaker, and increase gradually to the 3 per cent. solution.

PREVENTIVE TREATMENT.

This treatment can not be undertaken to advantage during the season of attacks, except so far as relates to diet. Haig does not believe that excessive uric acid formation takes place, but from a considerable study of this subject, I am forced to the conclusion that an excess of uric acid in the system is not due alone to continued retention and storage of the small normal overflow by the renal vein, but to an increased formation also. In a conversation with Dr. N. S. Davis a few days since, that eminent authority corroborated the latter view. It follows, then, that it is necessary to reduce as much as possible the use of those foods that increase the actual formation of uric acid, such as meats, sweets, beer, wine, etc., and limit the diet largely to fruits, vegetables, milk, fats, etc.

Exercise also aids in the excretion of uric acid, although there may be an actual increase in the amount of acid. Lange treats periodical mental depression successfully by reducing the amount of food and by systematic exercise.

A diet of milk with occasional very small quantities of egg and fish, with no other animal food, will prevent suffering from sick headache entirely, without medicinal treatment. With this diet the natural ratio between uric acid and urea—1 to 33—is maintained. Haig claims that by a uric acid-producing diet one can store up in the body several ounces of uric acid in a few years—or by correct diet, not as many grains. He has been on such a diet over eight years with almost never a headache. By eating meat and drinking wine two or three days in any single week he is sure to bring on the migraine.

A course of salicylate, salicin, lithium, etc., will remove the excess of uric acid. If an alkali is given it is likely to produce uricæmia and precipitate an attack of the trouble we are endeavoring to prevent. For an attack, then, a dose of acid should be given to free the blood of uric acid, then the salicylate of sodium should be given for two or three days, or longer, to sweep it out of the body, but the salicylate should not be given during the attack, for it may aggravate the symptoms. For a fortnight, or a month, perhaps longer, preceding the regular season of attacks of nervous catarrh, from two to six grains of the salicylate should be given every day or two, in order to get and keep the amount of the acid in the body down to the normal amount. The copious use of the stronger lithia waters is advantageous also.

This treatment, combined with proper diet, should be successful, provided that there is no organic disease of the structures, central or peripheral. Any organic disease, hypertrophy, polypus, etc., must receive the necessary surgical treatment. A vitiated condition of the blood, or a depressed condition of the nervous system must be corrected. Excesses of every nature must be avoided. All the organs of the system should receive such attention as to secure the harmonious coördination of their functions, for this treatment is directed against uricæmia only, as a cause of suffering, but it should not be forgotten that there are other causes that may operate to produce attacks, just as in the case of spasmodic asthma arising from bronchitis, irritating gases and other excitants.

I am of the opinion that with the new theory, therapeutics and proper diet of this disease, the medical profession need no longer say to hay fever patients

in a patronizing way: Suffer little children, for of such is the kingdom of heaven; but we must recognize and combat the uric acid diathesis if we would bring comfort to these patients and obliterate a stigma that dims the luster of our great art.

719 W. Adams Street.

LEGISLATION IN THE UNITED STATES FOR THE PREVENTION OF BLINDNESS.

REPORT OF THE COMMITTEE ON THE PREVENTION OF BLINDNESS, SELECTED BY THE AMERICAN OPHTHALMOLOGICAL SOCIETY.

BY LUCIEN HOWE, M.D.

CHICAGO, ILL.

At the meeting of the American Ophthalmological Society in 1887, I presented a short article in regard to the increase of blindness in the United States, calling attention to the fact that according to the census reports, the number of blind in this country was increasing much more rapidly than the population. The Society was kind enough to appoint a committee to examine into the subject, as did also the Medical Society of the State of New York, after the same figures had been presented there for consideration. The committees in both of these Societies reported the advisability of some legislation to limit the further increase of what may be considered one of the principal causes of blindness, namely, ophthalmia neonatorum. Since that time, the States of New York, Maine and Rhode Island have all passed laws which have for their object the preventative treatment of this disease, and I wish here to show the desirability of similar laws in other States.

The facts in regard to the subject were published in the Transactions of the New York State Medical Society and of the American Ophthalmological Society so completely that there seemed but little to add to the subject. Since then, however, the statistics gathered by the census of 1890 have been obtained, and these furnish sufficient additional data to warrant my calling attention to the subject again, and recapitulating briefly the reasons why legislation in various States should be enacted for the prevention of blindness.

In 1880, for the first time, a systematic attempt was made to ascertain the entire number of the defective classes—these among the rest—and when the statistics for that year were compared with previous years the apparent increase was astonishing.

When, however, the number of blind in 1890 is compared with the number in 1880, we find that there is an increase of only 3.20 per cent., there having been in 1880, 48,929 blind and in 1890, 50,411. There are good reasons, however, for considering that this last census gave a much less complete record of such persons than did the census of 1880. I am indebted to Hon. Robert D. Porter for a typewritten copy of the returns concerning the blind taken June 1, 1890. The summary shows that there is a total of 50,411. Male, 27,983; female, 22,428; white, 43,351; colored, 7,060; natives, 41,265; foreign, 9,146.

In some States this increase has been very slight; in others quite marked. But whether the number is large or small, the important fact remains that a really large percentage of the blindness is caused simply by neglect in early childhood. I mean, as a result of ophthalmia neonatorum. It is difficult to

estimate exactly what percentage these cases bear to the total number of the blind, but various authorities estimate this from nine and one-half to ten per cent, or even more. In other words, on examining the figures carefully, we can say that without fear of exaggeration there are wellnigh five thousand blind in the United States, who are in that condition merely because of neglect on the part of those who had charge of them in early infancy. If the estimates were based upon the number of blind in asylums the percentage would be almost twice as large, as has been proved by an examination of a large number of inmates of the blind asylums, not only in this country but also in Europe. The details of this are referred to in the papers already mentioned, and the facts can be easily substantiated by reference to the works of Fuchs, Magnus and others. On an average it may be stated, with a considerable degree of accuracy, that at least eighteen and one-half or nineteen per cent. of all the blind in early life are in this condition from ophthalmia neonatorum.

This fact would bear statement in detail were it necessary, or were it in accordance with the limit proposed for this short communication. Another fact which I would mention is one which also can be briefly stated before a society of those accustomed to treat ophthalmia neonatorum. This is, that ophthalmia neonatorum can now be considered a preventable disease. I need not elaborate this by calling your attention to the figures presented by Cr  d   and others, or by referring to my own experience, or that which occurs in the practice of every one who has to deal with this disease. We all know how favorable a prognosis can be given in the early stage, and on the other hand we know how extensive are the ravages which may follow after ulceration of the cornea has once begun. All agree, I think, that when these cases are seen within the first week after birth a generally favorable prognosis may be given.

This brings me to the next point which I wish to make: that is, the desirability of legislation which should force nurses and attendants to bring these children to the notice of practitioners while the disease is still in the very earliest stage. The story is a familiar one of the infant being brought to the office of the oculist, with the cornea ulcerating or perhaps perforated, and the mother and sometimes the attending physician thinking that the child has "taken cold" and requires perhaps no further treatment than the hot water or milk which has been applied to the eyes. And the scene, also, is unfortunately familiar, of the mother weeping over a hopelessly blind child, all simply because the nurse has supposed that the infant has merely taken cold and had been relying upon some of the numerous household remedies just a little too long. The question before us, therefore, is what means can be adopted to bring these children as soon as possible to the notice of a competent physician. Education of the laity is useless. Urging the nurses, professional or others, is equally insufficient. It remains only to place the responsibility at once where it belongs, by imposing upon such persons a severe penalty. The surest and best means of accomplishing this is undoubtedly by legislation.

It was the view taken of the subject by those who have considered it most carefully; and following the plan which had been partially adopted before in Scotland, and elaborating it, a concise but explicit

bill for the proper protection of these infants was passed by both houses of the New York Legislature, 1890, without a dissenting vote, and became a law. The law was known as Chapter 41 of the laws of 1890, and was as follows:

AN ACT FOR THE PREVENTION OF BLINDNESS.

SECTION 1.—Should any midwife or nurse having charge of an infant in this State, notice that one or both eyes of such infant are inflamed or reddened at any time within two weeks after its birth, it shall be the duty of such midwife or nurse so having charge of such infant, to report the fact in writing, within six hours, to the health officer or some legally qualified practitioner of medicine, of the city, town or district, in which the parents of the infant reside.

SEC. 2.—Any failure to comply with the provisions of this Act, shall be punishable by a fine not to exceed one hundred dollars or imprisonment not to exceed six months or both.

SEC. 3.—This Act shall take effect on the first of September, eighteen hundred and ninety.

My own impression is that this law was sufficient to cover all cases, and a sufficient number of convictions could have been obtained under it, not only to call public attention to the existence of the law, but also to prove a wise and very excellent lesson to the class whom it was practically to affect. A few convictions would have more effect in educating the laity and those who pretend to be nurses than would any number of lectures, leaflets or appeals of any kind. One or two partial attempts were made under that law, to bring nurses to trial in New York city, especially by Dr. Derby of the New York Eye and Ear Infirmary. He thought, however, that a loophole was left by the word, "notice," because nurses would be apt to say when placed on the stand that they had not noticed any such redness of the eyes or discharge from them. This is such a small excuse that it ought not to prevent the working of the law as there presented. Another objection to this, was that it was not quite strong enough, and not being a felony, it might be difficult to place the responsibility on the proper person for beginning a suit.

The matter, therefore, was taken in hand by Hon. Elbridge Gerry, who for many years has identified himself with legislation for children. The substance of this law has been incorporated in another, known as Chapter 325 of the laws of New York for 1892. The clause in regard to this reads as follows:

Being a midwife, nurse or other person having the care of an infant within the age of two weeks who neglects or omits to report immediately to the health officer or to a legally qualified practitioner of medicine of the city, town or place where such child is being cared for, the fact that one or both eyes of such infant are inflamed or reddened, whenever such shall be the case, or who applies any remedy therefor without the advice, or except by the direction of such officer or physician, etc.

It is further provided that this is to be punishable as a felony.

We can, therefore, consider that in New York we have a law sufficiently stringent to teach nurses and midwives what their duties are, and parents what risks their children run when there exists what is ordinarily called a simple "cold in the eyes." It is important that the first cases should be so clear as to make conviction a practical certainty and in my own vicinity, at least, some cases of probable guilt have been allowed to pass unpunished. But it can only be a question of a short time before a good typical violation of this statute comes under some one's notice, and after having been once tested subsequent convictions will be easy.

The State of Maine was the second to pass such

a law. There the matter was taken in hand by Dr. Holt of Portland, with his associates. The bill was known as number 97 of the Senate, and has become part of the laws of 1891. The text is as follows:

SECTION 1.—Should one or both eyes of an infant become reddened or inflamed at any time after birth, it shall be the duty of the midwife, nurse, or person having charge of said infant, to report the condition of the eyes at once to some legally qualified practitioner of medicine of the city, town or district in which the parents of the infant reside.

SEC. 2.—Any failure to comply with the provisions of this act shall be punishable by a fine not to exceed one hundred dollars, or imprisonment not to exceed six months, or both.

SEC. 3.—This act shall take effect on the first day of June, eighteen hundred and ninety-one.

The third State to have such a law was Rhode Island. In that State the subject was brought to the attention of the Legislature, principally through the exertions of Dr. F. T. Rogers. That was passed at the January Session of 1893, and the text is as follows:

SECTION 1.—Should any midwife, or nurse, or person acting as nurse, having charge of an infant in this State, notice that one or both eyes of such infant are inflamed or reddened, at any time within two weeks after its birth, it shall be the duty of such midwife or nurse, or person acting as nurse, so having charge of such infant, to report the fact in writing, within six hours, to the health officer or some legally qualified practitioner of medicine of the city or town in which the parents of the infant reside.

SEC. 2.—Every health officer shall furnish a copy of this act to each person who is known to him to act as midwife or nurse in the city or town for which such health officer is appointed, and the Secretary of State shall cause a sufficient number of copies of this act to be printed, and supply the same to such health officers on application.

SEC. 3.—Every person who shall fail to comply with the provisions of this act shall be fined not exceeding one hundred dollars, or imprisonment not exceeding six months, or both.

SEC. 4.—This act shall take effect July 1, 1892.

It will be observed that the three laws now in existence are very similar, and as that of the State of Maine omits the word "notice," and is still complete in itself, it is perhaps the best thus far enacted, except that the penalty is too light.

A question might arise as to what advantage it is to oblige nurses and midwives to report to physicians a disease of which a certain class of so-called doctors are almost as ignorant as the nurses themselves. The answer to this is three-fold:

1. The nurse is made to appreciate her responsibility, not only in that case but in others, and to know that the condition indicated by the redness and discharge is not anything to be trifled with.

2. The parents also become alarmed when they know that the disease is sufficiently serious to be the subject of special legislation, so that in choosing a practitioner they select with rather more than ordinary care.

Finally, as for the physician himself. If he accepts the case he feels that he must understand it thoroughly and he will be apt to look it up with considerable care in his text-books and treat it intelligently. Above all, if he fails to do that, the parents have a responsible individual against whom they can with perfect justice enter a suit for malpractice, and if he has proved himself incompetent he not only suffers the penalty which a law has provided for him, but one such case would be an example to him and to other practitioners in the community in which it occurred.

It seems needless to urge further the advisability of similar laws in other States, especially in those

where there is a large proportion of foreign emigrants in the population. We know that their children are not only often cared for by midwives, but also often given over to them entirely at an early age, and women when accustomed to assume any such responsibility must be taught this part of their duties. If they will not learn in any other way, a heavy fine or imprisonment is but a small penalty for the crime of having blotted out the sight of a human being. Where the German population is large the children are often cared for entirely by midwives, and these, though usually well qualified by instructions obtained in their native countries, are also not infrequently ignorant and careless in the extreme, and need to be taught that the hand of the law may interfere for the protection of the children given into their charge.

Having shown that such legislation should be enacted, and that it is our duty to lend our efforts and personal influence to obtain it, I wish to say, finally, that it can be done usually with little effort. Of course in any such undertaking it is necessary to enlist the sympathy and cooperation of a few leading men in each branch of the Legislature—those whose standing and character is such as to command respect for any measure which they advocate. The personal cooperation of the Governor is also a warrant of success from the first. But the average legislator is ready to listen patiently to any such claims of an unfortunate class, and his assistance for the bill is not difficult to obtain, being certain, as he is, that the originators of it have only the best motives. If the politicians hesitate or are inclined to smile at measures for the relief of sore-eyed babies they are quickly brought to their senses, if confronted by such evidence as is unfortunately always at hand in every large city, or can be easily obtained among the inmates of every asylum for the blind. Such men realize that they have with them the hearty approval of their constituents, of the press, and of the people, and that they are saving, from a life of misery, to which death is often preferable, a large class of those who would otherwise be hopelessly blind.

DR. GOULD—I would like to ask has this Association, as an Association, taken any action by which we can urge upon the part of the Legislature the passage of such a law? Would it not be well for us to take this action now, either by appointment of a committee or in some other way? I think this is a very important subject, and one on which we should take some action very soon. I will ask that the Association at once appoint a committee, whose names would give character to the work. Such an action would be a very great credit to the Association.

DR. WILLIAMS—During last winter I was a member of the Legislature of my State. While there I procured the enactment of an important law, which in substance is: the midwife or nurse having charge of a newly born infant, who may have any inflammation or disease of the eyes within two months after its birth, shall report the case to the city or county physician, who is required to visit the child immediately, and if he finds the child not under the care of a competent physician he must take charge of the case himself, or see that it is attended to properly until cured.

DR. YOUNG—Some two years ago I got a complete copy of Dr. Howe's paper and recognized its importance. I had a bill drafted and introduced into the Legislature of my State, but the bill failed to pass, I suppose partly because of my negligence. I have the bill and will try and have it passed at the next session of the Legislature.

Dr. RANDALL—Last winter I had the misfortune to have under my charge a case of ophthalmia neonatorum which had been treated with the utmost care from its start. The child was treated at birth by the general practitioner, with antiseptic cleansing of the eyes. I was called in after the first week. While I did all in my power to save the child's eyes, treating them myself day and night with all the skill that within me lay, I lost both of them. The case was one in which I could see nothing that was left undone; and still the result was loss of vision in both eyes. Fortunately the parties were my friends. There are doctors having such cases who will probably not meet with the kindly judgment that was accorded me in this matter; and they might not be able to stand under the blow of condemnation that may fall upon them. For the protection of ourselves and others we should be very careful in declaring too strongly that blindness can always be prevented in these cases.

Dr. WÜRDEMANN—Such legislation carried through the Legislatures of all the States would be very valuable to the cause of suffering humanity. We have nothing like it in our State. For years, the reputable members of the profession have been endeavoring to get a mild medical bill passed by our Legislature but without avail. Perhaps a law for the prevention of ophthalmia neonatorum, like that proposed by Dr. Howe might be taken through. We will try it at any rate within a short period. Dr. Randall's question, "Is blindness from ophthalmia neonatorum always preventable?" occurred to me during the reading of the paper. Some cases are undoubtedly infected before birth, and even in the membranes, as in a case lately reported by Nieden. It has been my fortune to see within a short period three cases of the disease that probably happened before birth as on delivery of the head the lids were agglutinated and when opened there was purulent discharge. All three cases were attended by physicians, two of whom are noted for their antiseptic midwifery, and every proper means was used, but they all went to the bad. In the city of Milwaukee there are more midwives than physicians, and in consequence we see considerable of infantile ophthalmia. Albeit we must be careful just how strong we make our statements about the prevention and cure of the disease, as many eyes become blind under the best of treatment, and where such is the case the physician will be all the more blamed.

Dr. TAYLOR—I still think that the majority of these cases can be cured as well as prevented. The greatest thing is not in giving directions as to what should be done, but in seeing that those directions are carefully and faithfully carried out. The physician can prescribe what he knows and is ought to be successful in every case where it is taken in time. I believe that nearly every case of ophthalmia neonatorum can be cured or prevented.

IS CONSUMPTION HEREDITARY?—A FAMILY HISTORY.

BY E. C. ATKINS, M.D.

OF THE CH. SURG. COL.

That "Am" means dig their graves with their teeth," a saying fraught with more truth than elegance. That it is done unwittingly, more often than not, even with the best and most careful attention, coupled with a lack of proper information, frequently leads to some sad and sad end, will be seen by the following family history.

My grandfather, a thrifty farmer, and a mother wily and

the latter of gall stone at 60. Both were country bred as were all their ancestors and all their children. A perfectly clean family history for generations back. No consumption in any of them. There were nine children. Of these, the second, fourth and seventh died as infants, of cholera infantum. The first died at 19 of consumption, the fifth is the present writer, who has the disease, held in abeyance, however, by climate and careful diet. The sixth, still living, has had the disease for eight years, but is practically restored by the same means, and the ninth died of pulmonary hemorrhage at 9 months, during the illness of No. 1. The first, third and ninth all died within seven months of each other, and, after the death of this group, a complete change of residence occurred, and a period of fifteen years elapsed before No. 6 was taken with consumption, at the age of about 25, and five years later the writer developed the disease.

Now, why this condition of things? Why so many cases of consumption in a family with no previous history of it? Did they inherit it? Can a man inherit a thing that his parents did not have? Or was it infection? and if so why did not all have it at the time? They were all miserable and anemic and would have fallen an easy prey to the germ. So why this lapse of fifteen and twenty years before the last two developed the disease? With these last two was it inheritance or infection? Both were married, had good homes and healthy children. They lived miles apart and seldom saw each other. They could not have taken it from the same source.

It was a noticeable fact that the children of this family were none of them as strong or well developed as their parents, and were much more nervous. Why was this, and did it bear any causative relation to the development of the disease? I think it did, and will explain why.

The parents of this family were good, old-fashioned country people, well educated in the "three R's," but not at all posted on diet and the nutritive value of food. Food was food to them, no matter what kind it was. One was as good as another. Please to note that three out of nine of these children died of cholera infantum, showing, in all probability, that there was an erroneous method of feeding adopted very early in life. Such things were not understood then as they are now, and the relation of feeding to cholera infantum was not as well recognized. These three babes, coming of healthy stock, and being born as healthy as other children, and dying of cholera infantum, point out the fact that there was something radically wrong in the feeding of this family from infancy up, and that the same erroneous ideas prevailed all through their childhood will be seen by the following:

During the years of childhood and youth, from 10 to 20 years old, strong coffee was given them, ad libitum, and with the kindest intention they were encouraged to take freely of it with the idea that it fortified the system for the labors of the day. Their breakfast frequently consisted of strong coffee and rolls or cookies. Griddle cakes, pies and puddings formed a goodly part of their food, and candy was an unrestricted article of diet. Not that there was no other food, but they ate what they wanted and their appetites led them to this mode of feeding. It was the natural result of the course of feeding adopted in infancy. An abnormal appetite for the

carbo-hydrates being engendered in the earliest infancy by highly sweetened foods, and in later years by cakes and an excess of other starches, they did not care for meats, but craved and lived upon the non-nitrogenous foods, and taking this, together with the powerful effect of the coffee on the nervous systems of young and growing children, what wonder that they did not attain unto the stature of their fathers, who went to sea and lived on meat and fish. What wonder that they grew up to be neurotic and anemic. What better conditions for favoring lung diseases could be wished for?

The poor physical condition of the children attracted the attention of the devoted mother, and a physician, hoary with years and wisdom(?) was called in to suggest some way out of the dilemma, and what did he suggest? *Cod liver oil*, forsooth. More non-nitrogenous food. More heat, more combustion and no water in the boiler. If he had only looked sharply into their mode of living and said: "*More meat* for those starving children," how different would have been the subsequent history. The habits of non-nitrogenous feeding acquired in infancy followed them through childhood, and the two surviving ones into manhood. All unconsciously they were pursued by the same relentless enemy that had wiped out the rest of the family, and in the course of time it did its work upon them also. Every member of that family succumbed to erroneous feeding except the one that died of heart disease.

Now, did they inherit it? No. For it was not there to be inherited. Was it inoculation? Perhaps so, partly, but I doubt it. If you will pardon a vulgarism, they all fed out of the same trough and it was the trough that was inherited, not the disease. Consumption can be propagated by improper feeding with almost as much certainty as by inoculation with the tubercle bacillus, but it takes longer. I fully believe that the enormous death rate from this disease in this country is largely, if not chiefly, due to our mode of feeding. Why do the operatives in the New England mills and shops, who are born of healthy emigrant stock, die of this disease in such numbers? Is it not because they are poorly fed? Because, pushed by poverty, they live so largely on cheap carbo-hydrate foods and little meat? Look into the history of a given number of cases of consumption and you will find that 99 out of every 100 have been large consumers of bread and other starchy foods and poor eaters of meat. It only needs time to accomplish the end on such food.

Nature intended man to eat a large proportion of meat food with a proper addition of other foods, as will be seen from the teeth, twenty of which are of the cutting and tearing kind like those of the carnivora, and the stomach, which is a lean meat digesting organ. These ample provisions for digestion of nitrogenous foods would not have been made if man had been designed to subsist upon the cereal grains and other starches. But civilization has so changed all this that an excess of non-nitrogenous foods is the rule and consumption the result. Look at the American Indian. In his native state he was a meat eating animal, living from necessity on the products of his bow and gun, and consumption was a rare, if not unknown disease. Now he is "civilized." He is fed by the Government, according to civilized methods, with a large percentage of non-nitrogenous foods, and consumption is the scourge

of the race, and is sweeping the red man off the face of the earth. Did the change of food have nothing to do with it? Why are the English people so robust and ruddy? Why is consumption less prevalent there in their foggy island than here? It is well known that they are large eaters of beef. Has this fact nothing to do with it? While there are some things to be said on the other side, I believe that the above suggestions point to a great truth as well as a fatal error in the diet of Americans, which is fast becoming worse and worse. Just in proportion as the food of the coming generation becomes more complicated and more delicate, just in proportion as the starches, etc., supersede the meats, just in such proportion will the ravages of consumption continue, and the disease run rampant among us.

BOOK NOTICES.

Transactions of the Medical Society of the State of Washington.

This modest pamphlet of 153 pages, records the proceedings of the Fourth Annual Meeting, which was held at Tacoma. The papers read at the meeting are interesting, and in general highly creditable to the authors.

Transactions Medical Association of Georgia. Forty-fourth Annual Session.

This handsome volume, containing 426 pages, is well printed and ably edited by the Secretary, Dr. D.H. Howell. The papers are excellent, with the exception of one on sterility in the male, which Dr. Thomas in the *South-east Medical Record* for October, asserts is largely plagiarized from Gross and Clitzman. The author, it may be said, had at least the good taste to select standard authorities from whom to borrow. It was probably altogether in the interest of the Society that he did so, instead of depending upon himself.

Transactions of the Medical and Chirurgical Faculty of the State of Maryland.

This is a pamphlet of 124 pages, containing the minutes of the Ninety-Fourth Annual Meeting, the President's address, memorial notices of deceased members, and other interesting matter. The papers read at the meeting were not printed this year owing to various causes. The address of the President, Prof. Wm. H. Welch, on "Acute Lobar Pneumonia," is what would have been expected from that distinguished gentleman, a finished article on the subject. He is of opinion that the *micrococci lunculatus* is the specific cause of pneumonia.

Duane's Students' Dictionary of Medicine. The Students' Dictionary of Medicine and the Allied Sciences, comprising the Pronunciation, Derivation and Full Explanation of Medical Terms, together with much collateral descriptive matter, numerous tables, etc. By ALEXANDER DUANE, M.D., Assistant Surgeon to the New York Ophthalmic and Aural Institute; Reviser of Medical Terms for Webster's International Dictionary. In one square octavo volume of 668 pages. Cloth, \$4.25; half leather, \$4.50; full sheep, \$5.00. Philadelphia: Lea Brothers & Co. 1893.

Dr. Duane's already great experience as a lexicographer would lead us to expect an excellent work, and in general we are not disappointed, but we must confess our regret that he has chosen to adopt the English pronunciation for Latin words. He thus differs from Dunglison and Foster, and if followed, will lead to still greater confusion than now exists. He, however, makes an exception in words ending in *itis*, in which he allows the Continental vowel sounds. It is singularly unfortunate that in this day, when every effort is being made to unify scientific terminology, that all can

not agree. It is simply impossible to force the English vowel sounds on the remainder of the world, and there is no reason why Americans should adhere to a pronunciation only used by a single nation. Dr. Duane has carried this Anglomania to an extreme, for instance: the pronunciation, "ka-thet-ur-ism," is so far away from the ordinary usage, as to be almost unrecognizable. The same remark applies to gelatinize, which the author advises us to pronounce "jee-lat-in-is." He tells us to pronounce capsule "kaps-yu-le," and so would any one born within the sound of Bow Bells. Caproyl must be pronounced "ka-proh-il."

It is a great pity that an excellent dictionary should be used to cockneyize the already bad pronunciation in use in this country.

The dictionary excels in definitions of chemie terms, but will always be a bad book for students, until its vicious system of pronunciation shall be corrected. A student who follows this pronunciation will find his medical language unintelligible when he visits the Continent.

The Throat and Nose and Their Diseases; With 120 Illustrations in Color, and 35 Engravings. Designed and executed by the Author, LENOX BROWNE, F.R.C.S.E. Fourth Edition. Pages, 734. Philadelphia: Lea Brothers & Co. 1893.

Mr. Browne is one of the eminent laryngologists of the world, and, as the value of a treatise on this subject depends largely on the conclusions reached by individual work, we can commend this as furnishing results of a large and extended experience, enriched by details of cases that have come under his own observation. The present edition contains much that is new, especially in that part devoted to diseases of the nose. The colored illustrations grouped together in the back of the volume were made by the author and are admirable in drawing and coloring. Many of the drawings in the body of the book, however, have been very poorly reproduced in the wood cuts.

In treatment of diseases we find much to commend and some things to criticise. Among others, the author's use of menthol. In the present, as in former editions, he advises menthol in a solution, for the nose, of 10 to 20 per cent. Few patients can tolerate such a strength, and complaints have been made by a number of patients of the severity of the treatment by menthol spray, which they received while abroad. We have found from a number of years' experience, that as good results are obtained by the use of a solution containing from 1 to 10 grains to the ounce without the suffering attendant on the stronger applications. Mr. Browne has become a convert to the more extended use of chromic acid in turbinated hypertrophies, and gives explicit directions as to his method of applying it. In the hands of an expert we do not doubt that it is often efficacious, but in the hands of the average practitioner we can not but believe, with many of the best authorities in this country, that it is an unsatisfactory agent not easily controlled, causes more pain, and is not nearly so efficacious as the galvanocautery. Anesthesia is mentioned as being accomplished by placing a cotton wool pledget soaked in cocaine 15 per cent in the naris, a method that we believe in the majority of cases would cause the absorption of more cocaine than necessary, and would leave some parts untouched by the solution, and not anesthetized. We find that the author reasserts his belief in the non-identity of laryngo-tracheal and brainous group and diphtheria, the former of which he regards as non-specific, sporadic, non-inoculable, non-infectious, causing death by an exudate which mechanically obstructs the larynx and trachea, and attacks children only. The non-identity of the non-identity of the two diseases are at variance with those of many authors, and we are apt to doubt, until we read after reading his views carefully, and to

treat the cases as diphtheritic; a condition of affairs from which we hope some day to be rescued by results of the study of the bacteriology of this disease, which has been truly called "the scourge of childhood, the dread of parents and the reproach of medical art."

On the whole, the general practitioner and specialist will find a book fully abreast of the times, with very much to praise and little to criticise, and one which covers the subject completely.

Text-book of Otology for Physicians and Students. By Dr. L. JACOBSON, Privatdocent, etc., Berlin, with 318 Illustrations on 20 plates. Pp. 450. Leipzig: Georg Thieme, 1893. (German Edition.)

A result of the extraordinary and healthful activity in the field of otology is the appearance of several treatises within the last few years. The text-book of Dr. Jacobson is largely based on his experience of sixteen years as Assistant in the Otological Clinic of the Berlin University. Familiarity with this book will certainly direct the attention of fellow practitioners to the opportunities at the Berlin clinic.

The book is intended mainly for the general practitioner who wishes to secure a more thorough knowledge of aural diseases than our colleges can give. Stress is, therefore, laid upon a clear and succinct description of the various diseases in all their aspects. The interdependence of general and aural diseases, and especially the danger to life from the latter, are well and often emphasized. The treatment is fully set forth in all cases. The judicious tenor which characterizes the language of the treatise invites the confidence of the reader. Meddlesomeness is deprecated. Cases of severe injury, for instance, or even death, resulting from the bungling use of forceps when the operator was not accustomed to the use of reflected light in guiding his hand are recorded in every country. Aspiration is urged even in small operations. The Eustachian catheter is being displaced by Politzer's and other methods of inflating the middle ear, which do not require special skill. This naturally leads to the abuse of that potent remedial agency, air, which can do such harm when unnecessarily employed. It is stated how catheterization aids auscultation of the middle ear, how it is more advantageous in unilateral disease, etc. The importance of early treatment in those cases of dry catarrh of the middle ear, which later on prove so annoying, is impressed on the family physician, who is generally first consulted.

The illustrations are of great number and variety, and although not beyond reproach artistically, they will prove quite acceptable. The normal anatomic relations of the auditory organ, instruments for daily use and the greater operations, appliances for the improvement of hearing, pathologic changes of the drum head, malformations of the outer ear, etc., are shown in plates at the end of the book.

Dr. Jacobson's skepticism in regard to the reliability of the generally accepted tests for hearing will not be shared by all his readers, but his able arguments are well worthy of consideration. Lucæ's pressure probe has often proved efficacious in non-suppurative catarrh and when the drum head is perforated. This useful instrument has not gained the popularity it deserves. Any measure promising relief in that prevalent and intractable disease which embitters the existence of so many of our patients—sclerosis—should be hailed with delight, and be given a fair trial before uncertain operations are advised. The major operations are accurately described with due reference to the latest publications. The operation of Stacke, as modified in the Berlin clinic for several years by Dr. Jansen, is clearly described. The short chapter on topical diagnosis of cerebral diseases, and projection of the cortical centers and gyri on the surface of the skull, is indicative of the tendency of modern otology.

Journal of the American Medical Association PUBLISHED WEEKLY

SUBSCRIPTION PRICE, \$5.00 PER ANNUM IN ADVANCE.

SINGLE COPIES, 15 CENTS.

Subscriptions are payable in advance.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

NO. 534 N. Dearborn Ave., Chicago, Ill.

E. J. REEBA, LONDON AGENT, 1, ADELPHI STREET, LONDON, W.

W. H. LOWMEYER, LONDON AGENT, 1, ADELPHI STREET, LONDON, W.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION

This is obtainable at any time by the payment of the dues. The dues of the American Medical Society, which is earned by the delegates to the Association, are \$5.00 per annum. All that is necessary is for the applicant to write to the Treasurer, Dr. Richard J. D. Smith, 1218 N. Dearborn Ave., Chicago, Ill., enclosing a certificate of standing from his local medical society, signed by the President or Secretary of such society, and five dollars for annual dues and subscription for the Journal. The dues of the Association as a delegate at an annual meeting of the Association are \$10.00. It is necessary to obtain membership in the Association in order to be eligible for the weekly JOURNAL of the Association, which is published for the members only.

All members of the Association should send their dues to the Treasurer, Dr. Richard J. D. Smith, 1218 N. Dearborn Ave., Chicago, Ill.

SATURDAY, NOVEMBER 25, 1893.

NATIONAL COMMISSION ON THE OPIUM TRAFFIC.

When any abuse or apparent wrong excites widespread inquiry, the English Government has always shown great readiness to investigate it through a Parliamentary committee. From this has come some of the best studies on various social and sanitary topics ever made. The temperance question, and asylums for inebriates, insane and others of the dependent classes have been the subject of exhaustive investigation and the reports in the Blue Books are libraries of facts of great value. In striking contrast to this is the opposition of our Congress for many years, to the persistent efforts for a governmental commission to inquire into the alcoholic traffic of this country. The English Government during the past ten years have had three Parliamentary Commissions who have, after months and years of investigations, issued large reports of testimony, on various phases of alcohol and its use and abuses.

A few months ago the House of Lords appointed another commission on the opium question. It is well known that a large part of all the opium used in the world comes from India. That Government has protected and encouraged this traffic, and even engaged in war in its defense with China, who tried to stop the trade which they claimed produced so much demoralization of the people. This opium trade has been pressed with great vigor by the Government of India and its traders everywhere. As a result, an anti-opium society has been in existence in London and India, who have opposed the extension of the traffic, especially to semi-civilized countries, and who have urged that restrictions in both its growth and use should be applied. They demand that it should be treated as a medicine and poison and should be regulated, and not put on the market free and even urged as a luxury and food. It is to

investigate these social facts that a Commission has been appointed. The matters to be investigated were 1, what the growth of the supply and manufacture and sale of opium in British India should be; 2, whether except for medicinal purposes, and whether such production could be extended to the native States; 3, to report on the existing arrangement with the native States in respect to the transit of opium through British territory, and on what terms the arrangement could be with justice terminated; 4, the effect on the finances of India of the prohibition of the sale and export of opium, taking into consideration the amount of compensation payable to the East of the necessary prohibitive measures; 5, the loss to the revenue; 6, whether any change short of prohibition should be made in the system at present followed for regulating and restricting the opium trade and so raising a revenue therefrom; 7, the consumption of opium by the different races and in the different districts of India, and the effect of such consumption on the moral and physical condition of the people; 8, the disposition of the people of India in regard to the use of opium for known medicinal purposes, their willingness to bear in whole or in part the cost of prohibitive measures.

This Commission is composed of several eminent physicians and government officers and have had six sessions in London and then adjourned to India to take testimony on the ground of persons who would necessarily be more familiar with the facts than others. The testimony of witnesses during these six sessions at London was singularly frank and outspoken. Medical and other missionaries were emphatic on the evils of indiscriminate use of opium. Dr. Gour said that one drug firm imported 50,000 ounces of morphia to China last year. The large quantities of opium consumed in Burma, China, Formosa, Siam, Japan and adjacent countries, and the degenerations which have followed, were described in some detail. Curious statistical facts were related of the extent and secrecy of the use of opium, and various devices to procure it, and the profound mental and physical degeneration which followed. Unlike spirits or other drug takers, the opium user rarely came under legal or public notice; he became more secluded and retired from public observation as his addiction increased. Opium was a favorite means of suicide, and a large per cent. of these cases died by this means.

While the evils and horrors of opium addiction were urged in the strongest way and sustained by facts and statistics, the opposite side made a very startling presentation of contrary facts and statements. One man of large experience had never known a death from the use of opium, and believed its use as harmless as that of smoking lay or straw. An-

other witness was sure that opium in any form was beneficial to the native races, and only of damage to the Europeans when used in excess. Other witnesses were equally clear that no harm could follow the use of opium in moderation by any peoples.

The Commission showed great firmness in calling all persons who might possibly, from experience and observation, be acquainted with the subject. If his testimony seemed extreme he was permitted to explain, and was questioned as to the facts and basis for his statements. His capacity as a good observer was questioned frankly by the members of the Commission, and he was given ample opportunity to make all his views clear. The next meeting of the Commission will be at Calcutta in November, and be continued in different cities. It is evident that the testimony which will be given before this Commission will comprise a new chapter on opium and its effects on the race, and the Blue Book in which the testimony will appear will be of unusual interest. It is a source of regret that we can not have a similar commission, made up of experienced men, above political levels, to take testimony and report on the many great scientific and sanitary problems which concern the entire country. Such commissions could gather facts that would be authoritative in the study of many problems now practically buried in absurd theories and dogmas.

TYPHOID FEVER AND WATER SUPPLIES.

There are fashions in medicine as in everything else, and among the sanitarians and public health men among the clinicians. When some years since the connection between typhoid fever and sewer air was suggested by the evidence of accumulated observation, every outbreak of that disease in which the mode of propagation was not patent was ascribed to defects in the sewerage system or in the house plumbing. More recently, when the water propagation of the disease was demonstrated in some instances that are now classical, as the Lausanne epidemic in Switzerland and the Plymouth outbreak in this country, it became customary to ascribe to an infected water supply all cases of uncertain origin. Conservative medical men who accept new views slowly have often been dissatisfied with the grounds on which water supplies have been condemned in special outbreaks. There has, however, now been made public in a Supplement to the Report of the Medical Officer of the Local Government Board of England, an instance in which, in the words of the Medical Officer: "Seldom, if ever, has the proof of the relation of the use of grossly befouled water to a wholesale occurrence of enteric fever been more convincing and patent."

The area of 1,100 square miles in England, comprising 32 sanitary districts and containing half a

million of inhabitants, enteric fever has for years past been widely prevalent. Within this area where the infective material was ready to hand there were 10 sanitary districts containing 200,000 of the aforesaid inhabitants, in which occurred two marked and sudden outbursts of enteric fever, one Sept. 7—Oct. 18, 1890, and the other Dec. 28, 1890—Feb. 7, 1891. The remaining portion of the area mentioned had meanwhile insignificant fever rates. Moreover, certain of the affected districts suffered more than others, having rates of 29 and 24 per 10,000 of the population, as compared with 3.5 and 1.5. A careful inquiry was made into the general sanitary circumstances of the affected districts, dealing especially with questions of house accommodation, disposal of excreta and refuse, sewerage, drainage and milk supply. As regards the last, there was of course little likelihood of its being concerned on account of the wide extent of the involved area. Many sanitary faults were discovered, but no community of any such, in sanitary factors could be found to affect the several areas invaded by the fever. And not only so, but amongst localities where precisely similar faults obtained, some places suffered severely whilst others enjoyed almost complete immunity. One fact, however, was found to be common to the affected places, and that was the use of water pumped from the river Tees. This river is grossly fouled with sewage, and opportunities for the access of the specific material of enteric fever to its waters had been constantly recurring. Immediately antecedent to the epidemic outbursts, sudden floods had washed vast masses of filth which had been accumulating on its banks, into the river and along its current to the points of intake, from which the water was pumped for delivery to certain populations; and it was these populations who suffered so severely from the exceptional prevalence of enteric fever.

Dr. FRED W. BARRY, Inspector for the Board, deserves high credit for a report, which will tend greatly to the suppression of typhoid fever by bringing forward so prominently its connection with the presence of sewage in water.

HAVE AGENTS AUTHORITY TO EMPLOY PHYSICIANS?

The question as to an ordinary agent's, or general manager's authority to employ a physician to attend an injured employe seems to be one not yet settled by the courts. There are several branches of the subject, one pertaining to railroads, another to factories and manufacturing establishments. The first is differentiated from the second and other important divisions by the fact that railroad companies occupy a peculiar position with reference to such matters; exercising quasi-public functions, being clothed with extraordinary privileges, carrying their employes to

places remote from their homes, subjecting them to unusual hazards and dangers. Here a number of decisions will be found; and the law has, by reason of the dictates of humanity, and the necessities of the occasion, imposed upon such companies the duty of providing for the immediate and absolutely essential needs of injured employees when there is a pressing emergency calling for their immediate action. In such cases, even subordinate officers are sometimes, for the time being, clothed with the powers of the corporation itself for the purposes of the immediate emergency, and no longer. But to inquire further into this, is not our purpose at this time. It is to call attention to the decision of the Appellate Court of Indiana in the case of *Chaplin v. Freeland*, rendered Oct. 13, 1893, which was an action brought by John T. Freeland to recover from William Chaplin, a resident of Canada, doing business at Hiltonville, Ind., for services rendered at the request of his superintendent and general manager to a servant of his who was injured while in his employ. This seems to be a pioneer on the general subject, or at least on the power of an agent or general manager of an ordinary manufacturing establishment to employ a physician or surgeon for injured employees. The court says that it has been referred to no case holding it to be within the scope of the duties of a manager of a factory, for either an individual or a corporation to employ physicians or surgeons for employees. Neither has it, it says, been able to find any such case. The case of *Swazey v. Manufacturing Co.*, 42 Connecticut, 556, is cited as authority for the proposition in *I American and English Encyclopedia of Law*, 365, as applied to corporation, but the court says that the learned editors have misconceived the holding of the case, which is directly to the contrary, deciding that it must be left to the jury, as a question of fact, whether or not he had such power. The court says that it is, therefore, not prepared to hold, as a matter of law, that the employment of a physician or surgeon for injured employees comes ordinarily within the scope of the duties of a general manager of an ordinary manufacturing business. Usually, an injured employe procures and pays for his own attendance, and then, if his employer be in the wrong, recovers this sum from his employer, with his other damages. But it is to be noted that there were no facts brought out on the trial showing any emergency save a necessity for the immediate services of a surgeon. No necessity for action by the employer was shown. Neither did it appear but that the injured man was possessed of abundant means to provide for himself, nor that he lacked friends and relatives able and willing to provide for him. Whether or not such an extreme case might arise as would justify or require the court to impose on individual employers a duty analogous to that imposed

on railroad companies, it is said it was unnecessary for it in the present case to determine.

The moral of which is, that if you wish to "back sure" of your foe, you must have somebody positively assume the liability when you take the case.

THE PASSING OF THE CORONER.

The New York Academy of Medicine is virtually a unit in seeking the demolition of the antiquated coronorial system. The Medico-Legal Society has also taken action in the same direction. New laws will without doubt be enacted at the next session of the Legislature of the State of New York, abolishing the old methods and introducing measures planned after the Examiner system of Massachusetts. The many abuses of the old system—the growth of generations and unstinted authority, especially in our badly or crudely governed cities—have at last made themselves so obnoxious that even the conservative Academy has been impelled to action. The following paragraphs are a part of the voluminous series of resolutions adopted at the last meeting of the Academy:

Resolved, That a medical man of mature years, established character, broad mind and sound and extensive information in anatomy, pathology, toxicology and all the other branches of forensic medicine must be the responsible occupant of an office in whose keeping are the most sacred interests of the individual and of the community, and to him should be delegated the initiative and power to elaborate the investigations of an actual or alleged criminal act, his conclusions being reported to the office of the District Attorney; and be it

Resolved, That the New York Academy of Medicine earnestly calls the attention of the approaching Constitutional Convention to the admirable system of medical examiners which the State of Massachusetts has substituted for the coroners' system, and the Academy urges the enactment of similar laws in this State."

EXPERTS MAY TESTIFY AS TO NECESSITY FOR THE REMOVAL OF AN EYE.

An expert in the treatment of diseases of the eye may testify in an action brought by a patient to recover damages from a third party for negligence resulting in an injury to her eye, that he removed the injured eye, which was totally sightless, to save the sight of her other eye, which was being impaired, and that he had her under his charge for several weeks, and had a distinct recollection of her case. And so may another expert testify in such case; the Supreme Court of Wisconsin holds, in *Reed v. City of Madison*, decided Sept. 26, 1893, that in his opinion, it was necessary to remove the injured eye to save the sight of the other eye, which was endangered by sympathetic inflammation.

Blank Applications for membership in the Association, at the JOURNAL office.

SELECTIONS.

The Treatment of Articular Rheumatism.—Dr. Edwin Lang regards salophen as the most suitable and effective anti-rheumatic at the present time. Even in doses of 1.5 grams four or five times daily it exerts a favorable influence upon the fever, not producing a rapid remission, but a gradual reduction accompanied with a relief of the pains and improvement of the general condition. As an anti-rheumatic, salophen has a specific effect upon the symptoms of acute articular rheumatism. In very recent cases the pains in the joints diminish on the following day, subsiding gradually during the use of the remedy, and the swelling of the joints decreases with equal rapidity, so that mobility is soon restored. Although light cases are for the most part cured completely and permanently in the course of three or four days, this favorable and rapid result can not, of course, be expected in all cases. Many cases of acute articular rheumatism are frequently so obstinate that salophen must be administered for a long time, often for weeks, before the symptoms have completely vanished, but it is in this particular class of cases that salophen often proves invaluable. For while other anti-rheumatics after continued use always produce disturbance of the digestive organs and of the general health, in consequence of which they have to be given up, the anti-rheumatic and anti-febrile effects of salophen may be utilized uninterruptedly, since it does not give rise to gastric disorder nor affections of the ear, and does not impair the appetite and digestion even when administered for weeks. This property of salophen which is of extreme value in the cure of these obstinate cases depends upon the fact that it passes the stomach unchanged, being decomposed in the intestine and that a large portion of the drug is excreted through the skin with the resulting profuse perspiration. It may further be mentioned that by reason of remarkable curative properties salophen has been employed for the treatment of many nervous affections and has proved a valuable remedy for relieving pains, especially in the various forms of nervous headache. In cases of unilateral headache a single dose of 1.5 grams is often sufficient to at once arrest the attack.

Salophen must be regarded therefore as superior to all other similar remedies, both as regards its anti-rheumatic and anti-febrile and its marked anti-neuralgic effects, but its chief point of superiority is that it may be used without danger by the laity, inasmuch as symptoms of poisoning, such as have been frequently observed after the incautious use of antipyrin and antifebrin, never occur. We are, therefore, warranted in regarding salophen as one of the new remedies which by reason of its freedom from danger and its prompt pain-subduing effects, will prove extremely serviceable as a household remedy in recent cases of articular rheumatism, since it never can be predicted with certainty whether the disease, even if of mild character, will be attended with injurious consequences.—*Hamburgische Hanseatische Zeitung*, No. 166, 1893.

Extremes in the Death Rate of Typhoid.—"Dr. Benjamin also remarked that the treatment of typhoid fever had improved or the character of the disease had become milder. His attention had been arrested by the report from the Cooper Hospital of Camden, where during the past two years the mortality from typhoid fever had been reduced to 2 per cent. One of the fatal cases was a man who undoubtedly would have gotten well had he not disobeyed orders and got out of bed when known to have a weak heart. He died of early heart failure. When looking up the death rate from typhoid he found that in one hospital in Philadelphia the case mortality, and the treatment employed, said to be the best, was by the cold pack. In the Cooper Hospital the case mortality was by the cold pack, but had employed the cold pack and disinfectant of the bowels. In the Cooper Hospital the death rate from typhoid was 9 per cent. He found to his great astonishment that in the same hospital (Hahnemann

reported a death rate from this disease of 24 per cent. the last two years, 1891 and 1892.

"The location of their Hospital was one of the best (and under the treatment of their leading Professors) and he was unable to understand why they should have a death rate 1200 per cent. higher than others, 100 per cent. higher than the most unfavorable statistics in Philadelphia under the "old school" system, yet the Homœopaths laid special claim to superiority in fevers, if in anything. The epidemic had been the same, the circumstances the same (except of course the treatment). No explanation had been offered, notwithstanding the daily press had mentioned the subject."—From the Transactions of the Medical Society of New Jersey, 1893. Pages 36-37.

A Contribution to the Study of Club-Hand.—By REGINALD H. SAYRE, M.D., Orthopedic Surgeon to Bellevue Hospital Outdoor Department.¹—Congenital club-hand is a rare deformity. Club-hand resulting from an injury to the central nervous system, or to an unsuspected fracture of the bones at the time of birth, is not strictly speaking a congenital affection. In congenital cases there are three varieties: 1, the skeleton is complete and well-formed; 2, the skeleton is complete, but ill-formed; 3, the skeleton is incomplete and distorted.

The general belief is that most of the cases belong to the third variety. The writer has seen in all five cases, only two of which belonged to this division. In four of the five cases club-foot in one form or another was also present.

In milder cases, manipulation and retention in the improved position with plaster-of-paris is of great benefit. In severer cases, section of tendons, ligaments and fascia may be necessary. Open section is often preferable, and when the flexors are involved it is better to operate in the arm, cutting the tendons diagonally, slipping the ends by each other until the required length is gained and then suturing. Two of the author's cases were due to great contraction of the flexors of the fingers, but neither of them came to operation. In a double case, which is still under treatment, manipulation and plaster-of-paris is doing good work. In another case, also under treatment, the child has right club-hand, right club-foot and left lateral curvature. The whole right side of the body is less developed than the left, possibly due to disuse, the right hand and foot being so deformed as to prevent even moderate use. The club-foot was recently cured by an operation. In the club-hand, the radius and thumb are absent, together with the first metacarpal bone and several of the carpal bones, exactly which ones it is difficult to make out. The hand was perpendicular to the arm on the radial and flexor side, the ulna being curved 30 degrees to the radial side. The carpus did not articulate with the ulna, but was drawn up above its distal end, and was attached to it by means of firm ligamentous bands.

The writer first performed an osteotomy of the ulna and corrected the curve. After an ineffectual attempt, by several weeks of traction, to lengthen out the ligaments so that the carpus could be brought down to the end of the ulna, he cut down upon the ulna and separated all the ligamentous attachments from it, but even then could not draw down the carpus sufficiently, and he therefore removed two carpal bones which he thought were the os magnum and the ulniform. The tip of the styloid process was then cut off, and the end of the ulna was inserted into the gap left by the removal of the carpal bones. The hand was dressed in the straight position, and after three weeks, passive movements of the wrist were begun with the object of creating a serviceable joint if possible. The operation benefited both the position and the usefulness of the hand, although an apparatus is still worn to give strength to the wrist and to preserve a better position of the ulna, which tends to slip a little from its position unless thus supported.

The treatment of club-hand must depend upon the conditions existing in each individual case. The writer's operation is the first one of the sort reported, so far as he is able to learn.

¹ Abstract of paper read at the Pan American Medical Congress, published in the *JOURNAL* last week, but contained so many typographical errors that it was necessary to reproduce it.

ASSOCIATION NEWS.

Change of Date of Meeting—Official Notice.—In order to enable the State Medical Societies to send instructions as to their action in the matter referred to them by the AMERICAN MEDICAL ASSOCIATION at its recent meeting at Milwaukee, and for other reasons, the time of meeting of the ASSOCIATION at San Francisco has been changed from the first Tuesday in May to the first Tuesday in June, 1894.

WILLIAM B. ATKINSON,
Permanent Secretary.

JAMES F. HIBBERD,
President-Elect.

SOCIETY NEWS.

Orleans Parish Medical Society, Sept. 9, 1893.

Meeting was called to order by VICE PRESIDENT M. M. LOWE. Sixteen members were present.

DR. E. D. FENNER read the following paper on

EXTERNAL CRETHROTOMY FOLLOWED BY SEPTIC ARTHRITIS.

The case which I propose to present to you is in truth one upon which an external urethrotomy has been performed, but the operation itself has been completely overshadowed by the complications that ensued. I lay it before you, not to serve as a text for any discussion of septic arthritis, but simply as an example of the severe and unexpected results that sometimes follow an apparently simple and favorable operation. For many of the data I am indebted to Mr. Lovell, R. S. of the ward. John Henry, aged 21, was admitted to No. 2 on June 25, 1893, suffering from urethral stricture. He passed his urine with straining and in a very small stream. This he had noticed three months before, but it had grown progressively worse. As is frequently the case with negro subjects, he denied any previous venereal trouble. On June 27 a filiform was inserted with the intention of passing a Goulé sound. The whalebone was old and defective, and, slipping from the grasp of the assistant who held it, was doubled upon itself by the sound and broke off in the urethra.

External urethrotomy was now done, the whalebone extracted (a portion of it was fortunately still in the urethra) and the whole canal was dilated with steel sounds. Considerable traumatism was inflicted upon the penile portion in this operation.

The patient was put to bed and in the evening his temperature was 101 degrees. From that time till July 5 the temperature ranged between 99 and 100 degrees, when on the morning of the 5th it rose to 103 degrees. From that time till the 16th it remained very high but irregular, owing to the use of antipyretics. On the 8th the thermometer registered 105½ degrees; on the 11th it was again above 105 degrees. These were the highest records. On July the 16th he was transferred to a medical ward, on the suspicion of typhoid fever.

From the day after the operation he complained of pain in the urethra and perineum, but no signs of a phlegmon could be discovered and the urine was only slightly tinged with mucus. With the advent of the high fever came intense lumbar pain, with some tympanites and tenderness over abdomen.

He remained in the medical ward for thirteen days, during which there developed an arthritis of the left wrist, and of the right knee and elbow. His temperature now ranged between 99 and 102 degrees, generally being about 100 degrees. His condition was one of general sepsis. Abscesses formed and were opened on the shin below the inflamed knee, and in the axilla. From the right elbow and knee, fluid was removed with the aspirator, in which was found a considerable amount of pus. The joints were immobilized with plaster casts, and in the case of the knee an ice bag was kept on for three days, before the plaster was applied.

In addition to these serious joint troubles, on August 10 a profuse watery diarrhea commenced and continued till the 23d, when it was finally checked by the lead and opium pill, having been uninduced by mixtures of bismuth, salol and chalk. From August 23 the man began steadily to improve. The swollen joints subsided, temperature seldom rose above 99 degrees, appetite returned, and on September 1 he got up and has since been able to sit up during the day.

Of course, during this time the urethra has been left to itself; at no time has the man been in a condition to stand the passage of a sound, but some urine passed by the meatus, and before long I hope to be able to pass an instrument and restore the canal. Throughout the case the treatment has been symptomatic. Fever was combated with quinin and phenacetin, and with sparging.

The joints were put at complete rest by means of immovable splints. In the case of the knee a considerable amount of fluid was withdrawn by the aspirator and the ice bag applied for several days.

While still weak and not entirely over the arthritis, the patient is rapidly improving, and we hope will yet recover entirely.

DR. CHASSAGNEY said that the case was more interesting as a case of septicaemia than of urethritomy. It must be gratifying to those in charge of the case to know that there is a fair prospect of the patient's recovery, which is a rather unusual termination in cases of general septicaemia. It would be interesting to trace the course of the infection; if this could be done we would know how these complications arise and take measures to prevent them.

DR. BLOOM said that the feature that interested him was the persistence of the sepsis after free drainage had been afforded by the operation. There must have been a focus of infection in the shape of a deposit of pus somewhere. He spoke of a case that Dr. Michard had shown him in his clinic. The patient had pus-tules; the knees became the seat of a septic arthritis, and the patient died, as he was too weak to be operated upon.

DR. M. STANTON recalled a case that he had seen and dressed in Dr. T. C. Richardson's service at the Charity Hospital in 1881. The patient was a negro, aged about 30 years, who had contracted gonorrhea, followed by septic arthritis of the right knee. The joint was first aspirated, then incised, and drainage tubes fixed; but necrosis set in, and the man finally died of exhaustion.

DR. FENNER, referring to Dr. Bloom's remarks, said that he did not see how, in this case, there could have been any purulent focus; there was no room for it.

DR. GAUBERT reported a case of abortion of three months. The patient admitted that she had had some sort of a criminal operation performed on her and had also taken some medicine to bring on abortion. She had some pretty severe hemorrhages, and she sent for him. On examining the uterus through the speculum, he found two wounds in the lips of the organ. He ordered anti-septic vaginal and intra-uterine injections. He thought, from the hemorrhages, that the uterine contents had been expelled; but, on the eighth day, the ovum came out intact, sac and all. He was surprised at that, since he had at first thought that in the attempt at abortion the ovum had been broken up and mutilated. He thought that the hemorrhage must have come partly from the cavity of the body of the uterus and partly from the lacerated os.

DR. SCHIEFFELKE reported a case which he regretted to say, was incomplete. He first saw the patient six months ago. She then had some nasal stenosis, which the doctor relieved by operating on the septum. She mentioned, at the time, that she had violent headaches, coming on at intervals of two or three weeks. The pain radiated from the center of the head to the vertex. During these headaches, her eyes and face were congested. After the headache had lasted several days, it would become less intense, and suddenly, while the patient would be stooping forward, there would be a sudden gush of clear, straw-colored, inodorous liquid from the nostrils. This discharge would be followed by a complete cessation of all the symptoms.

Feeling that the liquid must come from a well defined cavity and not from an oozing surface, Dr. Schieffellke washed the antrum of Highmore on both sides, with negative results. He punctured the ethmoidal sinuses with the same results; and passed a trocar into both sphenoidal sinuses, but no liquid was obtained. Instructed by the doctor, the patient collected some of the liquid for microscopical examination. On Monday, Sept. 4, 1893, the liquid gushed forth with its usual rapidity after several days of headache. She caught some of it in her hands and poured it into a bottle which she kept ready. This liquid was examined by Dr. McShane, who found it to contain about 5 per cent. of moist albumen. Under the microscope it showed a small number of leucocytes and a multitude of pavement epithelial cells. When the fluid was allowed to stand in a conical glass, a rather heavy sediment deposited, which consisted principally of pavement epithelium, the cells of which were arranged singly and in groups. Dr.

Scheppegrell said that he was at a loss for a diagnosis of this case, and he laid the facts before the Meeting in the hope that some one else might have had some experience that would clear up his case. All of the cavities accessory to the nasal cavity are lined in the columnar ciliated epithelium. He had not yet been able to catheterize the frontal sinus.

Dr. CHASSAGNYE suggested the possibility of hysteria, and means should be tried to ascertain same.

Dr. SCHEPPGREGG said that the character and training of the patient were such as to preclude the possibility of such deception. However, he would arrange matters so as to have the patient watched by a trained nurse, and thus settle beyond all doubt the nasal origin of the liquid.

Dr. GASSAWAY said that Dr. Scheppegrell's case was unique as far as his reading goes. In regard to Dr. Fenner's case he said that he had never seen a case exactly like it at the Marine Hospital. There were records of twenty urethrotomies with one death from fatty heart and old age. Dr. Fenner's patient may have had gonorrhea. The Marine Hospital Service contains an abundance of such cases. Gonorrheal rheumatism may occur two or three months after the gonorrhea is cured. He has seen cases of gleet with stricture that developed gonorrheal rheumatism. There are different views as to what constitutes gonorrheal rheumatism. Gonorrheal cases are numerous. It often happens that a man with gleet will flush out his urethra with urine before presenting himself at the clinic, and no evidence of the disease is seen at the examination. Such cases may afterwards develop gonorrheal rheumatism. In his service it is very unusual to have a temperature of over 38 degrees C. (100.5 degrees F.) after operations on the urethra.

Dr. CHASSAGNYE did not think that Dr. Gassaway's suggestion of gonorrhea in Dr. Fenner's case was well founded. His observations lead him to believe that a case under constant care would not develop the joint complications.

Dr. GASSAWAY did not mean to say that all cases of rheumatism developing after gonorrhea are really due to it. Dr. Gassaway also desired to call attention to the great rarity of true typhoid fever in New Orleans. In all of the places in the Mississippi Valley in which he has been stationed in the last five years, he has seen only five cases of undoubted enteric fever. In Philadelphia, about one-third of all the cases seen at the Marine Hospital were of typhoid fever.

Dr. GANER had a case of pleuro-pneumonia under treatment in the beginning of summer. The man got well, and then he had an attack of true typhoid fever. He got well again, and then his sister (aged 14) took typhoid fever. When she was convalescing her mother took the disease and died on the ninth day. In the course of four months there were three cases of typhoid fever in one family.

Dr. BROWN thought a great many cases of typhoid fever were masked by the remedies used. He had charge of four wards in the Charity Hospital, where he had a good opportunity for examining fever patients. Good notes of the cases were kept. Several patients and three autopsies were held. These patients had not had any diarrhea, and yet the intestines showed the characteristic lesions of the disease and even perforation. Death ensued from exhaustion due to the fever.

Dr. PACHA had seen a number of cases of so-called simple continued fever. Dr. Archinard had informed him that he had performed autopsies on a number of such cases while he was connected with the pathological department of the Charity Hospital. He found the typical changes in Peyer's patches in a number of such cases. There was no diarrhea, no parched tongue, no petechiae. The subject is one of great importance to this community.

Dr. GASSAWAY said that if Dr. Gassaway referred to classical typhoid, he certainly had seen very little of it in New Orleans. The disease is regarded as a rarity in the wards of the Charity Hospital. All of the cases that he had seen were persons who had come from other places, where they had taken in the germs of the disease.

Dr. GASSAWAY said that both of the cases he had seen here had come from St. Louis, Mo. The disease developed while the patients were on the boat.

Dr. LEVINE saw two cases in his ward for negro males. They died two or three days after entering the hospital; at least, the characteristic changes in Peyer's patches were seen. During his two years' service as a resident physician in the Charity Hospital, he performed about sixty autopsies, and in all of those he did not see any inflamed Peyer's patches.

Dr. KENT said that while he was resident student at the Charity Hospital he saw several cases of undoubted

typhoid fever, and a great number of cases of continued fever. He desired to speak on diphtheria. He performed intubation in eight cases; all of them died. His experience with intubation, even in apparently favorable cases, has been such as to make him feel that it is not a very valuable addition to our means of combating the disease. He was compelled to look for something else, and he has adopted a plan of treatment which has given very gratifying results. He uses peroxid of hydrogen in the following manner: He makes a mixture consisting of Marchand's peroxid of hydrogen 3 parts, water 1 part, and a little bicarbonate of soda (about ten grains to the ounce). He fills a laryngeal syringe with this mixture. Then he passes one index finger down to the arytenoid eminences as a guide, and slides the nozzle of the syringe, which is held in the other hand, down to the end of the fingers. He then quickly squirts the liquid into the vestibule of the larynx, and flushes the larynx and the lower part of the pharynx. This manipulation causes a brief dyspnea and great distress, but the efforts at coughing thus provoked bring up large chunks of false membrane, and the breathing at once becomes easier. From this on the patient continues to improve. The nourishment of the child is also looked after. After the larynx has been flushed out as above described the patient is able to swallow better.

Dr. SCHEPPGREGG referred to a report on diphtheria recently published in the *New Orleans Medical and Surgical Journal*, in which it was stated that biniodid of mercury used internally had given excellent results. He himself had used a solution of bichlorid sprayed into the larynx. He treated about a dozen cases in this manner and lost three.

Dr. LOWE said that about three years ago he treated six cases of diphtheria in one family. Dr. H. W. Blanc, the then Chief Sanitary Inspector, saw all of the cases as they developed, and pronounced them diphtheria. Dr. Lowe used sprays of bichlorid of mercury (1-2000), lime water and peroxid of hydrogen in the different cases. They are now all living.

Dr. BROWN said he had used a spray of peroxid in one case. The child, aged 5 years, died. In another case he put lime in a basin and poured water over it and slaked it. The child's head was held over the basin to cause him to inhale the fumes. The child got well. In another case it was necessary to advise tracheotomy, but the parents would not consent. The child grew worse, and the parents permitted the operation, but it was too late, and the child died on the table.

The Meeting then adjourned.

AUGUSTUS McSHANE, M.D., Secretary.

American Electro-Therapeutic Association.

The Third Annual Meeting Held in Chicago, Sept. 12, 13 and 14, 1896.

AUGUSTIN H. GOELET, M.D., President.

(Continued from page 788.)

The characteristics and special features of construction of the various meters submitted for examination, are set forth with considerable regard to detail in the following statement:

DESCRIPTION OF MILLIAMPERE-METERS ON TEST BY THE COMMITTEE ON METERS.

Weston.—These instruments are justly considered by the electrical profession as standard. The permanent magnet is large, has soft iron pole-pieces, and the armature core is of soft iron and takes up nearly all the space between the pole-pieces, acting practically as a "keeper," maintaining the magnet strength constant. Two spiral springs, wound in opposite directions, keep the pointer normally at zero. The armature is pivoted in fine jeweled bearings. The indicating mechanism is the same in all the Weston meters, the different ranges being obtained by varying shunts. These shunts are wound *directly* on the magnet (and so give no magnetizing effect) and any heat that is developed is dissipated through the mass of the iron. The scale is excellent, being the best of any submitted, and is legible at a considerable distance. It is intended that this instrument be used *hot*, so that it may be necessary to use a collector with it under some conditions. This is also true of all but three of the meters on test. Internal resistance is very low, being but .199 ohms in the instrument reading from 0 to 300 milliamperes. No special adjustment is necessary in setting up, the only care required being that the current flows through

the instrument in the right direction. External magnetic influences do not affect the instrument appreciably. It is a very convenient instrument to carry about, and reasonable care will conduce to long life.

Kennelly.—These instruments have just been placed upon the market, and their accuracy and excellence of construction will place them in the very front rank of electrical measuring instruments. They are supplied with a powerful permanent magnet with large flat superposed pole-pieces, one-sixteenth of an inch apart, in which space revolves an aluminium disc on which are wound radially the armature coils. Two differential wound springs hold the pointer at zero, as in the Weston, and the jeweled bearings of the suspension system are of the best. The meter on test is not a shunt instrument, and its resistance is very low. Its scale is even throughout, but might be made more convenient if divided into spaces of one milliamperes from 0 to 25. Although this instrument may be used in any position, it is preferable that it be used *vertical*, as it is then more delicate. It is uninfluenced by outside magnetic forces, and is very sensitive to minute changes in amount of current passing through it, but in common with the Weston is practically "dead beat," coming directly to the correct position and remaining there. It indicates with current passing in but one direction. Put up in a handsome wooden case, it can be transported with ease, and is a very substantial and good all-around meter.

Letter.—This instrument is of the upright galvanometer type, with needle attached to magnetized armature suspended within a coil through which the main current passes. The scale is very clear, even or finely divided, and requires close inspection for fine readings. Its internal resistance is low; it must be leveled before using; it is sensitive to outside magnetic influences, and the needle swings internally before a reading can be taken. In the instrument on test there are two scales, one of 25 milliamperes and one of 250 milliamperes, the latter made available by the use of a shunt. It indicates with current passing in but one direction, but is a portable and fairly substantial instrument.

Fleming.—This instrument is also of the upright galvanometer type. Its scale is far from convenient, reading up to 10 only, with shunt-multiples of 10 and 100. It is extremely difficult to take a close reading above 10 milliamperes. Internal resistance is low; reading can be taken with current going either way; needs careful leveling; suspension system is bad; is sensitive to outside magnetic influences; is portable and fairly substantial.

Waite & Bartlett.—This meter is of the horizontal galvanometer type and needs extreme care in leveling and adjusting. Being suspended on a point, its needle is very sensitive to motion and external magnetic influences. Its scale is uneven and difficult to read, being very close on highest and lowest readings. Its shunt-multiple of 10 increases its range from 50 to 500 milliamperes, and does not help its accuracy. Internal resistance is low and indications are made in either direction, but it is not portable, is easily put out of order, and can be read in but one position.

Queen.—This handsome instrument combines many good points, being arranged so that it may be read laying flat, or suspended vertically, or set at an angle. It reads both ways, and its scale is clear and practically uniform. Its mechanism comprises a compound permanent magnet between the poles of which is pivoted the armature coil through which the current to be measured passes. The armature shaft is delicately geared to the needle shaft, and all bearings are jeweled. In shipping the meter for test, Messrs. Queen & Co. apologized for the hasty manner in which the instrument had been assembled and tested, in order that it might enter into the test, as this type of meter is just being brought out for the market. On arrival it was found to be three-fourths of a milliamperes off zero, and this was taken note of in the readings made from it. Its internal resistance is low; it is portable and substantial, but is influenced to a slight degree by outside magnetic influences.

Galvanic-Facilité.—This meter is of horizontal galvanometer type and careful adjustment for leveling and zero is necessary. The latter is rendered easy by the rotatability of the dial part of the meter. Being freely suspended on a point, its needle is very sensitive to motion and outside magnetic influences. The scale is divided so as to indicate both ways, but the scale divisions are uneven and very small. Internal resistance is very low and no shunt is employed. This instrument is light in weight and is easily carried, but can readily get out of order.

Conclusion.—This is a summary of the data gathered by meter type, after an adjustment for level, and zero being necessary. It is very sensitive to motion and outside magnetic influences. Its dial is of brass and is hard to read. The scales are small and uneven and reads both ways. It was fairly fair in that this little instrument in test with the others, as it has been in use at the Club for years, while all the others have been furnished for this test by the makers.

THE TEST PROBLEM.

In making the comparative test of the meters on motion was made from twenty standard Leclanché cells of battery through a variable resistance to the meters. These were, of course, all placed in series so that the same current would pass through each, and the question of relative internal resistances would play no part. Various instruments connected in series to the same number of elements would show great indications, according to the internal resistances of the several meters.

The nine instruments tested were set up on a long table in the order in which they appear in the accompanying schedule showing the results obtained. As great care was taken in removing disturbing magnetic influences as possible, and those meters requiring it were carefully leveled and adjusted. The proximity of the meters to each other affected some, unavoidably, though unfortunately, on account of the magnetic influence they extended. This is a strong argument against the use of such meters, however, as it is far from desirable that the operator should be obliged to consider whether his coils or other appliances are affecting the accuracy of his meter readings, vital as this accuracy is to his success.

A scrutiny of the tabulated results of the test will show the remarkable closeness with which the Weston and Kennelly meters tallied throughout, remarkable as contrasted with the operations of some of the others. The range of the Queen meter is to 50 milliamperes only, and despite the disadvantages under which it labored, and which are mentioned above, it occupies a very honorable position.

In the test for undue heating, the meters were divided into groups according to their ranges of scale, and each group was tested for three-quarters of an hour at its highest capacity. It is gratifying that a careful examination revealed no appreciable tendency in this undesirable direction in any of the meters.

The Committee realizes the necessity that exists of having the Association adopt a standard meter, and believes such a standard could now be selected, and it is earnestly recommended that the Association take steps to this end. The figures of the test speak for themselves.

In adopting a standard meter, it is not only necessary that as an Association we should each and all use meters of the same make, but that that meter should be a standard instrument, which when registering 5 milliamperes in the hands of one person, will not register 6 and mean 7 with another. Physiological experiments and clinical records are valueless so far as scientific accuracy is concerned without such a standard meter. So far as your Committee have examined and tested them, the Weston and Kennelly best fulfill these requirements.

Instrument on Test.	Read, 25 to 500 milliamperes.									
	Internal Resistance in ohms.	100	200	300	400	500	600	700	800	900
Weston.										
No. 1000, 1000 ohms	100	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
No. 1000, 1000 ohms	100	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Kennelly.										
No. 1000, 1000 ohms	100	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
No. 1000, 1000 ohms	100	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Queen.										
No. 1000, 1000 ohms	100	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
No. 1000, 1000 ohms	100	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Waite & Bartlett.										
No. 1000, 1000 ohms	100	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
No. 1000, 1000 ohms	100	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Galvanic-Facilité.										
No. 1000, 1000 ohms	100	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
No. 1000, 1000 ohms	100	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

* Not given.

In making this report, the Committee on Meters desires to express its sense of obligation to the following manufacturers for their courtesy in submitting samples of their apparatus for its inspection: Weston Electric Instrument Co., Newark, N. J.; Edison Electric Manufacturing Co., Kennelly, New York city; Messrs. Waite and Bartlett, New York city; Messrs. Queen & Co., Philadelphia; Mr. Otto

Flemming, Philadelphia; Galvano-Faradic Co., New York city; and J. C. Vetter & Co., New York city.

SIGNED

MARGARET A. CLEAVES, Chairman.

HERMAN E. HAYD, M.D.

W. J. JENKS, Electrical Engineer.

DISCUSSION.

Dr. HERDMAN thought that two of the meters had not been sufficiently long on the market to enable one to draw correct conclusions, and he was of the opinion that the Association was not yet ready to adopt a standard meter. The Committee should be continued.

Dr. MORTON hoped a standard meter would be adopted this year. In answer to a question as to the Gaiffe meter, he said it belonged to the horizontal type, which is easily disturbed, although no doubt quite accurate; electrical experts found this class not satisfactory. It is very desirable sometimes to measure small current strengths accurately in, for instance, metallic electrolysis. Thus, in the urethra with 2 milliamperes the instrument is movable, but with 5 milliamperes the instrument may become strongly adherent, and the foundation laid for an organic stricture.

Dr. C. R. DICKSON of Toronto, suggested adopting a standard of construction without mentioning any particular manufacturer's instrument. He recalled a patient with an eye affection, who was sensitive to even one-fifth of a milliampere.

Dr. MORTON moved the adoption of the Kennelly meter. Dr. H. E. HAYD of Buffalo, in seconding this motion, said the Committee's report was very complete and satisfactory, and there was no advantage in further procrastination.

Dr. GEORGE J. ENGLISHMAN of St. Louis, asked if the different purposes to which the meters are to be put had been considered by the Committee. This he considered important, for a meter suitable for registering currents of 300 milliamperes would hardly be very accurate for currents of only 2 to 5 milliamperes. He would like to know if any one meter would embody all these points.

Dr. CLEAVES replied that the Kennelly meter was absolutely accurate in all portions of the scale.

Dr. MASSY thought it impossible for a long range meter to be accurate for small fractions of a milliampere. We should have a meter for high currents and one for low currents.

Dr. MASSY then moved to amend Dr. Morton's resolution as follows:

Resolved, That this Association adopt the type of meter shown in the meters of Weston and Kennelly, and recommend them to the profession.

Dr. MORTON said that a meter could be calibrated from very low fractions of a milliampere to 200 or 500 milliamperes if desired; it was a mere detail of manufacture. He did not consider it unnecessary discrimination to take the responsibility of discriminating between two meters.

Dr. A. LAIBORNIK SMITH was in favor of indorsing the action of the Committee, and adopting the meter recommended in the report, provided it was not patented.

Dr. HERDMAN said that the Committee had dealt with three meters of a certain type which they considered best. The Association would probably agree with them that the galvanometer meter had many serious objections, and that the other type which they had examined has many disadvantages. One of these meters had been on the market for many years, and had been used by many physicians who were therefore familiar with its good qualities. The Kennelly meter was very similar in construction, but apparently more cumbersome. Again, he had been informed that Mr. Kennelly's meter was considered a legal infringement on the Weston meter. It should not be forgotten also that another meter, although hastily prepared for the tests, acted so well that it is justly entitled to a further opportunity of being tested. The members of the Association probably should become familiar with these instruments before voting on the adoption of one or the other. The Weston meter he had used for years, and considered excellent, but it is quite expensive, and this is a drawback. If a less expensive meter is adopted it should be generally known.

Dr. J. C. VETTER of H. MAERIS of Chicago, did not think the Weston meter was yet prepared to state that the galvanometer meter had been taken out of existence, and that the Weston meter was the only one to make such a meter as good as the Weston meter. We should hardly recommend this Weston meter as a standard. He recalled the Weston meter, when the Association had a number of many of us for many years, and he did not think it a meter at all, and he did not approve

of this, it should be the Weston meter. The Association should not make itself a laughing-stock of the profession by adopting the Kennelly meter until after more careful consideration. The speaker therefore suggested that the Committee be continued, and that they secure meters from all standard firms, whether these firms respond or not to the Committee's invitation.

Dr. MORTON wished to declaim any personal interest in any one meter. He predicted that this question of meters would not be finally settled within the next ten years, if the interests of the different manufacturers of meters were to be espoused by members.

Dr. MASSY then withdrew his amendment.

On motion of Dr. NEWMAN, the report of the Committee was accepted, and the Chairman of the Committee continued.

Dr. BISHOP then moved that the consideration of Dr. Morton's motion to adopt the Kennelly meter should be postponed until the next meeting. Carried.

On Static Machines.—Dr. W. J. MORTON reported that a number of questions had been sent out, but no response had been received. The Committee recommended for the present, should not have less than four revolving glass plates, whose diameters should not be less than twenty-six inches.

Dr. W. B. SERRATE of Detroit, asked why glass plates were specified.

Dr. MORTON replied that it probably made but little difference, but asbestos had not been used very extensively. In practice it had been found that this number of plates is necessary for obtaining a proper quantity or current strength.

On motion, the report of the Committee was received, and the Committee continued.

On Constant Current Generators and Controllers.—Dr. W. J. HERDMAN made the report:

REPORT OF THE COMMITTEE ON CONSTANT CURRENT GENERATORS AND CONTROLLERS, PROF. W. J. HERDMAN, CHAIRMAN.

The plan which the members of your Committee had in mind when this work was assigned to them was:

1. To undertake to learn what methods were in use by physicians to supply themselves with continuous currents.

2. To get the opinions of physicians regarding the methods they were employing.

3. To put these statements and opinions to the proof by comparative tests in the laboratory,—employing in this work standard measuring instruments and subjecting the apparatus tested to conditions as nearly as possible identical with those that attend its use in the physician's office. What has been done up to the present time is mainly in the line indicated under the third head, circumstances having conspired to delay the necessary correspondence which would furnish the information sought for from physicians using continuous currents in their practice. Very little progress was made by the Committee until the Executive Council issued the circular of March 2, 1893, asking for the cooperation of manufacturers, physicians and others in the work of this and other committees. Since that circular was sent out the Committee has had no difficulty in getting such batteries and apparatus for test and examination as were thought desirable. We have had the following primary batteries submitted for test by the manufacturers or dealers, and the work is still receiving daily attention according to the plan we have indicated:

Law Battery. Law Bat. Co., New York, 50 cells; Fitch Perfect Battery. Galvano-Faradic Co., New York, 50 cells; Leclanche Battery. L. Carb. & Electric Co., Ind., 50 cells; Leclanche Battery (Axo). (L. Carb. Co., New York), 50 cells; Partz Battery (No. 5). S. S. White Dental Mfg. Co., Philadelphia, 50 cells; Partz Battery No. 3, 30 cells; Edison-Leclanche (Edison Mfg. Co., New York), 9 cells; Samson Battery, 2 cells.

Don C. C. Chloride of Silver Dry Battery, Baltimore, Md., 50 cells; Mosco Dry Battery, 2 cells; Ajax, 5 cells; Burdette, 2 cells.

In every instance the manufacturers or dealers have been asked to furnish specific directions as to the proper manner of setting up and care of their batteries, and these directions have been rigorously carried out. Physicians purchasing batteries would receive and be guided by such directions and it is of course we have regarded as necessary in order to do no injustice to the form of battery under investigation. We have neither attempted by any devices of our own to improve or detract from their efficiency.

We herewith submit a record of these tests made to date on the larger plants furnished us. The only battery containing a sufficient number of cells to be placed alongside of these here reported is that of the Chloride of Silver Co. This has not been included for two reasons:—It was received too recently for much work to have been done to it, and 2. it is a portable dry battery designed to meet peculiar needs and should, in our opinion, be reported in comparison with other portable batteries and not with stationary plants. As to others that have been sent us and are not here reported, no one formula has been sent in sufficient number to generate continuous currents of sufficiently high voltage for physicians' use. We have stated to manufacturers and others that physicians as a rule require an electro-motive force of from fifty to seventy volts to accomplish the work they are required to do in electro-therapeutics.

BATTERY TESTS MADE IN THE EDITOR'S THIRTIETH ANNUAL REPORT.
UNIVERSITY OF MICHIGAN, SEPT. 5, 1893.

W. J. HERMAN, DIRECTOR.

Battery.	Date.	Initial Voltage.	Resistance.	Current.	Time.	Final Voltage.	Volts Meter.	Remarks.
Partz and gravity	7-23-93	50	2000	.025	10	33	Wetzer	OK.
"	8-15-93	52.6	1500	.034	10	36.5	"	"
"	8-16-93	52.7	1675	.031	10	36.5	"	"
"	8-17-93	52.4	144.02	.037	10	36.1	"	"
"	8-18-93	52.5	23.04	.034	10	36.1	"	"
"	8-22-93	52.4	100	.034	10	36.1	"	"
"	8-23-93	52.4	25.047	.032	10	36.1	"	"
"	8-26-93	56.6	25.087	.032	10	36.1	"	"
"	8-26-93	56.3	11000	.002	10	36.1	"	"
"	8-29-93	56.5	25.00	.032	10	36.1	"	"
"	9-1-93	56.2	25.00	.028	15	35.5	"	"
Partz No. 5	7-23-93	53	2000	.025	10	36	"	OK.
"	8-15-93	59.8	100.02	.041	10	36.5	"	OK.
"	8-16-93	60	2000	.030	10	36.5	"	"
"	8-17-93	61.0	1225	.034	10	36.5	"	"
"	"	60	1225	.034	10	36.5	"	"
"	8-18-93	60.8	25.00	.032	10	36.5	"	"
"	8-22-93	66.4	100	.025	10	35	"	"
"	8-24-93	64.6	22500.8	.002	10	34.5	"	"
"	8-26-93	66	4700.8	.012	10	36.1	"	"
"	8-26-93	66	1100	.035	10	36.1	"	"
"	8-29-93	64	2000	.035	10	34	"	"
"	9-1-93	63.8	2000	.035	10	34.2	"	"
Laclede	7-12-93	72.5	1000	.035	10	36	"	"
"	7-17-93	61.5	2000	.035	10	36	"	"
"	"	68	140	.040	10	36	"	"
"	7-24-93	67	110.0	.030	10	34	"	"
"	7-28-93	67	1800	.028	10	36	"	"
"	8-15-93	66.2	1000.1	.037	10	34.5	"	"
"	8-16-93	66	1075	.036	10	33.2	"	"
"	8-17-93	65.9	1225	.039	10	33	"	"
"	8-18-93	66.4	2450.02	.021	10	34.4	"	"
"	8-22-93	65	100	.030	10	34	"	"
"	8-24-93	64.5	2250.19	.017	10	32.6	"	"
"	8-26-93	65.4	4700	.011	10	34.8	"	"
"	8-26-93	66.3	11000	.007	10	35.8	"	"
"	8-29-93	64.1	2000	.035	10	34.5	"	"
"	9-1-93	61.1	2000	.037	10	36	"	"
Axo.	7-28-93	75	200	.030	10	36	"	"
"	8-15-93	76.4	1600.1	.032	10	35.2	"	"
"	8-16-93	76	1675.02	.032	10	34	"	"
"	8-17-93	75.8	1224.02	.034	10	34.8	"	"
"	8-18-93	75.6	2450	.025	10	33	"	"
"	8-22-93	76.5	100	.030	10	36.1	"	"
"	8-24-93	75	2250.47	.018	10	34.3	"	"
"	8-26-93	75.6	4700	.010	10	34	"	"
"	8-29-93	75.4	11000	.005	10	34.3	"	"
"	9-1-93	75.3	2000	.032	10	32	"	"
"	9-1-93	75	2000	.035	10	34.2	"	"
Fitch.	7-15-93	67.6	1600.1	.038	10	33.4	"	"
"	7-16-93	66.4	1075	.037	10	34.6	"	"
"	7-17-93	66	1225	.030	10	34.6	"	"
"	8-22-93	66.6	2450	.018	10	34	"	"
"	8-24-93	65	100	.030	10	31.5	"	"
"	8-24-93	61.5	2250.19	.023	10	35.7	"	"
"	8-26-93	67	4700.87	.013	10	36	"	"
"	8-26-93	67.3	11000	.005	10	36.2	"	"
"	8-29-93	66	2000	.032	10	32.6	"	"
"	9-1-93	64.3	2000	.030	10	33	"	"
Law.	7-28-93	69	1000	.030	10	36	"	"
"	7-15-93	70	2000	.030	10	36	"	"
"	7-21-93	70.5	11000	.005	10	34	"	"
"	7-15-93	67.8	1000	.034	10	34.5	"	"
"	7-16-93	67	1075	.033	10	34.3	"	"
"	7-17-93	66.4	1225	.032	10	34	"	"
"	8-22-93	62.1	2450.4	.014	10	34	"	"
"	8-22-93	62.4	100	.038	10	34.4	"	"
"	8-24-93	62	2250.17	.013	10	34.8	"	"
"	8-26-93	67	4700	.010	10	34	"	"
"	8-26-93	67.5	11000	.007	10	34.8	"	"
"	8-29-93	66.9	2000	.030	10	34	"	"
"	9-1-93	64.6	2000	.030	10	33.2	"	"

We are engaged in testing the cells that have been sent to us in less number than fifty for voltage, current, recovery and constancy, but it would be much more satisfactory if we had a sufficient number of each to put them upon such

work as is actually done by physicians' batteries. Only comparisons of this character are of much value in determining their efficiency for a use.

Of current controllers and regulators, to be used in connection with primary battery currents, the Committee has received the following:

Law Battery Co. McIntosh Battery Plate for fifty cells containing current selector with rheostat, and numerous connections for controlling the current.

Galvino Larami Co. Water rheostat of unique pattern, simple and convenient, known as the Triado Rheostat.

Chloride of Silver Co. A special current selector and rheostat used in connection with their portable battery.

Although each and all of these have been examined, some what by the Committee, and their action noted in controlling the current, we are not yet prepared to formulate a report concerning them.

With secondary batteries we have so far done nothing—none have been submitted to us for examination, and no report has been received from the members of the Committee to whom this part of the work was specially assigned.

The busy physician who knows the value of electricity in aiding him to cope with disease and who wishes to use it, finds himself greatly handicapped for want of the special knowledge of electro-physiology required, and the time and trouble necessary to keep up constant current apparatus in good working condition, if he is depending upon primary or secondary batteries as a source of current, and it is but natural that he would cast about for some method by which he could rid himself of these annoyances and still retain the advantages of this and to his therapeutic work. In commercial work, the dynamo has so largely superseded all of our sources of electric generation that the thoughts of the physician have also turned to it for his supply, and many ingenious contrivances are being devised to control and adapt these currents to his needs. The first questions that ought, in the natural order, to be settled before further attempts are made in this direction are, what is the physiologic action upon the human body of these currents? and does a constant current generated from a dynamo act similarly upon the living animal tissues to a constant current of equal amount and pressure generated from a primary or secondary battery? These questions are fundamental and should receive an early reply from the physiologist and the electro-therapist. The latter are already engaged in interrogating these currents in many places where they are available, and already the incandescent light current, the street car current and the current furnished at a central station for various commercial purposes are finding their way into physicians' offices, and in one or another way are being adapted to their uses. The convenience of such a source of supply of electricity to physicians is self evident. We, therefore, as a Committee, look with interest and expectancy to the devices that are being constructed with the view of aiding the physician to utilize these currents. Several of these have been placed in the Committee's hands for investigation, and their range of efficiency is now being determined. Those deserving mention are:

The Gish Ideal Rheostat; the Victor Current Adapter; the Knapp Rheostat; the K. A. P. Rheostat; the McIntosh Hypo-Platinum Rheostat, and the McIntosh Current Controller.

If sufficient time had been given us we would have been pleased to furnish to the Association a description of these instruments, and an outline of the character of work they each can accomplish, but it seems to us that this is the trend electro-therapeutic apparatus is destined to follow. One peculiar form of apparatus has been sent to the Committee for investigation within the past two weeks, but we have not yet had the opportunity to examine it. It is an arrangement devised by Dr. Mosker of Newark, N.J., for subjecting the body to the action of electric light for curative purposes. Large claims are made by its inventor for its therapeutic efficiency. This is an interesting field for investigation, though the work may be a little out of the line of that assigned to this Committee. The action of the electric light in modifying the conditions of the animal organism is an interesting field for research, and we are disposed to recommend the appointment of a special committee to take this work in charge. If such a committee is appointed we would take pleasure in transferring to it this apparatus of Dr. Mosker.

The plan of this Committee, as it was outlined at the beginning of this report, you can readily see contemplates the expenditure of much time and labor and as no funds

have been placed at its disposal it must be a labor of love, and unselfish devotion to the interests we have in charge. If it is thought best by the Association to continue the duties of this Committee, it should be constituted of persons whose hearts are in the work and who are willing to give a large share of their personal attention to it.

Dr. Bismarck moved that the report be accepted, and the Chairman of the Committee continued. Carried.

V.—ON ELECTRODES.

Dr. A. LAFBROOK SMITH read the report of the Committee of the American Electro-Therapeutic Association on standard electrodes.

Mr. President and Fellows:—Your Committee has realized the fact that much of the diversity of results obtained by a given method of applying electricity to a certain diseased condition depends upon the variety of instruments employed and the lack of any standard of size or shape of electrode, upon which much of the good result depends. For suitable electrodes, for the application of the current at the active pole and its diffusion at the indifferent pole are among the fundamental requirements for successful electro-therapy. We have excellent standards of quantity and intensity which are accepted all over the world, and it is equally desirable that we should have standard electrodes, the mere mention of which would mean the same thing in every land. It is also very desirable that electrodes, as indeed all other electrical apparatus, should be simplified and their manufacture and maintenance cheapened without, however, at all impairing their efficiency. Many practitioners have, no doubt, abandoned the use of electricity, not because they were dissatisfied with what it could do for them, but because their apparatus has got out of order, and the productions of each manufacturer differing in size, he has been unable to have it repaired without sending it at great expense to the particular manufacturer who produced it. If all parts were made interchangeable and of uniform sizes the nearest manufacturer could supply missing parts from stock at a cost very often of as many cents as it would otherwise cost dollars. With one size of the same material only 50 ma. can be borne, while with another size a dose of 250 is possible. With one size the result is successful; with the other it is failure. At the last meeting, there was such a general consensus of opinion that some standard sizes and makes of electrodes should be adopted, that a committee was appointed to report upon the matter at this meeting. Since commencing their investigations, the committee has received valuable assistance from Dr. Waide of New York, from Mr. Ness, electrical manufacturer of Montreal, and from many others, and has observed abundant proof of the interest centering in its work.

After some correspondence between the several members of the Committee, it was decided that the following points should be considered:

I.—INACTIVE ELECTRODES.

1. What is the best material in general for the groundwork of the electrode, and what in special cases?
2. How may it best be connected with its rheophore?
3. What is the best material for covering its conducting surface?
4. When necessary how may it best be insulated?
5. In what way may it be kept warm and moist when not in use, should this be necessary?
6. What should be accepted as standard sizes and shapes and how best may they be designated?
7. What other points require to be considered?

II.—ACTIVE ELECTRODES.

1. What is the best material in general and in special for the groundwork of the electrode? *a.* When used at the positive pole? *b.* When used at the negative pole?
2. How may it best be connected with its rheophore?
3. What is the best material to cover its conducting surface when necessary, in general and in special cases?
4. How may it be insulated when necessary?
5. What is the best form of construction where flexibility is required for tortuous canals?
6. What should be considered the standard shapes and sizes? What sizes will be adhered to when considering the material, may may their surface area be estimated when they are of irregular shape?
7. Which shall be designated by numerals as to size and surface, and which best be expressed when stamped or otherwise inscribed thereon?
8. In what simplicity of construction best be obtained without the necessity of a complicated apparatus reduced without impairing efficiency?

9. How may facility of cleansing and rendering aseptic best be achieved?
10. What other points to be considered?

III.—ACTIVE AND INACTIVE ELECTRODES.

1. Are the terms, active and inactive, the best standard terms we can employ?
2. In the case of both active and inactive electrodes, should not the thread of all screws used in construction as means of attachment, also all plugs and sockets, etc., be of a standard gauge, that electrodes might be used with attachments of all makes, etc., and to facilitate repair? We have come to the conclusion that the best material for the groundwork of electrodes is copper wire gauze, because it possesses sufficient firmness to support the conducting material, and also because it is sufficiently pliable to mold itself to the inequalities of the tegumentary surface, which is not the case with lead or zinc plates. It also offers a good surface to which the binding post or conducting wire can be soldered. We think that this material would meet the requirements for a groundwork for a dispersing or inactive electrode in every possible case.

How may it best be connected with its rheophore? In order that the rheophore may carry the current from every part of the electrode, the best way to connect the latter to the former is by means of a bright copper wire, soldered over the whole of its length to the previously brightened wire gauze, with which it should be in contact the whole width of the electrode, thus insuring active contact with a great number of the wires of its mesh. The copper wire should terminate in a binding post to which it should be firmly soldered, and which binding post should be of the size known as No. 6-32, which is largely used by telephone companies throughout the world, and which we recommend as the standard screw for all electrical apparatus, so that if the screw be lost it could be easily replaced without changing the binding post. We also recommend that the ordinary tips of binding cords be abandoned and replaced by screw contact posts on all electrodes.

3. The best material for covering the conducting surface of the dispersing electrode is a layer of white, sculptors' clay, half an inch thick, moistened to the consistency of soft putty. It is desirable that the conducting material should part with its water only enough to moisten the epidermis, but not enough to wet the patient's clothes. This requirement renders absorbent cotton sponge punk pans of water covered with animal membrane objectionable. After having considered the claims of all other substitutes for clay, we have come to the conclusion that the latter is the only substance which can be rendered moist enough to conduct without wetting the clothes. When covered with a layer of lintine and one of absorbent gauze it does not soil the skin nor clothes. Its surface can be kept clean by sponging it over with soapuds before each application. The copper wire gauze groundwork or backing can best be insulated with common table oilcloth a little larger than the wire gauze, to the edge of which the layers of absorbent cotton can be stitched all around.

This material can best be kept warm and moist when not in use in the following manner: a zinc pan, one foot wide, a foot and a half long and three inches deep, is made with four stout wire feet in order to raise it eight inches from the ground. This is half filled with hot water, and a small sized Bunsen's burner is placed under it, which is turned so low as never to raise the water over 100 degrees F. A perforated zinc tray is placed an inch above the level of the water in which the electrodes are kept face downwards. The slight evaporation from the water will keep them always moist, warm and ready for use. Another expedient is the hot water bottle, already widely known. It is greatly to be desired that standard sizes be adopted; we find that after experimenting and having consulted with others of great experience, that three sizes of dispersing electrodes would accomplish all the purposes for which this electrode is ever required. They should all be one foot long, while the widths should be respectively three, six and nine inches; thus three of them could lie, side by side, in the above-mentioned trays; they would give the following surface areas: No. 1, 36 square inches; No. 2, 72 square inches; and No. 3, 108 square inches. With the latter, 250 ma., which is the highest strength ever required, can be easily borne without burning the skin.

(To be continued.)

1 We recommend that the metric system should be used throughout and the above mentioned converted thereto.

The New London Medical Society Does not take a Back Seat. *Editor Bulletin.*—My attention has been directed to an article appearing in your columns a few days since, the writer of which seems to have been laboring under misapprehensions that will bear correcting.

As the author of the original article, a notice of which was honored by being copied from your columns into those of *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*, and taken exception to by Dr. E. L. B. Godfrey of Canaan, N. H., I will state that no claim was made for the profession in New London County as priority in taking the initiatory step toward professional organization, excepting as confined within the colony of Connecticut.

But as Dr. E. L. B. Godfrey has seen fit to champion the cause of the New Brunswick, N. J., Medical Association by casting his gauntlet into the Connecticut arena, it gives me pleasure to return him the same upon the point of the following statement: "The original paper referred to as being signed by the Norwich physicians is" Dated at Norwich the 27th day of Sept., 1763, nearly three years before the New Brunswick rally called for by the advertisement in *The New York Mercury* bearing date of "East New Jersey, June 27th, 1766."

In behalf of the New London County Medical Association we do not feel like accepting the suggested back seat unless proffered in a chronological sense. Respectfully,

JULIAN LA PIERRE.

—*Norwich (Conn.) Bulletin*, Nov. 15.

NECROLOGY.

Dr. Louis Reinhard of Milwaukee, November 20.

Dr. J. Frank P. Sher, of Philadelphia, November 15.

Dr. C. S. O'Brien, of Bloomsburgh, Pa., November 16.

Dr. John Frissell, of Wheeling, West Va., November 15, aged 84.

Dr. D. J. Cummings, at Farmington, Minn., aged 75, November 9.

Dr. E. S. Cooper, one of the oldest physicians in the State, died at his home Galesburg, Ill., aged 76 years. He had been a resident of Galesburg for fifty years.

Dr. W. A. Pugh, died at Rushville, Ind., after a week's suffering. He was stricken with paralysis, November 6, gradually sinking until the end. Dr. Pugh was born in Rushville, March 7, 1829.

Dr. Addison Dold of Augusta County Md., died November 8, near Tinkling Spring. He was more than four-score years of age, and was formerly a practicing physician.

Dr. Henry Chester Parry, died at Towigsburg, Pa., November 8. He was a son of the late Judge Edwin Owen Parry, and served as surgeon in the United States Navy. He was retired several years ago. He was a man of culture and high literary tastes.

Dr. J. C. Murray, died at his residence, "Cedar Park," near Annapolis, November 11. Dr. Murray was in his seventy-eighth year, and has resided in Anne Arundel County all his life with the exception of some years previous to and during the war.

Dr. Leon Le Fort, who died at Paris, October 19, was a professor of clinical surgery, and a popular author on military and naval hygiene, and the management of hospitals. He was joint author with Malgaigne of a text-book on operative medicine. Some of his brochures were honored by foreign reproduction. He visited America as a delegate to the Ninth International Congress.

Dr. Eugene Horwitz, of Baltimore, Md., died at St. Louis, November 15. He was one of a few well-attested men who, in his private life, were "Words for some days." Dr. Horwitz was born at Philadelphia, December 7, 1828, and for a decade of his graduation, the celebrated surgeon, Samuel D. Gross. He was in line with his expressed wish, his body will be cremated at the London Park Crematory.

Dr. A. P. Meyler, 71 years old, died in Waukesha, Wis., November 14. He was born in Laporte, Sumner County. He was educated at the University of Lewisburg and afterward entered the College of Physicians and Surgeons in New York, where he was graduated. Soon after the breaking-out of the civil war he was appointed Medical Director of the Army of Ohio under General Sherman, of whose staff he was during all his campaigns.

Dr. John M. Keating, LL.D., formerly of Philadelphia, a physician and medical author of national reputation, died at Colorado Springs November 17. In 1879 he was a member of General Grant's party on a visit to India and Southern Asia. He is best known to the profession by his editorship of the "Cyclopedia of the Diseases of Children." He was the founder and one of the editors of the *Pediatrics of 1874* and of the *Children of 1880*.

Dr. W. S. Leach, of St. Joseph, Mo., the oldest physician in the city, died November 21. Before the war he was the largest slave holder in the State. He was a very eccentric man, and after his slaves were liberated erected little shanties all over the city which he rented to them for a few dollars a month. Many of these houses are still standing on land worth hundreds of dollars a foot and occupied by some of his old slaves or their descendants.

Dr. Wm. Haslet Cleandine, Jr., of Baltimore, who died at the age of 60 years, was the son of a Maryland physician bearing the same name. He was an alumnus of the University of that State, class of 1851. As quarantine physician from 1862 to 1865, he passed through peculiarly arduous experiences on account of an epidemic of smallpox among the soldiers of the Union Army under his charge and received public commendation for his fidelity and energy. He was Assistant Surgeon, with the rank of Major, until the close of the war. He was the founder of the St. Barnabas Church Dispensary, and was elected to it for two years.

Dr. Charles Warrington Earle, President of the Chicago Medical Society, died at his home in Chicago, November 19.

He was born in Westford, Vt., April 2, 1845, and removed to Illinois with his parents in 1854. At the age of 16 he enlisted in the 14th Illinois; was injured while loading a transport. In ten months he recovered and re-enlisted in the 96th Illinois; was made Sergeant and promoted to be First Lieutenant. Shortly after the battle of Chickamauga he was taken prisoner, while serving in General Gordon Oranger's division. His bravery and gallant action in battle was the subject of compliment, and he was one of the famous band of prisoners that escaped from Libby Prison through a tunnel. He returned to his company and served in the battles of Resaca, Kenesaw Mountain, Atlanta, Franklin and Nashville. He was brevetted Captain for bravery in the engagements named.

After the war he entered Bobbit College, Wis., where he remained three and a half years, after which he entered Chicago Medical College and was graduated therefrom in the class of 1870.

He was once President of the Illinois State Medical Society, and at the time of his death President of the Chicago Medical Society, Dean of the Woman's Medical College, President of the Board of Directors and a Professor in the College of Physicians and Surgeons of Chicago.

His good fellowship made him an agreeable companion everywhere, and he was a member of a great many local societies. In person he was impressive, and deservedly popular. His death leaves a vacancy in Chicago medical circles that will be difficult to fill.

The funeral took place Nov. 22, 1893, and was attended by representatives of the medical colleges and societies of the city.

Dr. D. Scott Moncrieff.—In the *JOURNAL* of October 28, we announced the death of Dr. D. S. Moncrieff by drowning in the Gulf of Tartary.

Something more than a passing notice is due the memory of this scientific physician. We have been furnished the following:

"Dr. Moncrieff was born in Edinburgh, Scotland, on the 9th of February, 1856. He was the younger son of D. Scott Moncrieff, Esq., W. S., Edinburgh. He was educated at the principal schools and colleges in Great Britain, having also passed a two years' course at Leipzig, Germany. He also took his M. D. degree at Harvard in 1889. He was an apt student, and came out of his studies with flying colors. Dr. Moncrieff was a good athlete, and obtained many prizes while pursuing his studies. He held the Royal Humane Society's medal for saving a man's life who had fallen overboard while the steamer was about to sail.

"His professional career started in with the appointment of Surgeon to the Anchor line steamer *Albatross*, plying between England and Calcutta. He next acted as Surgeon on the *Ethiopia*, of the same line, which sailed between Glasgow and New York. From there he was appointed as Surgeon in the Northwest mounted police in Canada. Leaving that place Dr. Moncrieff came to Portland, and soon after he was appointed as Acting Assistant Surgeon to the Fourth Cavalry Regiment, stationed at Walla Walla. While here he did a great deal of important work among the Indians at the different reservations. Last, he was requested by Professor Putnam, Chief of the Department of Ethnology at the World's Fair, to go to Siberia to gather statistics and study the habits of the natives of Kamtschatka. He received a special passport from the Secretary of State, besides several influential letters from important officers of the Russian Government in this country. Dr. Moncrieff left on the steamer *Kotie*, in May last, and reached Vladivostok, where he met with a royal reception from the people, besides receiving every assistance in his work. Everything pointed to a successful termination of his mission when his young life was suddenly cut short. The news was received with much regret, as Dr. Moncrieff was a favorite with every one that came in contact with him. He was an exceedingly bright young man, and very able in his profession, being Assistant Professor of Theory and Practice of Medicine in the Medical Department of the University of Oregon.

MISCELLANY.

New Hospital.—A new hospital is to be established at Macon, Ga., and one at Oil City, Pa.

Dr. W. P. White has been appointed Health Officer for Louisville, vice Dr. Galt, deceased.

Typhus Fever prevailed to an alarming extent in Zacatecas, Mexico, during the summer months just closed.

The Bill to Establish a State Board of Health in Georgia is opposed by Dr. Harris, and by Dr. Brunner of the Savannah Board.

Changes of Address.—Dr. James M. Ayers to 164 Plum street, Cincinnati.

Dr. Vincent L. Harbut to Grand Pacific Hotel, Chicago.

Yellow Fever. Thirteen new cases of yellow fever and one of typhoid fever were reported at Brunswick, Ga., on November 18; twelve new cases, November 11, and five new cases, November 15.

To Have an Addition.—The trustees of the Massachusetts State Insane Asylum have voted to use the appropriation of \$50,000 passed by the last Legislature for the purpose of erecting an addition which will accommodate fifty patients.

A Banquet to Dr. Pozzi.—A farewell banquet was tendered the eminent Parisian Professor on his way through New York. The host was Dr. Paul F. Mundé, and the feast was served at the Union League Club. Among the other guests were many leading gynecologists and surgeons; Drs. T. G. Thomas, Lusk, Wyeth, Jacobi, Mann, Loomis and the officers of several medical organizations.

Dr. Roswell Park of Buffalo.—The well-known Professor of Surgery at Buffalo, has been sick with diphtheria, in consequence of contracting the disease from a patient on whom he had been called to operate. Dr. Park has our profound sympathy and our best wishes for his recovery from this disease, which has been of late markedly fatal among his surgical confrères.

Honorary Appointments.—At the session of the Société Française d'Hygiène de Paris, held Oct. 13, 1893, among other appointments we notice that Medical Director Albert L. Gilson, U. S. N., Surgeon General Sternberg, U. S. A., and Dr. J. H. Kellogg were made Honorary Members; and Dr. Chas. A. Oliver of Philadelphia, Dr. Francis Dowling of Cincinnati, Dr. Frederick Montizambert of Quebec, Dr. E. Licéaga of Mexico, and Dr. Rafael Lavista of Mexico, were made Foreign Associate Members.

Fatal Floods in Japan.—A press dispatch from Vancouver, B. C., Nov. 22, states: The steamer *Empress of China* arrived from Yokohama bringing advices that floods devastated the harbor of Nagasaki and did considerable damage as far as Yokohama and Tokio. In Okayama prefecture 167 lives were lost and 2,400 houses destroyed. In Yamaguchi prefecture 320 fishermen were drowned, while large numbers of unrecognized bodies drifted ashore.

THE PUBLIC SERVICE.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from November 11, 1893, to November 17, 1893.

Capt. HENRY P. BIRMINGHAM, Asst. Surgeon U. S. A., leave of absence granted for a further extended one month.

1st Lieut. CHARLES E. B. FLAGG, Asst. Surgeon, is granted leave of absence for one month, with permission to apply for an extension of twenty days.

1st Lieut. Col. CHARLES R. GARDINER, Deputy Surgeon General, is relieved from duty in the office of the Surgeon General of the Army, and will report to San Francisco, Cal., and assume charge of the medical supply depot in that city, relieving Lieut. Col. JOSEPH P. WRIGHT, Deputy Surgeon General, who, upon being thus relieved, will report to St. Louis, Mo., and assume charge of the medical supply depot in that city.

LETTERS RECEIVED.

(A) Ayer, N. W. & Son, Philadelphia, Pa.; Amman, G. L., Boston, Mass.; Allen, C., Jersey City Heights, N. J.; Armstrong, J. T., Beatrice, Neb.; Armstrong & Hodges, Carrollton, Ill.; (B) Baldwin, J. F., Columbus, Ohio; Bates & Morse Advertising Agency, (2) New York, N. Y.; Browning, W. C., Mesquite, Cal.; (C) Cain, J. S., Nashville, Tenn.; Cleaves, Margaret A., New York, N. Y.; (C) Clark, E. B., New York, N. Y.; Crothers, T. D., Hartford, Conn.; (C) Coldwell, W. S., Freepoint, Ill.; Castle, Wilnot & Co., Rochester, N. Y.; (D) Donnelly & Co., New York, N. Y.; Dunfield, H. T., Pittsfield, Ill.; Dyer Chemical Co., (2) St. Louis, Mo.; Dullberg-Goodale & Co., Boston, Mass.; Dawson, J. L., Jr., Charleston, S. C.; Dowling, T. C., Cincinnati, Ohio; (E) Elliot, Ellsworth, New York, N. Y.; (F) Felton, H. C., Rome, Ga.; Ferguson, A. H., Winnipeg, Manitoba, Flynn, Wm., Marion, Ind.; (G) Garside, W. E., Hamilton, Ill.; Goldbert, W. H., Washington, D. C.; (G) Galt, A. H., New York, N. Y.; Gnielchel, A. L., New York, N. Y.; (H) Hart, W. J., Waynetown, Ind.; Hummel & Parmelee, (2) Philadelphia, Pa.; Hahn, H. H., Youngstown, Ohio; Harman, C. C., Huntington, Pa.; (H) Johnson, Chas., Freeman, San Francisco, Cal.; (H) Lichtenwalder, J. B., Springfield, Neb.; Le Mond, R. F., Denver, Colo.; Leitz, Chas. & Sons, Philadelphia, Pa.; (M) Martin, F. H., Chicago, Ill.; Mattison, E. B., Brooklyn, N. Y.; Meyers, J. C., Clinton, Ill.; Maynard, P. A., Cincinnati, Ohio; McMillan, E. B., Albion, N. Y.; Mace, H. M., Hobart, Delaware; Metcalf, C. N., Indianapolis, Ind.; (N) Niles, S. R., New-springer Adv. Agency, Boston, Mass.; Nowlin, A., Hutto, Texas; (P) Proctor, C. L., New York, N. Y.; (R) Renfro, E. C., St. Louis, Mo.; (S) Schmitt, J. M., Milwaukee, Wis.; Stebbins, A. E., New York, N. Y.; Sand, S., Union St., St. Louis, Mo.; Shattuck, F. C., Boston, Mass.; (T) The Post-graduate, New York, N. Y.; Todd, F. W., Redondo Hotel, Los Angeles, Cal.; (W) Wood, C. A., Chicago, Ill.; Waterman, C. M., Milwaukee, Wis.

The Journal of the American Medical Association

VOL. XXI.

CHICAGO, DECEMBER 2, 1893.

No. 23.

ADDRESS.

SOME RECENT ADVANCES IN PEDIATRICS.

CHAIRMAN'S ADDRESS.

Read in the Section on Diseases of Children at the Forty-fourth Annual Meeting of the American Medical Association.

BY C. G. JENNINGS, M.D.

DETROIT, MICH.

In greeting you at the annual re-assemblage of the Section on Diseases of Children, it is my first duty to express to you my sincere thanks for the high honor that the Section has conferred upon me. The special study of the diseases of children is in the developmental period. I think it a great honor to hold so prominent a position in the vanguard.

I entered upon the duties of this office with a full realization of the responsibility which must rest upon one who attempts to guide the early and often tottering footsteps of the childhood period of a great organization, and I sincerely hope that my efforts have been, and will be, for the highest good of the Section.

The recent changes made in the organization of the AMERICAN MEDICAL ASSOCIATION, giving to the sections and to the scientific work their proper position as the leading factors in the organization, impose upon the members of the Section the responsibility of conducting its affairs in a manner becoming the dignity in the Association to which it has been elevated, and befitting the importance to the profession of its deliberations and discussions.

The distinguished men who have conducted the affairs of the Section in the past, have encountered the difficulties that attend the development of an imperfectly differentiated section. While the attendance upon the meetings has often been large, and the character of the work done of a high order, the Section has lacked cohesion and cooperation. With a diffuse and unstable membership, it has not exerted in the Association the influence it should, nor have its utterances been promptly and fully set before the profession.

A glance at the program of this meeting shows that the subjects for discussion cover a wide range in general medicine and surgery. While the other specialties deal only with the diseases of certain organs and correlated groups of organs, pediatrics, with a few exceptions, covers the whole field of the medical and surgical specialties. It legitimately includes all manifestations of disease in early life, and the physician who aspires successfully to cope with the diseases of children must be well qualified in all departments of medicine and surgery. I predict that the specialist in diseases of children is destined to become the highest type of the general practitioner. He is the old family doctor, rehabilitated and thoroughly equipped with all the resources of modern medicine.

Including in its membership, as it does, physicians from all parts of this country, from cities and rural districts, men who, with but few exceptions, are general practitioners of medicine, this Section is most favorably organized to carry out, as the national representative of pediatrics, its proper function of collecting and disseminating the most advanced teaching in this department of medicine.

The metropolitan specialist will here meet, and will be benefited by the observations of the rural practitioner, and he can give in return the exact knowledge that his unique experience has brought him.

To make more efficient the work and to firmly establish the Section's autonomy, your Chairman believes that it is necessary.

1. To cultivate a more intimate social relation among members. The custom adopted by some of the sections to hold an annual social reunion is to be commended, and I sincerely hope that at this meeting the necessary steps will be taken to make such a reunion a fixture in the proceedings of the Section. I believe that only in this way can members develop the familiarity with one another that is essential to free discussion and consequently thorough scientific work.

2. To promptly publish full reports of the proceedings of the Section. Contributors to section work are apt to be disheartened by publication of important papers months after the reading, and disconnected from important discussions and criticisms. The editor of the JOURNAL has assured me that the proceedings of the Section will be published as prepared, and in the order presented by the Section officers. Under the by-laws this work of editing the proceedings falls upon the Executive Committee. All the publications of the Section should be carefully revised by this Committee, and it should use its influence in the Business Committee of the general association to have assigned to it a competent reporter to assist the Secretary. Well-prepared abstracts of papers and discussions will be sought for publication by the great journals of the country, and their wide circulation will bring credit to the Section.

In addition to the more extended reports of original clinical observations and laboratory experiments, your Chairman believes it would add greatly to the value and interest of the proceedings for the officers of the Section to arrange for short, practical papers and full discussions on subjects that, while not necessarily new, are of absorbing interest to all practitioners of diseases of children.

In the present meeting, the officers have arranged for a series of short papers upon practical subjects, to be treated by a number of writers, and approaching the subjects from many sides. Should they prove a success, this method may be further ampli-

fied and will certainly add greatly to the value of the meetings.

The by-laws of the Association make it the duty of the Chairman in his address to review the work done in pediatrics in the preceding year. It would be unprofitable and unnecessary to attempt to cover the whole field of pediatric literature, although it may be of value to the Section to briefly note some of the most recent advances, not so much to tell the members what is new, as to point out the direction that thought and investigation are tending in this department of medicine.

The literature of the last year shows a decided increase in the use of the bath, in the acute diseases of infancy and childhood. The general introduction of the treatment of typhoid fever by the systematic use of cold baths, has brought prominently before the profession the great value of the bath: 1, to reduce temperature; 2, to promote nutrition; 3, to stimulate respiration and circulation; 4, to allay dangerous nervous symptoms.

The popular prejudice against the use of this agent is rapidly disappearing, and I predict that at no distant date the physician will as often receive the suggestion of the use of the bath, as he now is offered the diagnosis of dentition, or the therapeutic advice of a vermifuge. This change must be looked upon with eminent satisfaction. In many of the mild febrile diseases of childhood, it gives comfort and quiet, while in the continued fevers, the exanthemata, grave pulmonary, intestinal and nervous diseases, and all conditions attended by hyperpyrexia, it is a remedy on which the hard pressed physician may call with a confidence begotten of many faithful services.

In many pyrexial conditions the coal-tar antipyretics serve well. It will be noted that the tendency, very properly I think, is to confine their use to painful and distressing pyrexial conditions that are short and sharp in their course, and not ordinarily dangerous to life. In diseases having a dangerous and lengthy course, they are used, if at all, only to dull the shock of the onset of the disease.

Authorities on diseases of children recognize typhoid fever as a disease of infancy occurring, however, rather rarely and pursuing an atypical course. In a paper by Dr. W. P. Northrup, read before the American Pediatric Society, 2,000 autopsies are recorded covering a service in the New York Infant Asylum of ten years. Dr. Northrup, in that remarkable experience never met the characteristic anatomic change of typhoid. O'Dwyer with a service of twenty years, in the same institution has had the same experience. In the discussion that followed Dr. Northrup's paper, other New York physicians related the same experience. Drs. Earle and Christopher of Chicago, Blackburner of Montreal, Rotch of Boston, and Adams of Washington had seen cases of typhoid in infants under two years of age.

In about two hundred of the autopsies made by Dr. Northrup, swollen spleens, Peyer's and mesenteric glands were found. These children died of pneumonia, convulsions and various intestinal diseases; in fact, no relation between the clinical phenomena and the pathologic findings could be made out. Dr. Northrup concludes that such anatomic changes are not indicative of typhoid in infancy, and his experience casts a doubt on the existence of typhoid in infants under the age of one year. It certainly shows

the disease to be one of remarkable rarity. Observations in the future by the members of this Section may aid to settle this important question.

The great activity manifested in the investigations of infant feeding, shows that many of the perplexing and important problems connected with this subject are still unsettled. The modification of cow's milk, to more nearly approximate the chemie composition and digestibility of human milk, seems to be the most important question writers have discussed. The composition of the various proprietary infants' foods is now well known to the profession, and their adaptability to certain cases is well understood. So long as their composition is kept uniform, they are useful aids to the physician.

Sterilization of milk is on trial at the present time. Sterilized milk received the enthusiastic approval of the profession and laity. Extensive clinical experience has shown that, as prepared in the domestic laboratory, it is far from being a perfect infant food. Sterilized at the usual temperature of 212 degrees, milk undergoes changes that probably lessen its digestibility, and certainly, unpleasantly modify its taste. Prof. Leeds has shown that at a temperature of 167 degrees F., no coagulation of milk proteins takes place, and Dr. Rotch in a valuable article on the "Value of Milk Laboratories," has demonstrated that at this temperature milk retains its uncooked taste, and will remain free from developed bacteria for thirty to thirty-six hours. In ordinary infant feeding such sterilization of milk, or more properly Pasteurization, is all that is necessary.

In this article, Dr. Rotch has detailed the appliances and methods of a perfect milk laboratory that is in operation in Boston, where is dispensed on physicians' prescriptions, milk containing any percentage of fats, proteins, carbohydrates and water that the prescription calls for. The milk, from the time it leaves the cow until it reaches the consumer, is handled with all the care that modern bacteriology suggests. Every physician who has to prescribe milk for infants has felt the demand of such a laboratory, and the earnest thanks of the profession is due Dr. Rotch for successfully putting into experimental operation such a work.

The recent combined clinical and bacteriologic investigations into the etiology of diphtheria, have been attended by the brilliant result of definitely separating this disease from its various clinical imitators.

Expert clinicians have long recognized the fact that the pseudo-membranous diseases of the throat and respiratory tract vary greatly in their nature and malignancy, and many attempts were made to classify them and formulate clinical rules for their differential diagnosis. Disasters so often showed the imperfection of clinical rules of diagnosis, that conscientious physicians were often driven to the necessity of considering all pseudo-membranous throats to be diphtheria and to act accordingly.

As the result of brilliant labors in the same line that have given to science the exact pathology of anthrax, tuberculosis, erysipelas and other specific diseases, bacteriology has come forward, has solved the problem of etiology and offers a positive method of differential diagnosis. After a somewhat prolonged period of scientific doubt, the Klebs-Löffler bacillus is now almost unanimously recognized to be the sole originating cause of true diphtheria. The

pseudo-membranous anginas are now classified according to the presence or the absence of the Löffler bacillus into true diphtheria, or, simply, diphtheria, and pseudo-diphtheria.

The investigations of Löffler, Roux and Yersin, Martin, Brieger and Fränkel, Klein, Welch and Abbott, Prudden, Park and others have demonstrated that, arrested upon a denuded or susceptible mucous membrane favorable to its development and propagation, the Löffler bacillus grows and produces a local inflammation usually attended by the formation of pseudo-membrane. The bacillus is not, except in very rare instances, absorbed into the lymph or blood circulation; it does not invade internal organs, nor does it penetrate in its growth the underlying tissues. It remains localized upon the surface of the infected mucous membrane. The bacillus is not in itself toxic. In its growth, however, it elaborates a body, considered from its properties to be of the nature of a ferment. This ferment is absorbed from the seat of the diphtheritic inflammation by the circulation, and in contact with certain proteids digests or decomposes them with the formation of albumoses and an organic acid. These products of proteid decomposition, the albumoses and the organic acid, are the toxic agents, and it is they that cause the characteristic symptoms of diphtheria unfortunately so familiar to us all. The terrible toxicity of these bodies is shown by the experiments of Brieger and Fränkel, who found that .0004 gram was enough to kill two rabbits each weighing three kilograms.

Pseudo-Diphtheria.—The familiar investigations of Prudden in 1888 upon twenty-four cases of pseudo-membranous angina, and his failure to demonstrate the Löffler bacillus threw a doubt in this country upon the etiologic relation of that organism to diphtheria. His own, and other subsequent observations, have shown that the cases he studied were cases of pseudo-diphtheria, and the study of various observers has cleared up, in the last year, much of the confusion that has existed in the profession concerning these clever imitations of diphtheria.

Without going into detail, it may briefly be stated that the pseudo-diphtherias are pseudo-membranous anginas that are caused by the growth and development upon the diseased membranes of various forms of cocci, chiefly the streptococcus. Unlike the Löffler bacillus, the streptococcus may extend its growth into the tissues underlying the infected mucous membranes, may be absorbed into the lymph and blood channels, and may infect deeply seated organs.

To show the diagnostic and prognostic relations of the two forms of pseudo-membranous inflammations, I will briefly give the results of the bacteriologic study of a large number of cases by several observers. In 154 cases, clinically diagnosed diphtheria, Baginsky found the Löffler bacillus in 118 and streptococci and staphylococci in 36. The mortality in the Löffler, or true diphtheria cases was 38.1 per cent. In the uncomplicated coccus-diphtheria no per cent. Martin, in 200 cases of supposed diphtheria found the Löffler bacillus in 128 and cocci in 72; twenty-nine of the cases of coccus-diphtheria were croupous. Without giving figures he stated that the mortality in the true diphtheria was much greater than in pseudo-diphtheria. Koplik, in thirty cases found seventeen in which no Löffler bacilli were present

Park records, in two series, 244 cases in which the clinical diagnosis of probable diphtheria was made. In 127 cases, Löffler bacilli were found, and in 117, streptococci and other cocci. The mortality in the true diphtherias was in the first series of 140 cases, 16.5 per cent.; in the pseudo-diphtherias, 5.7 per cent. In the second series of 104 cases, the true diphtheria showed a mortality of 26 per cent.; the pseudo-diphtherias, one death in 31 cases.

The detailed reports of these observers show that many cases of pseudo-diphtheria and true diphtheria could not be differentiated clinically one from the other. Not until a bacteriologic examination was made, was a correct diagnosis possible. The laboratory observations, therefore, scientifically demonstrated what many of our ablest clinicians have long held; viz., that the varying clinical histories show that there are at least two types of pseudo-membranous inflammation; one intensely malignant, the other, or others, very benign, and that the clinical phenomena presented by these are often so similar that the most expert diagnostician is baffled in his attempt to differentiate them. This is the position I have held in the discussion of croup and diphtheria for the last ten years.

The study of the pseudo-diphtherias is of great interest, and I will quote from Dr. Parks his classification of them, and his observations on differential diagnosis:

"1. *Pseudo-Membranous Angina*.—In the typical cases a thin, friable, grayish pseudo-membrane covers the margins of the uvula, faucial pillars, and sides of pharynx, the tonsils frequently having thicker exudates. In the less marked cases only the uvula or faucial pillars, with or without the tonsils, are affected. In these the local and constitutional symptoms differ greatly; when uncomplicated with other infectious diseases they seem to regularly recover, unless the larynx is involved.

"2. *Pseudo-Membranous Laryngitis*.—In these cases the larynx and bronchi are chiefly affected. They may die from suffocation, or from the complicating bronchitis and broncho-pneumonia.

"3. *Croupous Tonsillitis*.—In these the tonsils are more or less completely covered by patches of exudate or pseudo-membrane. The local and constitutional symptoms are frequently marked in the first few days. They regularly recover.

"4. *Follicular Tonsillitis*.

"5. *Acute Pharyngitis and Tonsillitis without exudate*.

"6. *Cases similar to all the foregoing, but complicating infectious diseases*.—These have a considerable mortality.

"For prognosis, the points to be mainly considered were the age, the location of the membrane, the condition of the bronchi and lungs, the temperature and the relation to other infectious diseases.

DIFFERENTIAL DIAGNOSIS.

"From the point of view of diagnosis, it is important to fully understand that there are many of the less characteristic cases of diphtheria, which are so similar in symptoms and appearances to cases of pseudo-diphtheria that they can not be separated from them except by bacterial cultures. Among the cases examined I have found that:

"No case of follicular tonsillitis in an adult was true diphtheria. No case presenting a typical ap-

pearance of well-marked cases, such as those described as pseudo-membranous angina under pseudo-diphtheria, was true diphtheria.

"Most cases of pseudo-membranes and exudates, confined to the tonsils in adults were not diphtheria, but a few cases looking just like them were. Most cases of acute inflammation of the pharynx and fauces, with very little or no exudate or pseudo-membrane, were not diphtheria, but a very few were, and in all of these there was a direct history of infection. The majority of uncomplicated cases of pseudo-membranous laryngitis were true diphtheria, but a few in the summer and fall, and quite a number in the late winter and spring were not true diphtheria. In most, a clinical differential diagnosis was impossible without cultures. In young children, cases of diphtheria with exudate confined to or extending beyond the crypts, and those with little or considerable pseudo-membrane were at times true diphtheria and at times not. The two classes of cases often presented similar appearances. True pseudo-membranes confined to the nose were, in all uncomplicated cases, true diphtheria.

"In the milder cases of pseudo-membranous inflammations, one condition was frequently observed, which was an almost certain sign of true diphtheria. This was the presence of irregularly placed patches of adherent pseudo-membrane on some other portions than the tonsils or margins of the faucial pillars or uvula. The amount of membrane usually differed on the two sides. The thick gray pseudo-membranes which cover a large portion of the tonsils, the soft palate, and often nostrils, and nasopharynx were always the lesion of true diphtheria."

Upon the line of these observations we must now deal with pseudo-membranous inflammations. They are pregnant with wisdom that is of inestimable value in diagnosis, prognosis, preventive and curative treatment.

Dr. Park details the technique of his culture methods for diagnosis, and the writer is making a test of these from the standpoint of the private practitioner. The results are not as yet perfectly satisfactory. The position of the question and the value of bacteriologic diagnosis at present is best summed up by Koplik in his article. He says:

"Clinically it is impossible, from simple inspection, to sift the cases of non-characteristic true diphtheria from other forms of non-diphtheritic angina."

In the bacteriologic examination of these cases, and with the subsequent animal tests, lies the only true diagnosis. Is it possible for us at present, in private practice, to examine each case as has been done in the foregoing studies? The author is not so sanguine upon this last point as Baginsky of Berlin, in his last article upon diphtheria. It is possible in the clinic and hospital to do such work, for the facilities are readily at hand, as also the conditions for study. In private practice, however, for the present we must insist upon the proper isolation of all doubtful cases of throat disease, and the time is right for pushing the doctrine of isolation to its furthest limits.

Gentlemen, I now announce the Section on Diseases of Children to be open and ready to proceed with its business before it.

ORIGINAL ARTICLES.

RETURN OF VOICE AFTER LARYNGECTOMY.

ALTHOUGH THE LUNGS AND TRACHEA ARE ENTIRELY CUT OFF FROM COMMUNICATION WITH THE THROAT AND MOUTH.

A Clinical Lecture on the Physiopathology of Voice; illustrated, Delivered at Jefferson College Hospital, Philadelphia, Oct. 20, 1893.

BY J. SOLIS-COHEN, M.D.

PROFESSOR OF LARYNGOLOGY IN THE JEFFERSON MEDICAL COLLEGE OF PHILADELPHIA, ETC.

I have to show you, gentlemen, a unique case, one of the most remarkable surgical triumphs of the century; and I doubt whether another just like it exists anywhere else at the present time. Nineteen months ago, in the presence of the class, I removed from this man the larynx and the first ring of the trachea, on account of malignant growth (adenosarcoma) protruding externally. The epiglottis was not removed, as it was not involved in the disease. In order to prevent the fluids of the mouth from afterwards descending into the trachea, and the production of septic pneumonia (shluck-pneumonia) with its fatal consequences, (which occurs in a great many cases of this kind after operation), the second ring of the trachea was stitched to the skin in the neck, the first ring having been removed with the larynx. The tracheal orifice can be seen, here, in the middle line of the patient's neck, just above the top of the sternum, and you can readily discern the upper cartilaginous rings and the membranous posterior wall. Since the time of the operation, there has been absolutely no connection between this man's lungs and his mouth. As you observe, he does not wear any tracheotomy-tube, for the trachea is permanently open, and he breathes without difficulty. He has had no pain, no dyspnea, and no dysphagia since the operation; and for more than a year he has had no aphonia. There has not been any return of the disease; and he is apparently in good health.

I did not bring him before you in order to speak of the operation, however, but rather to discuss the physiology of the voice, using the case as an illustration of an entirely unexpected result. It demonstrates the apparent paradox that, in order to speak, a man does not need a larynx. This man can talk distinctly, although with a husky voice, somewhat like that of a man with a sore throat, but loud enough to be heard at a distance of more than thirty feet.

I ask him, "What's your name?" and he replies, "Daniel Hickey, sir," in a tone loud enough to be heard clear across the room.

Again, "How old are you?" and "Forty-seven, sir," you hear him reply, quite distinctly. His voice is as good as is heard in many a case of chronic laryngitis. Now I will ask him to sing for you. (The patient essays a verse of "Come back to Erin," in a low voice, but evidently carrying the tune) and you notice that he even has the power, to some extent, of controlling the pitch of his voice, so as to turn a tune.

Let us now consider the mechanism by which this man phonates. To comprehend this will require also a brief consideration of the mechanism of voice under ordinary, or physiologic conditions. You have noticed how this patient uses his mouth and throat

in articulating. In order to produce a sound, it is necessary to have vibration of something which moves very rapidly. Ordinarily, the vocal bands do this, under the impulse of the air expelled from the lungs. In this patient it is quite different. By gulping air, he distends the skin of his neck into a sac, thus forming an air-cavity, which acts as a supplemental lung as it were. But something more than this air is needed. There must be some band of tissue, which can be held rigid, so that it can be made to vibrate by the currents of the air, which are forced past it. He first takes a deep inspiration to fix the clavicles and the muscles of his neck. Then he takes a gulp of air into a sac of integument just above the orifice of his trachea, which air he then expels in his efforts at articulation, and the accompanying vibration of the band of tissue referred to supplies the place of the lost vocal bands. With one inspiration he can count audibly up to five. There are occasions when his voice is better than at others; but we may state that he finds it quite sufficient for the ordinary purposes of life.

After extirpation of the larynx, in cases similar to this where the larynx has been removed for malignant disease, it has generally been essential that an artificial appliance, or mechanical larynx, be inserted in order that the patient may talk. This artificial larynx is a chimneyed tracheal canula into the external portions of which is inserted a reed or tongue of metal which vibrates, when the patient speaks; but the pseudo-voice is monotonous and unnatural. Such an instrument would not permit a change of pitch, such as we have just heard in the present patient. The voice is like that of a puppet. It is a squeaking voice, something like that used by a Punch and Judy exhibitor.

Upon looking in this man's throat with a laryngoscope mirror this is what I see: the tissues are in a healthy condition. There is a cicatrix running from the base of the epiglottis, downward in the middle line, but a little obliquely from left to right, which is the obverse portion of the cicatrix you see in his neck. Below the epiglottis, the pharynx forms a cavity, of a funnel shape, leading into the esophagus, the opening of which is recognized by a horizontal line. To the left side of this opening, I observe a band of tissue, reaching upwards and backwards towards the wall of the funnel-shaped cavity, and which is covered by mucous membrane; and this I take to be the band which vibrates. This band, I believe to be a portion of the horizontal fibers of the inferior constrictor muscle of the larynx, which the man has utilized, by training, so as to form a new vocal apparatus. Having all the necessary organs of articulate speech, the nasal chambers, pharynx, tongue, teeth, and lips, he only needed a vibrating reed in order to speak again as before the disease of the larynx destroyed his voice. This is an exemplification of one of the pre-Darwinian theories of evolution; the doctrine of Lamarck that in the process of development of organs, function precedes structure. Here, in response to the demand for a voice, there is a utilization of structures which normally subserve purposes quite different.

I will now review briefly the subject of the physiology of voice: voice is a sound produced by the vibration in the larynx of two approximated membranous bands, the vocal bands, which stretch from the thyroid cartilage in front, to the arytenoid car-

tilages behind, with a linear space between their edges through which the air passes from the lungs. Our studies in acoustics teach that sound is a vibration conveyed to perceptive ears.

To produce the sound, the vibration and the hearing power are both requisite. There are sounds which are composed of vibrations so rapid that they are inaudible to human ears; in fact, it is believed that many of the vibrations produced by insects are inaudible to human ears, because the human membrana tympani is unable to vibrate in consonance with them. The ability of different human beings to appreciate rapid vibrations differ. You may have noticed when walking in the country on a summer's day with some friends, that some insect-sounds were heard by some and were not audible to others; to some there would be sound; to others, no sound. This is proof therefore, that sound requires both a commotion in the air to produce it, and a perceptive faculty in the ear to appreciate it. The next point to bear in mind is that this commotion is in the form of waves, of alternate condensation and rarefaction, which proceed in all directions from the place of origin; in other words, these waves are spherical, not circular, and not on a plane. Now, when anything moves as rapidly as sixteen times in a second, the ordinary human ear will begin to hear a rumbling sound which when the motion is made more rapid, will increase proportionately in pitch. The lowest musical tone, appreciated as such by the human ear, is that given by an organ pipe thirty-two feet long, which vibrates sixteen times in a second and is tuned to the C of sixteen and one-half vibrations per second. Sonorous vibrations may be increased in rapidity until they reach a point, or pitch, which the human membrana tympani can not vibrate in unison with, and consequently can not appreciate, and silence ensues.

Sound has three physical qualities: intensity, pitch, and quality, or character of tone. Intensity is simply loudness of sound. It depends on the size of the vibrations or sound waves set up in the atmosphere. The larger the volume of air set in commotion, the more intense the sound. A piano wire will produce a note in intensity proportionate to the width of its excursion, which in its turn is proportionate to its length. A human larynx of large size and with long vocal bands will afford more volume of intensity of sound than a small one, both being used with equal skill. Pitch is independent of intensity and quality. Pitch indicates the position which a note holds in the musical scale. It is due to the rapidity of the vibrations. The more rapid the vibrations, the higher the pitch; the shorter the vibrating medium, the more rapid the vibrations and the higher the pitch. Thus, if while a violin string is vibrating, you shorten it, by placing a finger upon it, you raise the pitch, and the vibrations are more rapid. Quality of tone, character, or *timbre*, as the French call it, is the characteristic peculiarity, which enables you to distinguish one instrument from another, and by which you distinguish one voice from another. By its aid you can, if your ear is good, recognize and follow any single instrument during an orchestral performance. It depends upon the shape of the vibrations. And right here, let me now call your attention to another point, which may be a little difficult to comprehend, but whose importance will be manifest in a few moments. No sound is a simple sound. When you

set a piano string in motion, and it is vibrating as a whole, if you touch it in the middle it will vibrate in halves while it continues to vibrate as a whole, each half vibrating separately and you will hear the octave of the tone mingle with the main tone. In a similar way you can divide it, so that it will vibrate in thirds or fourths and so on, and each aliquot part lends its own tone to the clang. In point of fact, these shorter waves, or vibrations occur also during the vibration of the string as a whole when it is let alone, producing what are called over-tones and under-tones, all vibrating in harmonious accord. Each tone is an orchestral combination in miniature. This is what produces the quality of the sound which is due to the ultimate or composite shape impressed upon the sound waves by the fundamental tone and its upper tones, its combination tones and so on. Nothing proves this so well as the phonograph, which preserves the combined qualities of the different tones, whether of the human voice or of an instrumental accompaniment, or of both, so that the resultant effect may be reproduced and be recognized by the ear. This is because the record in the phonograph is the combined result of all the factors of the sounds; and when given back to the air it reproduces that combined result in the simplest expression. Quality of sound, therefore, is due to the shape of the vibrations; and the shape of the vibrations is due to the supplemental factors producing the over-tones and the under-tones, as well as the fundamental or ground tone. There are some simple physical experiments by which fundamental tones may be tested and eliminated from the clang. For instance, if you strike the body of a violin, you will find that it will give a sound of a certain pitch. Now, if you will strike the proper string in the violin so that gives a note of the same pitch, you will find that that tone will be reinforced by the vibration of the body of the violin more than any other tone. In a similar way, you may strike a note upon a piano which will produce the same tone and the violin will vibrate in unison with it.

For the production of voice, you not only require a simple mechanism for the production of sound, but you also require a resonator, which will act like the sounding board of a piano or the body of the violin. The shape of the vibrations is a physical thing altogether. It depends upon the things which vibrate and the amplitude of the movement. The combination of all these vibrations in a given tone, determines the quality of the tone. In the human voice, we find a resonator in the vault of the pharynx and the nasal chambers. The palate, also the tongue, the teeth and the lips; even the top of the head, may be noticed to vibrate while singing certain notes, or the head, the chest, the trunk and even the body, as a whole, may be felt vibrating. By utilizing the sensations produced in these various resonators, singers obtain the most beautiful effects. I have seen cases of cut throat in which the vocal bands were exposed and the resonator tones were absent by reason of the injury to the continuity of the resonant apparatus, and have noticed that the voice came directly from the larynx through the opening in the neck is exactly like that of a puppet, because of the absence of the humililar resonance, which gives the natural quality to the human voice. Change the shape of the resonator in the human instrument to that of the manufactured one and you have

a change in quality. This is the way disease alters the quality of the voice. We may make a simple experiment to show the effect of a change in the shape of the mouth upon the voice. When you open your mouth to the fullest extent and utter a sound, the only sound you can make will be the vowel "ah," (as in father); by closing the mouth a little, and emitting the same sound from the larynx, it will change to "e," (like the a in hate); and as you still farther progressively close the mouth you will get "i," (like e in meet), "o" and "u." These different vocal sounds are due to nothing else than to changes in the shape of the resonator. Certain tones are reinforced in the one instance and other tones in the other instances.

Some twenty years ago, I exhibited to the class at this College and also to the medical class of the University of Pennsylvania, an instrument known as Faber's Talking Machine. In that instrument, the vocal sounds were made by thin plates of ivory, set in vibration by currents of air from a bellows; it showed especially the effects of changing the shape of the resonator, by valves, which changed the quality of the tones. This peculiarity of vocal resonance will serve to explain the difficulty which adult foreigners experience in overcoming accent, and by which their nativity is revealed. For a period of twenty years or more, their vocal organs will have been accustomed to produce the various sounds in their own language, and after the accessory vocal organs have been developed in accordance with such demands, they can not readily accommodate these structures to produce new combinations of sounds. Children learn foreign languages without accent, because their vocal organs are more flexible, but when their original language is retained as the family intercourse, they always retain some of its accents. Thus in England, some years ago, I heard the Prince of Wales speak a number of times and noted with surprise that he had a decided German accent. This is simply because his parents had made German the language of the family. A remarkable peculiarity of the voice is its adaptability to extremes of pitch and intensity, the production of which in musical instruments the work of men's hands requires a large series of factors of different sizes. Remember that to produce the human voice, we have only the two vocal bands, at best only an inch in length, a little longer in the male than in the female. They are less than a fourth of an inch in width; and it is only one free edge of each band which is free to vibrate. The wonder is how such a little structure as this is, can produce such a variety of sounds. From two and one-half to three octaves is the ordinary compass of the voice; the combined range of the male and female voices is about five octaves. Exceptional voices may transcend these limits. Thus Mr. Fisher could sing down to F₁ (forty-three and one-half vibrations) while La Bastardella could sing C² (2,100 vibrations). The changes in pitch are even more remarkable. Madame Mara with a compass of three octaves, made 2,100 changes of pitch, or 100 between each two notes of the 21 in her compass. Ordinary good vocalists make 150 changes, or 10 for each tone in a compass of 2 octaves or a little beyond. The change of length in the vocal cords to produce these changes of pitch, will not vary more than $\frac{1}{1600}$ of an inch. In Madame Mara, they were not over the $\frac{1}{1600}$ of an inch.

Now, we will proceed to the consideration of how these changes are produced:

The changes of length of the vocal bands are caused by the contraction of the crico-thyroid muscles, and the posterior crico-arytenoids on the one hand, and by the thyro-arytenoids on the other. The vocal bands are attached to the thyroid cartilage and to the crico-thyroid membrane with which they are continuous, at the anterior, lower portion of the thyroid cartilage. Now when the crico-thyroid muscle contracts, it draws upon the cricoid cartilage and pulls it upward and forward, towards the anterior portion of the thyroid cartilage, as you can test on yourself by placing a finger lightly on your cricoid cartilage while uttering a sound in a high pitch. This puts the vocal cords upon the stretch lengthwise. This is, however, only a part of the mechanism. If a person sings the scale, while you are examining the larynx with a mirror held in the mouth, you will notice that the vibrating portion of the cord, is progressively shortened, front and back, as the voice ascends the musical scale. This is done by the internal thyro-arytenoid muscles most complex in their structure. How delicate the mechanism to produce this! It must be done by tension and by shortening. Something may also be due to impact from the expiratory current of air, but not a great deal. You can easily understand that very little difference in the symmetric vibration of the vocal bands would produce a very distinct effect; both bands must vibrate synchronously to make a perfect voice, for the difference between harmony and discord is not very great, where they meet, though different indeed at their extremes. Discordant sounds may be made musical by regulating their pitch, and thus we have the xylophones, glass harmonicas and the like. I remember reading in Radau's "Acoustics," many years ago, a description of a sort of musical instrument used in Brussels during a celebration of the Virgin in 1549. It was composed of twenty cats with voices of different pitch. Each cat was in a box over the edge of which its tail was confined. This cat organ was played upon by a bear, who had been taught how to pull the tails of the cats whose mews thus produced notes or tones, with more or less musical effect. Such an instrument was also constructed by the court jester to amuse the Emperor Sigismund, in order to rouse his depression of spirits. It was sagely remarked by the historian that "the cats were not happy at this epoch." Somewhat like a modern comic opera declares of the life of a policeman. I mention this in order to show that noises of different pitch may be turned into musical effects by adjustment of pitch, just as music can be turned into noise by reversing the process and producing discord. The notes of the gamut are pleasant, struck in succession. Strike them together and you have discord indeed.

Now to apply this to pathologic conditions of the larynx. If we have a congestion of the larynx and more especially if one vocal band only is congested, the voice will be altered in quality. If both bands be congested equally, the alteration of voice may not be so marked as when only one is affected. A uniform congestion of the larynx lowers the tones, so that a baritone may sing more readily when he has a congested larynx than in his normal state. Drinking beer produces temporary congestion; and baritones sometimes resort to this expedient, before singing, in order to lower their register. They do not

know why it does so, but they do not know that it comes from experience. Many a singer goes up to the top notes to the glass, and then comes down, he drinks just before singing. His vocal bands become congested and thus heavier. They can be made to vibrate more slowly and thus lower the pitch of the tone.

You may have a little tumor on the vocal band, and if it develops at one of the nodal points, seems to divide the band into two adjacent parts, whether halves or thirds or fifths, there may be no interference with the singing voice; and a singer may use his voice without suspecting that he has such a growth. These little tumors upon the border of the cords are generally symmetrical, and are produced in this way. The patient sings during an attack of congestion. The friction of the cords in vibrating rubs off the epithelium, and this is followed by proliferative inflammation, resulting finally in a cicatrix and the formation of fibrous nodules. Should the growth be at another place than at one of the nodal points, the voice will be more or less altered, just as in congestion, the voice will be more affected when the growth is limited to one side. A small growth may injure the voice for a long time, and if it acquires a thin pencil it may drop below the glottis and thus improve the voice while the tumor is growing.

There is another very peculiar thing in connection with the production of voice and sound. When listening to music a certain note may thrill you. The physical cause is synchronous vibration of your body which responds to the pitch of the tone. If you take a guitar and so tune it that it will vibrate at a certain pitch, and then take another instrument, and strike a note of the same pitch near it, the first instrument will vibrate in unison, just as the globe in the gas fixture will vibrate sometimes, at certain tones of your voice. Strike the globe and you will find its pitch the same as that of the tune that started it. In the same way heavy bells may be set ringing by playing an instrument properly attuned beneath them; or a suspension bridge may be thrown in vibration, by fiddling continuously upon one string of the same pitch. A company of soldiers in marching across such a bridge are not permitted to keep step, for fear that the vibration may become so great as to destroy the structure. The starting of a big bell is alluded to by George Eliot at the beginning of one of the chapters of her "Middlemarch," a novel in which by the way you will find an excellent description of a cultured physician.

"How will you know the pitch of that great bell, too large for you to strike? Let but a tune play 'neath the fleecy-mixed metal. Listen close. Till the right note flows forth, a silvery rill! Then shall the huge bell tremble—then the mass, With myriad waves concurrent, shall resound In low soft unison!"

Similarly you can reproduce your voice or your whistle in a piano. Raise the lid, place your foot upon the pedal, so as to keep the hammers from the strings, then pronounce the vowels, or whistle over the strings, and your voice or your whistle will be almost exactly reproduced. Not fully, because the piano is what is termed a "tempered" instrument. The scales between the octaves are not exact and the tones therefore are not exact, but only nearly so. Were they exact, many more strings would be necessary and the instrument would be too complicated to play on. This is one reason of the inferiority of

the piano to the violin in the hands of a master as a means of expression. It is on the same principle that the phonograph is able to repeat the various sounds which are recorded by it.

There is still another attribute of certain voices, which I call "reach." By this term I mean that quality by which the voice is carried to a distance—the penetrating power, it might be called. It is not unlike the power which a ball-player has of throwing a ball to a distance. The voice need not be loud in order to possess this quality, by which it is made very distinct and readily heard. Public speakers and singers often possess this to a remarkable degree. I have heard the whisper of a good actor clear across the theater. When Madame Parepa-Rosa sang at the grand concert in Boston at the great Jubilee some years ago, there was a chorus of 1,200 voices and an orchestra of 1,000 instruments, and yet the tones of her voice were so pure that they could be clearly distinguished among them all, and this in audiences of more than 40,000 persons.

A few words now as to the musical qualities of the human voice, for you may be consulted in reference to them. For practical purposes we distinguish four different varieties of the singing voice:

In the female voice we have soprano and contralto, and in the male voice the tenor and bass. The baritone is a tenor voice which can not sing very high; corresponding with the mezzo-soprano in the female voice.

It will not be necessary to define the terms soprano, alto, tenor and bass. We are concerned particularly with what causes these different qualities of voice. It depends partly on pitch and greatly upon quality. In the first place, it is not due entirely to the size of the larynx. A tall man with a large larynx does not necessarily have a bass voice. I believe that these different voices are due to the resonating bodies in the neighborhood. The natural difference between the male and the female voice is only an evidence of differences in the physical construction of surrounding organs. In man, the respiration is mainly by the diaphragm; in woman, the breathing is costal; in man, the abdomen moves more in respiration; in woman, the upper portion of the chest. The upper air passages are also different in men and women. The larynx is more acutely angular in front in the male, and the rings of his trachea are more semicircular and its membranous portion wider in proportion.

There is one other point which I wish you to bear in mind. It is of immense importance in practice, especially among singers. I have here upon the blackboard a representation of the vocal bands. The thyroid cartilage is incorrectly said to be composed of two pieces; it has three, two lateral wings and one small central portion. It is to the middle section that the vocal bands are attached. Examining the structure of the vocal band, we find that the posterior vocal process passes to some distance into the vocal band. These processes may be pressed together and thus shorten the bands by reducing the vibrating portion. It is thus that the head tones are formed. Of course, when the vocal processes are forced together, only the portion of the band anterior vibrates, and the pitch is necessarily heightened. Therefore, if you will examine a man's larynx while he is singing, you can tell whether he will be able to sing the head tones or not. There is no use in a man's trying to sing head

notes, if he has not well-developed vocal processes, for the mechanical requirements are absent. These are well developed in the female and females readily produce head tones. The physical laws which preside over the formation of voice are precisely the same as those presiding over sound of any other kind.

In public speaking or singing, very much depends upon the manner of respiration. If you speak with the abdominal walls relaxed and the diaphragm low down, a larger column of air will be at your command, so that you can produce a greater volume of sound and you can also talk longer than if the abdomen and diaphragm are rigid, and in the latter case you are apt to pitch the voice too high and you will strain the voice, because the larynx is more or less compressed and is not in an easy, natural position. You will sometimes have patients who will speak in a high, falsetto voice, which is the voice of childhood retained in adult life. Little boys and little girls have voices so much alike that they can not be distinguished. As the boy approaches puberty, his voice descends an octave, but in the girl the voice only descends a note or two in the scale. When the adult male voice retains its puerile quality, it forms what is called a eunuchoid voice. This effect was purposely produced by castration for church purposes when female voices were not permitted in the choir, forming in fact a male soprano. If a falsetto voice is due to a wrong method of using the voice, it may be overcome by instructing the patient to use the abdominal method of speaking, to which I have already alluded. You may be occasionally consulted with regard to the propriety of allowing little children to take lessons in singing. Of course, it is important that proper methods be taught, and if this be done, I see no reason why children of 8 to 10 years should not be taught to sing, if under good teachers. When a boy approaches the age of puberty, however, no extra work should be put upon the vocal organs until the voice has changed. He should then be taught by a male teacher, for the reason that the pupil will imitate the teacher. For the same reason, girls should be taught by women. The best male teachers, while they give instruction in correct method, have female assistants to train their female pupils.

THE CLASS OF CASES IN WHICH WE MAY EXPECT GOOD RESULTS FROM EXCISION OF THE MEMBRANA TYMPANI AND OSSICLES.

Read in the Section on Laryngology and Otology, at the Forty-fourth Annual Meeting of the American Medical Association.

BY S. MACQUEX SMITH, M.D.

LECTURER ON OTOLARYNGOLOGY AND CHIEF OF AURAL CLINIC, IN JEFFERSON MEDICAL COLLEGE OF PHILADELPHIA; SURGEON-IN-CHARGE OF EAR, THROAT AND NOSE DEPARTMENT OF THE GERMANTOWN HOSPITAL, PHILADELPHIA, ETC.

The history of the excision of the membrana tympani and ossicles has been brought to the notice of the profession so frequently, that a repetition of these familiar facts would prove tiresome and uninteresting. We should, however, mention the fact that Kessel in 1875, Lucke in 1880, and Schwartz before 1885 performed this operation for the relief of *deafness*; while great credit is due to Sexton, who in 1886, by his courage and skill brought before the American medical world the results of his numerous operations for the cure of *chronic aurial discharges*;

and later for the relief of deafness. It was Sexton, therefore, who first proposed this operation, and performed excision of the membrana tympani and ossicles, for the cure of discharge from the ear.

Barnett and others, however, soon followed and by publishing their results, did much to establish this formerly condemned operation and bring it to the almost universal recognition of that part of the profession interested in aural surgery. We are all familiar with the determined opposition this reasonable operation called forth in some quarters. It did, indeed, seem peculiar that advocates of rational medicine should have offered such strong and damaging protests against a surgical procedure which they could not but acknowledge was based on *sound surgical principles*; and especially, did this opposition appear unreasonable, when we remember that these same opponents were acquainted with many unfortunate patients suffering from a chronic discharging ear with its many dangers, which had not only resisted their every effort, but had moreover baffled the skill of other specialists.

The great danger to life arising from a suppurative disease of the middle-ear is now admitted by all, and surely any procedure proposed for its relief is worthy of due and proper consideration, so long as the treatment thus suggested is not likely to produce bad results, and has for its support the same sound anatomic, pathologic and physiologic backing that has characterized all the noted advances of modern surgery.

Those who have not taken kindly to this rational treatment have declared the operation to be dangerous, and therefore involving too many risks to admit of its becoming popular; to all of which we would ask whether this or any other proper surgical procedure could be more of a daily menace to life, than a chronic discharge from a cavity, the walls of which are composed of plates of bone that are extremely thin, and surrounded by such vital parts as the brain and important blood vessels?

It is certain that a continuation of the discharge favors necrosis of these delicate plates of bone, and thereby induces, through continuity of structure or by direct communication, abscess of the mastoid, septic inflammation of the brain substance and its coverings, or *cerebral abscess*, from which alone there are annually dying in the United States probably four thousand of her inhabitants. At present it is difficult to say precisely just what class of cases are most likely to yield good results from this mode of treatment. Some few cases, regardless of the duration of tinnitus and vertigo or the degree of deafness, will give very satisfactory results. As a general rule, however, it is not well to expect too much improvement of hearing from a chronic, non-suppurative otitis media; and yet, in this class of cases, where tinnitus, pain and vertigo are urgent symptoms, and have resisted other methods of treatment, we should not hesitate to suggest the removal of the membrana tympani and one or more of the ossicles for their relief.

It has not been our custom in the non-suppurative cases to excise the entire membrana tympani unless it is greatly thickened, opaque, and firmly adherent to the tympanic walls. In this class of cases it is interesting to note the large number of patients in which the tympanic membrane presents quite a healthy appearance. It is, however, in just

such cases that we remove only sufficient membrane to enable us to excise the malleus, the incus, or both. In this modified operation it is very unusual to have any reaction; and we likewise avoid the pain and suppuration that has at times been reported. By this partial myringotomy, regeneration of the membrane is so slow that at present we can recall at least seven cases in which the original opacity has remained for more than two years; moreover, in our experience of over two hundred patients operated on, we are convinced that it is seldom necessary to remove the membrana tympani after regeneration has occurred, unless, of course, the operation had been performed in one of the suppurative cases, and where regeneration of the membrane had confined a dangerous necrosis of the tympanic cavity, or concealed a threatened mastoid involvement.

In order to obtain good results in the suppurative cases, we believe it to be positively essential to remove every fragment of the membrane, as this is the *only* way in which we can hope to obtain free drainage, and procure an opening through which to properly treat the diseased cavity. If the attic is involved it will be found necessary to excise both the malleus and incus, for these bones are very susceptible to carious degeneration, and where either is left behind the suppuration is almost sure to continue; and even if the discharge should cease, it is likely to reappear at any time in the future.

In regard to the operation for excision of the stapes, which has met with such good results in the hands of Dr. Jack of Boston, I can say but little, as my experience with this operation is limited to two cases. Both of these, however, were somewhat successful in the relief of symptoms, that had otherwise resisted treatment; but as each of these cases suffered from prolonged staggering vertigo, as sequela of the operation (possibly due to my lack of skill) and as our patients have generally recovered without this procedure, we have found no indication for advising or performing this more formidable operation.

In order to show the benefit that is sometimes obtained from apparently the most hopeless condition, we will review the detailed history of several unique cases, characterized by marked deafness, severe pain, and vertigo, all of which were relieved by operation.

Case 1.—J. K., 39 years of age; ten years ago began to lose his hearing, accompanied by an itching of the external auditory canal. This loss of hearing was in both ears, and continued to grow worse until eighteen months ago when he was suddenly attacked with severe pain in each ear, radiating over the entire head. This pain continued without interruption for nine months, then without apparent cause the pain increased in such violence as to necessitate his going to bed and summoning a physician. Before relief could be obtained he became totally deaf in the left ear. At the end of two weeks the pain was so much better as to enable him to leave his bed. Some pain, however, has continued and now seems to be confined to the right ear. On Jan. 10, 1893, he consulted the writer (bringing a note from the family physician, to whom I am indebted for his previous history).

It is well to state that this patient has never had any discharge from the ear, nor does he remember having had at any time an injury to his head. Except for the inflammation extending along the manubrium, nothing of any importance could be seen to account for his suffering. The mastoid region presented a healthy appearance; the drum, however, was much retracted and firmly adherent to the promontory. His hearing power was nil, through aural conduction of sound. Bone conduction was about three-fourths normal.

With the hope of relieving the pain alone, we suggested the removal of the drum and ossicles. On Jan. 16, 1893, under ether in the hands of Dr. Pontius, we removed the drum by the circular incision, and extracted the malleus and incus in a piecemeal way, their vitality having been so completely destroyed by the process of necrosis that they crumbled to powder under the slight pressure of a delicate pair of forceps. These bones had undergone the several changes which are more forcibly than elegantly expressed by the term "dry rot." I believe that this was the first and only case in the writer's experience where complete excision of the drum was accomplished without any hemorrhage. After operation the tympanum and canal were lightly packed with iodoform cotton and the patient kept quietly in bed. For three days the pain was in no way relieved, although the hearing power was materially improved. From the third day, however, the pain and tinnitus grew less, while the hearing power continued to increase.

On January 24, or eight days following the operation, the pain and tinnitus were so slight as to be barely noticeable. Could hear loud conversation at three feet; tuning-fork and watch were negative in result.

March 12, or about two months after the operation, reports that he has been free from pain, and almost free from tinnitus for two weeks. Hearing power slightly improved. May 16, has not had pain since six weeks following the operation and the tinnitus is now so slight as not to annoy him. Thinks it is growing less each day. Can hear ordinary conversation at six and one-half feet; fork and watch, each, at four and one-half inches.

It is difficult to say why this man should have suffered so severely, for surely the condition as above narrated does not seem to be a sufficient explanation. As regards tinnitus and loss of hearing, we consider this to be fully explained in expressing the belief that a thick drum bound down by adhesions, with ankylosis, or other disease of the ossicles, acts as a foreign body, and as such produces tinnitus and deafness, the degree of which is in direct ratio to the extent of the disease present, and consequent interference with their normal function. We would, therefore, consider the removal of such disturbing foreign elements as not only sufficient reason for the partial or complete restoration of hearing, but it can also be hoped for and reasonably expected that we may secure relief from distressing tinnitus, and oftentimes dangerous vertigo.

Case 2.—A. M., aged 16, applied for treatment Aug. 10, 1890. When seven years old had scarlet fever. This was followed by discharge from both ears, which was continuous until the above date. Meanwhile she was progressively and rapidly losing her hearing. Suffered continuous pain, sometimes very severe. Was totally deaf in left ear. After making many and various unsuccessful efforts to arrest the discharge and relieve pain, we suggested the removal of the fragment of drum and malleus. This we performed on Dec. 9, 1890, after which the ear was packed with iodoform cotton, and replaced by fresh cotton every one or two days.

Dec. 20, 1890, no discharge since operation; hears fork at five inches; watch at three inches; ordinary conversation at three feet. Jan. 26, 1891, tympanum entirely dry; hears fork at five inches; watch at six inches; ordinary conversation at five feet. April, 1891, no discharge since operation. Hears watch at six inches; fork at seven inches; and ordinary conversation at twelve feet. December, 1891, slight improvement over the above. July, 1892, hears watch at 16-20; fork at twelve inches; ordinary conversation at fourteen feet.

May 21, 1893, or two and a half years after operation, watch 16-20; fork seventeen inches; ordinary conversation, twenty seven feet. No discharge since date of operation. Health much improved; performs the duties of life quite as well as if she had never been deaf, or suffered from pain in that ear.

Case 3.—H. D., 27 years old, applied March 10, 1893. Six years ago resided in England, at which time was taken with a severe pain in the right ear which she thinks came from cold. Never had any ear trouble before, and has always enjoyed good health. Was treated by physicians in England for three years, but received no benefit. Has been in this country for three years and undergone treatment in

the hands of many physicians, and as a private patient at several hospitals, without beneficial results.

On March 10 last, or three months ago, she consulted the writer at the Jefferson Hospital; suffering extreme pain and greatly annoying tinnitus. Never had discharge from the ear, but has suffered from severe headache since early adult life.

The drum and external auditory canal on examination revealed nothing abnormal, except some inflammation covering the manubrium. The Eustachian tube was somewhat swollen, but inflation of the tympanum by Politzer's method was easily accomplished. This interference, however, gave her some increase of pain. By aerial conduction of sound she could hear only very loud conversation. Watch and tuning-fork could not be heard. Bone conduction, however, was quite normal. Aside from operative interference it was difficult to suggest or carry out a line of treatment with any reasonable prospect of securing relief, and inasmuch as she had undergone much treatment of the usual routine kind without in any way being benefited, we felt justified in suggesting excision of the drum and malleus, which was performed on March 30, 1893.

For one week following operation she continued to suffer some pain, but it was markedly less severe. On the tenth day a slight discharge of pus was noticed, at which time the pain entirely ceased. The discharge became quite copious three days later. Sixteen days after operation the discharge was quite scanty and the pain returned. A free discharge, however, was re-established and the pain again ceased not to return.

April 30, 1893, pain relieved; discharge entirely gone; heard the fork at one inch; watch 3-30; ordinary conversation at six feet. May 10, 1893, tympanum entirely dry; no pain; hears watch at 20-30; tuning-fork at nine inches; ordinary conversation can be heard at normal distance. Patient expresses herself as feeling entirely well; hears everything at church or opera.

Case 4.—E. M., 39 years old; first seen Jan. 15, 1893. When four years old had a severe illness which was followed by a discharge in both ears. This continued until eighteen years old, when the discharge ceased in each ear. Two years later she suffered from severe pain in the left, for one week, when the drum ruptured, followed by the free escape of pus and relief from pain. The running continued for some weeks, then ceased, since which time she had been free from discharge or inconvenience of any kind until two years ago, when her hearing began to fail, accompanied by some "neuralgic pain" in head, and distressing tinnitus. Is now totally deaf to aerial conduction of sound; the osseous conduction being quite normal.

After making unsuccessful efforts for her relief, I advised the removal of the ossicles and drum of the left ear, which we did on March 20, 1893. The operation was followed by considerable discharge for several days, but the hearing began to improve almost immediately, and the tinnitus to grow less. The pain has been entirely relieved.

May 18, 1893. Pain and tinnitus entirely relieved. Hears tuning-fork at ten inches; watch at 4-30; ordinary conversation at two feet. General health, which had been very poor before operation, is greatly improved. Discharge has entirely ceased. Tinnitus and pain effectually relieved.

Case 5.—E. B., age 25. Consulted me Sept. 21, 1889. In 1887 I had treated the sister of this patient for impairment of hearing due to impacted wax, and as she was impressed with the idea that something unusually skillful had been done for her, she informed me of a sister living in Breslau, Germany, who had been deaf from early childhood, and suggested that possibly I might be able to give her relief. She was advised to send for her sister, who presented herself about two years later, giving the following history: has suffered pain ever since she was old enough to remember. At times it was so severe as to necessitate her going to bed, and could only be relieved by the hypodermic injection of morphia. This pain was not confined to the ears, but seemed to be general over the entire head. Does not remember ever having had discharge from the ears. Noises in the head of almost every character were very severe, and caused her great annoyance. She expressed herself as being entirely satisfied if she could be relieved of the pain and tinnitus, as she had given up all hope of ever hearing again. She claims to have been treated without success in Berlin, Vienna, Dublin and London, and to have had a "nerve cut" three different times with the hope of securing relief from the severe pain.

On examination we found the external auditory canal in each ear somewhat obstructed by an accumulation of in-

flammatory products, and very painful to the touch. The drum of each ear was congested, markedly thickened, and so much retracted as to be immovably adherent to the promontory. We found the Eustachian tube obstructed, which, however, promptly yielded to treatment, but without improving the hearing to any appreciable extent. On careful examination of the hearing power she proved to be totally deaf to all sounds, regardless of their pitch or character. The osseous conduction of sound, however, was perfect. Of course the history and unfavorable results of the examination, except for the good bone conduction, compelled us to regard any hopes of improvement in hearing as improbable; however, feeling it our duty to at least make an effort to relieve the pain and tinnitus we concluded to remove the drum and one or more ossicles, as might be necessary. Accordingly on Oct. 3, 1889, we excised the drum and ossicles of the left ear. The patient positively refused to take an anesthetic of any kind because a relative had died under its use. This was the first case of this character that I have ever done under cocaine. The pain was quite severe during the operation, but being a woman of determination and pluck, she stood her suffering very well. The malleus and incus both showed evidences of necrosis, and particularly the malleus, which was only about half its natural size, and through necrosis resembled in appearance and structure a piece of dried dead wood that one could with but little force crush between the fingers. The meatus was packed with iodoform gauze, and the patient kept quietly in bed for three days. On removing the cotton she said she could hear our conversation and the noises in the street. The tympanum was dry; pain almost relieved; tinnitus much less and patient feeling happy.

Oct. 12, 1889. There has not been a drop of pus; tympanum entirely dry; pain gone, and only a little pulsating tinnitus. Hears the fork at nine inches and watch at 8-30; ordinary conversation at fourteen feet.

November, 1889. All the above good results continue. The patient feels so well satisfied with the results of the operation on left ear that she now makes a request to have the other ear operated on, as the pain still continues in it. This, however, we refused to do at present.

Feb. 6, 1890. Again the patient returned to have the right ear operated on. She was advised to wait a few months longer, so as to ascertain definitely whether the results of the operation on the left ear are positively permanent.

May 9, 1891, or about eighteen months from the date of first operation, the right ear was operated on and a similar condition of the drum and ossicles found. The results of operation were quite as satisfactory.

January, 1892. Patient has been entirely relieved of pain since second operation. Hears perfectly well with both ears. Tinnitus entirely gone. General health excellent and likes America so well that she has concluded to make it her future home.

May 9, 1893. Has been entirely relieved of pain from date of second operation. Tinnitus has not returned. Hearing is entirely normal and all of these favorable results from the operation have been permanent for over two years.

Case 6.—B. S., aged 81. In April, 1888, this patient consulted me for deafness, tinnitus and vertigo. He gave the following history: forty years ago, while exposed to the sun's rays, was suddenly attacked with slight pain in each ear. He became dizzy, fell to the ground, striking his head with much force, and was carried home in a semi-conscious state. For three years prior to this attack had occasionally complained of a "fullness and queer feeling in the head." For seventeen weeks he suffered so much from vertigo as to prevent him from leaving his bed. From the time of this accident, which was in 1848, to the year 1889, covering a period of 41 years, he has suffered more or less from vertigo, increasing tinnitus and deafness. For the past ten years the vertigo would appear without warning and with such severity as to necessitate his having an attendant with him constantly. During this period of ten years the tinnitus has correspondingly increased, and the hearing power in like manner became progressively defective. He was entirely deaf to aerial conduct of both watch and fork; loud conversation could be heard at one foot. In his efforts for relief he consulted many physicians, making three trips to Europe for this purpose. In September, 1889, we suggested the removal of the drum and ossicles. This proposition was accepted with great reluctance on account of his age, and more especially because he had been advised not to submit to any surgical operation. We operated on the left ear Sept. 12, 1889, and found the drum in this case thickened and adherent to the tympanum; likewise the ossicles had

undergone the aforementioned peculiar changes due to necrosis. Six days after operation his hearing and tinnitus had somewhat improved; no pain, nor disturbance of any kind followed the operation.

September 27, or fifteen days after operation, he states that nearly all pain and tinnitus has been relieved; has had but little vertigo. October 18, pain entirely relieved, tinnitus much improved, slight vertigo remaining. Nov. 1, 1889, tinnitus and pain entirely relieved. Hears ordinary conversation at seven feet; has had but two attacks of vertigo in three weeks. April 9, 1890, operated on right ear with similar good result.

July 6, 1890, has just returned from Atlantic City, and reports himself as entirely free from pain, vertigo and tinnitus; hears ordinary conversation at sixteen feet, watch at one inch, and fork at four inches.

Sept. 12, 1893, or about three and one-half years since first operation and two and one-half years since second, has continued in good health, except a slight attack of deafness, which, however, lasted but a few days. Hearing power continues good.

April 14, 1896, has just returned from a trip to the Pacific coast, where he spent the winter and enjoyed good health, being entirely free from tinnitus and vertigo. He feels very much better than men usually do at his time of life.

In the list of 154 operations, which I here offer for your inspection, it will be found that from Cases Nos. 15 to 84 inclusive, we record 69 patients presenting the non-suppurative variety of middle ear disease. Many of these patients suffered from distressing tinnitus, severe pain, staggering, vertigo, and marked impairment of hearing; while others complained of one or more of these same symptoms in a much less degree. Their ages range from twenty-one to eighty-one years. The time in which the patients suffered from one or more of these symptoms varies from two to forty years, while the time elapsing since the date of operation is from three months to four years. The improvement in tinnitus and vertigo has been in many cases most striking and satisfactory, notwithstanding the little hope that could be offered for their relief in some of the cases before operation. The probable improvement of hearing in this class of cases is, of course, not marked by so many favorable possibilities as in the suppurative variety, and yet a perusal of the carefully recorded results will be convincing that the operation in selected cases is now justifiably demanded. From the results obtained in the class of cases that would properly come under the title of this paper, we leg to offer the following conclusions:

I remark first, however, that this is an age when the public wish to exact from the profession a promise as to the definite outcome of any prospective operation. It is proper and desirable that the probable result of an operation under consideration should be fully and carefully explained to the patient and his friends. It is well that this should be done in the presence of your assistants or other auditors. A disregard for this simple precaution has caused some honorable physicians, who have worked hard for the best interests of their patients, to be summoned into court by designing and evil-minded persons, who enter suit for damages because a supposed promise had not been fully realized. We would, therefore, begin our conclusions with:

1. Never promise positive results from an operation on the ear for the relief of tinnitus, pain, suppurative or vertigo. This promise will often be exacted, but the present status of such surgical procedures is not sufficiently well defined to warrant us in promising the results which we may hope to attain.

2. Probably no operation in the entire range of surgery (*if carefully performed*) is attended with so little disturbance, either local or constitutional, as excision of the membrana tympani, malleus and incus, when not complicated with necrosis of the tympanum; in fact, there are very few diseased conditions of the human economy that are so apt to be productive of good results as is excision of the membrana tympani and ossicles in certain ear diseases.

3. Tinnitus, vertigo, impairment of hearing and pain are almost certain to be relieved by the removal of the drum and ossicles, if not dependent upon some structural changes in the internal ear.

4. The longer the middle ear disease has existed (as characterized by tinnitus, progressive loss of hearing, pain usually not well defined, and possibly vertigo) the greater is the danger of some serious structural lesion of the internal ear, and therefore the less hope of materially improving the hearing power; and yet even in extreme cases, the tinnitus, vertigo and pain are more or less benefited; sometimes markedly so.

5. If after due and proper efforts to relieve progressive aural diseases, you do not produce a speedy and marked improvement, no time should be lost in performing the radical operation, as by delay an internal ear complication may have become established, and this always makes probable benefit more doubtful.

6. It is not well to express too much hope that the operation will materially improve *hearing* in long standing, non-suppurative cases; and yet, when the chances are so much in favor of its producing entire freedom from tinnitus and vertigo, and especially since there are such great probabilities of a rapidly progressing disease becoming arrested from the date of operation, it would indeed seem unfortunate if such patients were not offered the benefit of this doubt, if such it can be termed.

7. In all cases where the membrana tympani is thickened, markedly retracted, and made firmly adherent by old inflammatory products to the tympanic walls, and where in this same connection you find the ossicles completely ankylosed, the function of these parts under such circumstances is of course entirely suspended; therefore in consequence of this condition, this part of the conducting apparatus can be regarded only as a foreign body, and, as such, the only rational hope for relief is through removal; which will in the majority of cases relieve tinnitus and vertigo, while, at the same time, improvement in hearing can reasonably be expected on account of the opening thus formed admitting the sound-wave which impinges directly on the stapes and fenestra rotunda.

8. As a preventive of necrosis of the temporal bone, mastoid abscess, aural polyp and serious brain complications (when the result of chronic aural discharge) the *suppurating ear* should *not* be allowed to continue and thus become chronic. If, therefore, under the usual methods of treatment the discharge does not permanently yield, it is certainly good and I might say imperative surgery, to promptly extract all fragments of the membrana tympani and necrotic ossicles; for in so doing you have taken the only rational step to obtain a cure of this always dangerous discharge, by first removing all foreign matter and thereby establishing a free drainage, and furthermore giving an opportunity of properly treating a

diseased cavity that otherwise would be inaccessible; and, inasmuch as the writer has not met with any failures in this class of cases (when unaccompanied by extensive necrosis of the tympanic cavity), he is forced to express the belief that *timely surgical interference* can not be too strongly urged, for by so doing you eradicate the primary disease, and thus prevent these always serious, and oftentimes fatal complications.

MUCOCELE AND EMPYEMA OF THE ETHMOIDAL CELLS AND SPHENOIDAL SINUSES.

CAUSING DISPLACEMENT OF THE EYEBALL.—THEIR OPERATION FROM THE ORBIT.

Abridged from a Paper Read before the Section on Laryngology and Otology, at the Forty-fourth Annual Meeting of the American Medical Association at Milwaukee.

BY HERMANN KNAPP, M.D.

NEW YORK, N. Y.

The liquid which distends the accessory cavities of the nose may be serous, mucous and purulent. My remarks will be confined to the ethmoidal and sphenoidal sinuses which form a group themselves, though their affections frequently extend to the neighboring cavities and vice versa.

Only one sample of serous exudation has come to my notice, and that was not from my own practice, but from Dr. Robert Abbe's, who, April 8, 1893, was kind enough to send the patient to my clinic for an opinion, to invite me to the operation and permit me to use the case and his notes for this paper.

Case 1.—*Distension of all the accessory cavities of the nose by a sero-hemorrhagic exudation with cholesterol.* The patient, a girl of 16 years, had some trouble with her sight when in school. Always had headaches. Intellect clear. Three years ago first noticed fullness on her eyes and exophthalmos, with impairment of sight in the left, which is now completely blind. The sight of the right is going fast, but she has fairly good vision in a limited field. Has mouth breathing from partial obstruction of the posterior nares.

I gave, as the probable diagnosis, mucocele or empyema of the ethmoidal cells and sphenoidal sinuses, which by encroaching on the orbit caused the exophthalmos and blindness. I advised an operation from the orbit. This was done by Dr. Abbe, May 15, 1893. He first punctured the tumor from the left orbit with an aspirator needle and obtained a brown watery liquid containing a large quantity of cholesterol. He then made a curved incision along the upper and nasal border of the orbit, opened the tumor and liberated a very large quantity of chocolate brown fluid, saturated with cholesterol. All the sinuses seemed to have coalesced. With a finger introduced from the orbit into the ethmoido-sphenoidal cavity he could feel the point of a catheter pushed through the mouth against the anterior wall of the sphenoidal sinus, which wall he incised with a curved bistoury, and passed a strip of iodoform gauze from the orbit into the naso-pharynx, thus establishing perfect drainage. The operation was followed by moderate fever, the strip of gauze was soon removed and the sinuses cleansed with water which was injected into the orbital wound and escaped into the pharynx. The secretion diminished to almost nothing; the eyes protruded less; the sight of the right eye seemed to improve somewhat and by June 5 the girl walked about and was in good general health.

Case 2.—*Mucocele of the ethmoid cells. Operation from the orbit. Recovery by first intention.* Miss H. Joseph consulted me June 12, 1888, on account of protrusion of her left eye. She had had difficulty in her left nostril for which she had been "burned" repeatedly. I found the nasal passages free and without marked swelling of the walls. The superior-inner wall of the orbit was bulging, hard, displacing the

NOTE.—By way of parenthesis I may mention that the lacrimal sac could be reckoned among these cavities. It empties into the nose, it has an erectile tissue at its outlet into the naso-lacrimal duct. Its diseases excite almost always in the nose, not in the eye, show the same pathological changes and are treated on the same principles as those of the nasal cavities. They are hence to the sphere of the rhinologist, as well as to that of the oculist.

eye. Interior of eye and sight normal. She consented to an operation five months later. I made a curvilinear incision, laid the tumor bare, incised its wall and evacuated water and mucus. The cavity was explored with a sharp spoon, and as there was no caries or granulation tissue present, no scraping was done. Irrigation with corrosive sublimate, 1-5000; insertion of a silver drainage tube. Wound syringed and dressed every day. Almost no secretion. Tube left off on the seventh day. The tumor and exophthalmos disappeared. There was no diplopia and no abnormality of motion of the eye, but the skin above the wound was anesthetic for six months. The patient has been seen several times since. The recovery is complete and permanent.

A similar observation was the following:

Case 3.—Empyema of the ethmoidal cells, operated from the orbit. Speedy and complete recovery. Mrs. R. W., age 55; had suffered from pain in the left eye and surroundings for two months. No marked symptoms on the part of the nose. Exophthalmos down and out. Sight and motion of eye good. In upper-inner corner of the orbit a hard tumor reaching down to the ligamentum canthi internum. Operation Nov. 3, 1892. Curved incision laying the tumor bare. On opening of its wall escape of much pus. The sharp spoon discovered a cavity three centimeters deep, with bare and rough walls which were scraped. On probing no communication with frontal sinus, which had been suspected, was ascertained. Syringing with bichlorid of mercury, 1-5000; insertion of a drainage tube. On fourth day some swelling and painfulness in region of wound and behind eye, followed by evacuation of a great deal of pus. Recovery since then undisturbed. Tube removed on twenty-first day. Exophthalmos and orbital swelling disappeared. Eye normal; no diplopia. Was last seen seven months after operation; well in every respect, except some insensibility of left frontal region.

Affections of the ethmoidal sinuses are mostly complicated with like affections of the ethmoidal cells, as the two following examples will illustrate:

Case 4.—Empyema of ethmoidal and sphenoidal sinuses. Operated from the orbit three years ago. Discharge and fistula ever since, though improving. Exophthalmos cured. P. J., a lad of 13, consulted me Aug. 1, 1888, on account of protrusion of left eye, progressing steadily the last three months. No marked symptoms from the nose. The eye was pushed towards the temple, but freely movable. In the upper half of the inner wall and the upper-inner corner of the orbit a hard roundish tumor about the size of a cherry. Not until April, 1890, did the patient consent to an operation. The tumor and exophthalmos had increased. Sight and visual field normal, but optic nerve raised and the retinal veins enlarged, showing pressure on the optic nerve, presumably from the bulging walls of the sphenoid. Opening of the tumor liberated a great quantity of inoffensive, brownish, puriform liquid. A probe penetrated two and one-half inches into the depth of a cavity, there being stopped by bone tissue, evidently the posterior wall of the sphenoidal sinus. Syringing brought out more of the coffee-brown puriform substance. Two drainage tubes had to be inserted, and up to this day they have been worn and the cavity syringed, which always brought yellowish-white, puriform secretion. Four months after the operation, when there was no diminution of the secretion, I sent the boy to Dr. Lincoln, one of our best rhinologists, who treated his nose, also made an opening into the ethmoidal cells. The boy left off this treatment as it did not seem to have much influence on the discharge from the wound. He has come to me at longer or shorter intervals. I saw him last two weeks ago. The exophthalmos and the tumor have disappeared and there is no discomfort except the necessity of keeping the two tubes in place and syringing the cavity daily. The secretion has of late become very scant and the liquid injected into the orbital wound escapes through the nose, so that there is some hope of an ultimate recovery. The silver tubes have blackened the skin around the fistulous opening. I advised him to replace them by gold ones.

Case 5.—Empyema of the ethmoidal and sphenoidal sinuses. Operation from the orbit. Three years (four months) persistence of external fistula, but with diminishing secretion. Sam. H., age 15, consulted me Dec. 12, 1892. For many years has had offensive discharge from the nose, and, for the last three years, exophthalmos of varying degree on the left side. Eye pushed downward and forward. Sight, visual field, tension, mobility and interior of eye normal. Naso-pharynx

nothing abnormal except some swelling of the middle turbinated body. Hard tumor in inner-upper part of orbit. Opening as in the other cases Jan. 26, 1893. Evacuation of a great quantity of brownish mucus-pus. Interior of cavity rough, scraped with spoon. Five days later, swelling of region of wound with stoppage of discharge. February 3 I reopened and enlarged the wound, and made it deeper. A good deal of mucus-pus and blood escaped. A new cavity, evidently the sphenoidal, had been opened, for the probe penetrated two and one-half inches straight backward. The middle turbinated was swollen. There has been a gradual diminution of the exophthalmos, the tumor and the discharge. Patient feels comfortable and the infected liquid frequently flows into the nose and pharynx.

Case 6.—Empyema of the ethmoidal cells, operated from the orbit. A strong, healthy-looking gentleman, C. K. D., age 59, came to me Feb. 18, 1887. He said that three months previously, after a prolonged exposure and fatigue, his left eye protruded down and out; the lids were swollen; the sight had diminished, first in the center, then on the sides, and in four days was lost completely. The protrusion of the eye began to diminish five weeks later. I found the eye still prominent, but free from pain. No abnormality in orbit discoverable. Optic disc white, arteries small, pulsating on pressure. I was puzzled as to the diagnosis. A year later I was informed that a rhinologist in Washington, D. C., while working in the interior of his left nostril, suddenly evacuated a great quantity of pus. Now I was certain that the patient had had empyema of the sphenoidal sinus which, by an acute exacerbation, had caused sudden or almost sudden blindness by optic neuritis or pressure on the optic nerve in or near the optic foramen, a rare disease of which a few cases only are on record.

In conclusion, I beg to report another example:

Case 7.—Empyema of all the sinuses which terminated fatally by meningitis. The patient, a stout woman of 55 years, came to my service at the Vanderbilt Clinic Jan. 3, 1893, with a greatly swollen upper lid inner-upper corner of orbit and lacrymal region, and down and outward exophthalmos. She had suffered long from naso-pharyngeal catarrh. I plunged the knife deeply into the inner-upper part of the orbit, liberating a great deal of pus. The probe penetrated into the ethmoidal cells and into the left and right frontal sinuses. The cavity felt smooth, was syringed out and drained. The patient, who had fever, was admitted to the hospital (New York Ophthalmic and Aural Institute). The fever continued. At first there was secretion through the wound, then it stopped, the temperature rose to 103 and 104, the pulse to 130 and 140 and the patient died suddenly Jan. 15, 1893.

The autopsy showed purulent meningitis at the base and convexity. The pus communicated through the cribiform plate of the ethmoid and defects in the roof of the orbit with the nose and the ethmoidal and frontal cells. All the sinuses contained this pus and had white even walls with scarcely any mucous lining. One-third of the left maxilar antrum was filled with pus. Necrosis was seen nowhere, but caries in many places, also on the surface of the left turbinated bone.

REMARKS.

Reviewing these cases we find the different kinds of exudation represented.

The first (Dr. Abbe's), illustrates a serous exudation. Such cases were formerly described under the name of hydrops antri, etc. They are apt to fill different sinuses and break down the partition walls in and between them. The liquid they contain is commonly chocolate brown and saturated with cholesterol. It is probably a conversion, a retrogressive metamorphosis, of the seromucous exudation.

The second case was a plain and pure mucocele of the ethmoidal cells. Primary union followed the opening and cleansing of the cavity.

The same happy termination was noticed in the third case, though the contents of the cavity were more purulent than mucus. Such issues may be expected in acute or subacute cases, where there is neither caries nor necrosis and polypi. It is remarkable that the accessory cavities are not more fre-

quently the seat of retained liquids than we are aware of, for their orifices are mostly small and all situated in the upper portions of their walls. The reason of this, it seems to me, is that the exudations disappear, not so much by evacuation as by absorption, as soon as their source, the productive inflammation, has ceased. Collections of pus in the anterior chamber of the eye quickly vanish when the corneal abscess spontaneously or by surgical interference has ceased to exist. It is well known that during acute coryza the neighboring cavities fill with secretion which disappears when the coryza is over.

The fourth and fifth cases were empyemas of the ethmoidal and sphenoidal sinuses in which the operation cured the exophthalmos and the tumor, but the secretion has continued though diminished in quantity. The peculiar puriform secretion showed under the microscope the elements of pus, but bacteriologic examinations failed to find microbes.

The sixth case, exophthalmos with rapid blindness, is very important and certainly rare. In literature several such cases are mentioned, but I know of no other example in my own experience. I imagine that empyema of the sphenoidal sinus may exist for a long time without producing eye symptoms; then suddenly, as we see in chronic dacryo-cystitis, an acute abscess develops which makes the tissue in the apex of the orbital pyramid congested and edematous, participating in the inflammation and causing blindness by optic neuritis or orbital cellulitis, compressing the blood vessels in the orbit, with subsequent retinal hemorrhage and thrombosis as we see in erysipelas, of which I described and depicted a marked case. (Archives of Ophthalmology, Vol. xiii, p. 83). The periodic edema of the sub-conjunctival tissue, accompanied by more or less protrusion of the eyeball—which for want of a better diagnosis is called tenonitis—may also be caused by transient inflammation of the sphenoidal sinuses or posterior ethmoidal cells. Under all circumstances it is well for oculists to keep this possibility in mind. The case under consideration had been diagnosed by nobody, though it was seen by many.

In the seventh case, empyema of all the sinuses, the pus had evidently made its way into the cranial cavity through the cribiform plate and defects in the upper plate of the frontal sinus before the patient presented herself. The operation came too late.

I abstain from making any remarks about the diagnosis and prognosis of the ethmoidal and sphenoidal sinuses, as they are well enough treated in most text-books, and some excellent modern monographs.¹

The treatment of these diseases is very important, as a spontaneous recovery has scarcely ever been observed, whereas surgical treatment is free from danger, benefits almost all cases and produces a permanent cure in many. Care of the nose, if there is disease, should not be omitted. Even when exophthalmos is present, rhinologic measures should be more extensively tried than heretofore. The ethmoidal cells may be opened from the middle meatus, where a pointed instrument at the hiatus semilunaris will readily penetrate into the anterior cells, producing in many cases an opening large enough

for the evacuation of liquids and subsequent irrigation. In others, the perforation has to be made through the upper meatus, mostly after partial removal of the middle turbinate, especially when its medial wall is conspicuously bulging (Zuckerkandl's bulla ethmoidalis). The same holds good when the sphenoidal sinus has to be opened. The openings into the cavities should be large for they readily close again. The interior of the cavities should be carefully probed and caries, necrosis, and polypi treated with a sharp spoon. Operating in the depth of the nose is particularly difficult and tedious on account of the narrowness of the canals and the abundant hemorrhage, in spite of cocaine. The operation from the orbit, by a curvilinear incision, has the great advantage of offering a clear view on the diseased parts. These parts can then be readily exposed, punctured or incised, and according to the exploration, irrigated, scraped, and drained. An opening into the nose may be useful. In the cases which I have seen to end fatally, the meningitis had mostly set in before the operation.

The division of the frontal nerve leaves anesthesia for months, but is of no consequence. Injuring the superior oblique muscle would produce diplopia. It never has occurred in my practice and I do not think that the accident is difficult to avoid. The expansion of the os planum and lower wall of the frontal sinus by the accumulated muco-pus crowds the pulley away from the nose, so that a curvilinear incision along the orbital margin does not interfere with the tendon or pulley of the muscle, as the anatomical specimen which I pass round demonstrates.

In conclusion, gentlemen, let me say that the subject which I have taken the liberty to submit to your consideration, has an old, but widely scattered literature; yet not until very recently has it been systematically studied. The impulse to this study has not been given by general surgery, nor by ophthalmology, but by the highly gratifying development of modern rhinology.

THE CURABILITY OF NASO-MUCOSITIS.¹

BY THOS. F. RUMBOLD, M.D.

SAN FRANCISCO, CAL.

PART I.

The Way the Question is Put.—It is unprofitable to discuss an undefined subject. To ask one to build a house without giving its dimensions is not consistent with business principles, because the amount of work to be performed can not be estimated. To ask one as to the curability of a chronic disease without giving the age, physical condition, etc., of the patient is just as inconsistent.

"Can you cure nasal catarrh?" is the universal form in which this question is put, by both the laity and the medical profession; in the former it is excusable; in the latter it is not. The question is asked precisely as one would ask about the removal of a corn from the foot, showing plainly an ignorance of the fact that the disease is found in various conditions, each of which must influence the ultimate result in any special case.

On one occasion in a medical society, about fifteen

¹ The term, "nasal mucositis," is formed from the word *mucosa*, the mucous membrane, with the usual termination, "itis," that indicates inflammation and the prefix *naso*, which limits the inflammation to the nasal passage.

¹ See, for example, De Kretz, *op. cit.* for Kumbold's chapter on diseases of the nose. W. J. Keen, *op. cit.* p. 146, for a valuable chapter on the subject.

years ago, a well-informed medical man, one who is a literary graduate as well, and a professor in a popular medical school, and who lectured every season on diseases in general, including a few lectures on diseases of the air passages, asked me kindly: "Are you sure that you can cure nasal catarrh?"

I replied: "Are you sure you can cure pneumonia?" He asked: "What is the age of the patient? What is the stage of the disease?" I replied: "What is the age of the patient afflicted with nasal disease? What is the grade of the inflammation?" His answers indicated that he did not know that nasal inflammation assumed various grades, or that these grades, determined by the age of the patient, etc., cut any figure in the length of time required for treatment, or affected the curability of the disease.

As questions of a similar character are constantly being asked, I propose to give full answers to all such. These answers will include the question of curability of every variety of the disease. Every one old enough to ask these questions, should exercise judgment enough to know that an infant suffering from an affection of its nasal mucous membrane must have a different degree of inflammation from that of a person 20 years old, and that the nasal inflammation in this latter person must differ greatly from that of a person in old age.

It is seen that to answer the question as to the curability of this disease, the various conditions, such as age, habits, customs, etc., which form the grades of the disease, must be given, so as to know—as in the case of the construction of the house—the amount of work and reparation the physician and *vis medicatrix nature*, respectively, has to perform.

The Mechanism of Naso-Mucositis.—I contend that naso-mucositis is the result of irritation of the sensory nerves alone by some means (this excludes heredity), and that this irritation is principally occasioned by exposures to cold and by excesses (tobacco and stimulants),¹ affecting the integumentary and mucous surfaces. The connecting links between these surfaces, and the blood vessels, are the sensory nerves on the one hand and the sympathetic nerves on the other.

The sensory nerves of the integument, or of the mucous membrane, or both, first receive the irritation; they transmit it to the cervical sympathetic ganglia; second, this produces a paresis of the sympathetic nerves that leave these ganglia to supply the blood vessels of the mucous membrane of the nasal passages, etc., resulting, third, in more or less enlargement of all these vessels. This enlargement is the inflammation—is the naso-mucositis.

I have said that the parietic effect manifests itself on the blood vessels in the mucous membrane of the nasal passages; this is true, but the blood vessels of other portions of the head also are affected at the same time—maybe not to the same extent—such as the eye and the brain.

It is also evident, that as the effects of colds are transferred through the sensory and sympathetic nerves from the skin to the capillaries of the mucous membrane of the air passages, that if this membrane

is maintained in an inflamed condition for a number of years, it will, reflexly, affect the skin from the nerves of the air passages, as we see in the dry, scurfy skin of the consumptive, and the enlargement of their finger-nails, known as club-nails.

Phases of Naso-Mucositis.—An outline of the various phases of this disease, from infancy to old age, is here given, sufficient to afford an opportunity for observing its gradual increase, forming various grades, and for observing the extension of the disease from the nasal passages—the locality in which it *uniformly* commences—into the Eustachian tubes and middle ears, the throat, bronchial tubes and lungs, the ethmoidal, sphenoidal and frontal cavities, ultimately reaching the brain through these cells; frequently affecting the eyes, stomach and heart. This will do much toward defining the disease, which, as I stated at the commencement, is essential to the proper discussion of its curability, and will also afford an opportunity of presenting important facts that are paramount in indicating the proper course and length of treatment for the various grades.

Infancy.—Attacks of naso-mucositis are so very common during some portion of infantile life that one would not be far wrong in saying that all infants suffer from it in a mild or severe form.

In the earlier stage, the mucous membrane of the nasal passages *alone* is affected. There is no evidence of systemic perturbation until the nasal inflammation has progressed from six to fifteen hours, a sufficient length of time for the disease to assume a severity that will affect the body generally. Soon after the cold is taken, the mucous membrane pours out a large quantity of mucus. In a few hours the membrane becomes so much swollen that the passages are completely occluded. It is at this time of infantile life that middle ear troubles frequently occur. When the nasal passages are completely filled with swollen mucous membrane, the excessive secretion, which is fluid, is held, as it were, to the mouths of the Eustachian tubes, so that it is drawn into these canals and into the middle ear by the rarefaction of the air in the tympanum, where its irritating property produces inflammation of the middle ear, and afterward rupture of the membrana tympani.

In proportion to the number of infants affected with nasal inflammation, the number whose Eustachian tubes and middle ears are affected is comparatively small. A very unfortunate circumstance connected with ear trouble in infancy is, that many times neither the mother, nurse, nor the family physician has observed any symptoms of ear trouble until perforation of the membrana tympani had taken place. It requires just such criminal oversight as this to prepare patients for the deaf and dumb asylum.

The anterior portion of the inferior turbinate is all that is seen. In all infants that I have examined, I have not seen the least evidence of any deflection of the septum nasi, and rarely is there any evidence of enlarged tonsils.

Rapid Recovery of Infants.—If proper care is taken, all evidences of inflammation will soon disappear. The rapidity with which many infants recover from severe colds and the many severe sequelæ following these colds is such that not infrequently the complaint will pass out of the mind of the parents in a few years, or until some future recurrence of the illness brings the previous diseased condition to mind.

¹ I knew that he doubted its curability, for he had informed me a few days previously that at that time he was unsuccessfully endeavoring to treat members of his own family who were sufferers from this complaint.

² After the naso-mucositis has affected the stomach, an attack of indigestion will so debilitate the system, that a cold will result from an exposure, which, if the stomach were in a more healthy condition, would not have injuriously affected the patient.

To repeat, all these subjective symptoms are proofs that the infant is suffering severely in consequence of attacks of cold in its *nasal passages alone*, the result of insufficient protection of the body, especially the head. Very frequently the child's system is weakened either by over-feeding, or excessive covering of the middle portion of its body. This debility—which is called the pre-catarrah stage by some—prepares the system, so that it is liable to take cold on less exposure than that which would affect a healthy child.

Childhood.—If an infant, subject to exposures, as are all infants, takes slight colds frequently, and survives and attains the age of childhood, its nasal passages, Eustachian tubes, throat and maybe its lungs will be so weakened that it will easily have attacks of nasal inflammation. It will be liable to suffer from tonsillitis, earache and consequent deafness, weak eyes and headache as soon as it commences to go to school. If the nasal inflammation has been severe and prolonged, it will prevent the proper growth of the child. Inspection of the child's nasal passages with a good light, will give abundant evidence of much more severe and longer continued disease than that of the infant. Frequently the inferior turbinate is not very large, not proportionately as large as it was in infancy, but the middle turbinate is about one-fourth larger than the inferior turbinate. If the inflammation has extended into the antrum of Highmore, as it is usually seen in cases in which the inferior turbinate is not enlarged, then crusts will be observed to form upon the upper surface of this turbinate. Cases of this kind are usually placed in the category of "atrophic catarrh," but this is a serious mistake as will be demonstrated further on. In these patients the tonsils are frequently observed to be enlarged, or rather there are enlargements on the tonsils.¹

The curability of the two grades mentioned above will depend as much, if not more, upon the observance of the rules of hygiene as upon any local applications that can be made.

Youth of both sexes are very apt to contract what seems to be a primary attack of naso-mucositis, also due to ignorance on the part of their parents and to their own carelessness. If the attack was a primary one, almost no treatment would be required, for a healthy mucous membrane would throw off the disease in a few days, but, as in the case of those in childhood, so with the youth, they have for many years been taking slight colds; these have passed out of mind, but they have weakened the mucous membrane, so that they take cold easily and oftentimes severely. The severe cold is the one that causes them to visit the physician.

The young woman of 17 years of age is usually insufficiently and imperfectly clad, resulting in colds being frequently taken. This is especially the case during the winter season, upon the attendance of operas, theaters, lectures, etc. This is the age in which young women are very liable to functional interruptions of a very serious nature.

The brother of this young woman, who may be two years younger than she is, demands and gets twice the weight of clothing that she wears, of a better character and more properly distributed. He

would be sick in two weeks were he compelled to wear her unprotecting, irrational garments. One reason that he is stronger than his sister is, because he is dressed so warmly that his system is not debilitated by the effects of colds. His food goes to the formation of muscle instead of the production of heat as in her case. Also, he does not suffer as the girl does from garments that unnaturally constrict the body.

Why is such a strong young man a sufferer from nasal inflammation? Principally because he commits excesses in the use of tobacco, alcoholic stimulants, and in keeping late hours, etc. All forms of dissipation are peculiarly conducive to naso-mucositis and to aggravation of the dangers of ordinary exposure.

Partial Atrophy of the Mucous Membrane.—The mucous membrane of the nasal passages of patients of this age will bear evidence of still longer continued and more severe inflammation than that of the younger grades. By this time the inflammation of the inferior and middle turbinate processes has been so severe as to produce partial atrophy of the mucous membrane covering them, thus providing more space in the nasal passages than in the case of the infants, for the secretion formed there. This is the reason why we have very few cases of acute inflammation of the middle ear in this grade; the secretion has an opportunity to flow away from the Eustachian tubes, which is not the case when the nasal passages are filled with swollen mucous membrane, as in infancy, as already mentioned.

Tenacious Secretion.—Instead of the secretion being fluid, as we see in the younger grades, in this grade, and in all succeeding grades, the secretion covering the inflamed membrane is tough and exceedingly tenacious. This secretion adheres to the inflamed surface with such tenacity that it can hardly be removed with a brush and will resist the effect of warm water for a long time. In the older grades this stream is observed flowing down the back portion of the pharyngo-nasal cavity, frequently causing excessive gagging spells in the morning. It is in this grade, in youth of both sexes, that we first see curvature of the septum nasi.

Inspissated Secretion.—If crusts are formed, it is due to the flow of secretion not from but upon the turbinate processes, as before stated. In this place of lodgment it is inspissated by the heat of the nasal cavity.

Atrophic Mucous Membrane.—It seems self-evident that an atrophic mucous membrane can not form secretion as rapidly as a mucous membrane that is not atrophic; that is, one that is simply swollen. In an atrophic condition the blood vessels and glands are atrophied. How is it, then, that these debilitated glands pour out a greater flow of secretion than will mucous membrane whose glands are not debilitated? The mucous membrane that is simply swollen will not allow a crust to be formed on its surface, for the reason that the irritation occasioned by this thick, partially decomposed flow, that forms the crust, would cause the membrane to pour out sufficient fluid to wash off the thick secretion before the crust is formed. Again, while a swollen membrane has sufficient heat to cause inspissation, its secretion, being of a fluid nature, would wash the thick secretion off its surface. The dryness of an atrophic membrane allows the thick secretion to remain on

¹ It is my opinion that these enlargements, which have been called hypertrophied tonsils, are growths upon the tonsils and not hypertrophic glandular substances.

its surface and the heat of the cavity inspissates it. The method of proving positively that these surfaces do not form the crusts is the following: a small quantity of cotton is laid gently upon the seat of the crust and allowed to remain there twenty-four hours. It will be seen that the crust is formed on top of the cotton, demonstrating plainly that the secretion that formed the crusts flowed upon the turbinated processes. The atrophy of this process, therefore, has nothing to do with the formation of the crusts, except that of giving it a dry, non-secreting place for lodgment.

Overgrowth.—Long-continued inflammation in the septum nasi is the cause of the superabundant growth which we term, deviation of the septum. If the inflammation had not maintained a larger quantity of blood there than normal, this larger quantity of blood would not have occasioned this overgrowth or curvature. This is true also of enlarged turbinate processes, showing plainly that these overgrowths are due to long continued naso-mucositis.

Middle-Aged and Elderly Persons very commonly suffer from naso-mucositis and in its most severe form. When the disease has been contracted in infancy, or a little later, it has been aggravated continually by all the causes above mentioned throughout a long period, during which time it has made steady progress, while at the same time, the constitutional power of resistance and reparation has diminished in inverse ratio.

The mucous membrane of these two grades is found in various conditions, but it is nearly always in an atrophied condition, yet not one in a hundred of them will have crusts formed upon the turbinate processes.

Common Mind Troubles.—In patients of these grades, the extension of the inflammation from the nasal passages to the brain, through the ethmoidal, sphenoidal and frontal sinuses, resulting in common mind troubles, is one of the most common and one of the most troublesome symptoms that the physician is called upon to relieve.

GRADES.

From the foregoing it appears that the naso-mucositis, as seen in the child, requires the inflammation of the severity that occurred in infancy, with the supervention of additional colds to form it; and that the inflammation, as seen in the nasal passages of youths, requires the severity and continuance of the disease as seen in infancy and childhood, plus additional colds to form it also. This appears to be true of all grades of this complaint; and whether its curability is rapid or slow will depend upon the grade. Of course there are a few exceptions to this formation of the grades as will be mentioned hereafter.

The age, the susceptibility of the patient, the medicaments employed, and the means of employing them, all of which have a controlling influence, unite in forming five grades of naso-mucositis, embracing a period from infancy to old age. Of these factors the most important is age. Notations carefully made in several thousand cases, occurring in private practice, during seventeen years, from 1875 to 1891, have plainly demonstrated:

1. That the *causes* of the disease at one age vary in their effects upon the mucous membrane from those of another age.

2. That the *diseased condition* of the various parts involved varies at one age from that of another.

3. That variations exist in the *symptoms* of patients of different ages.

4. That the length of *time* required for *treatment* varies according to age.

5. That the *curability* and *ameliorability* of the disease presents the same variations as regards age.

It is thus seen that the causes, the diseased condition, the symptoms, the number of treatments, and the curability, all vary according to age.

Age not always the Guide.—It is sometimes seen that young patients must be classed in grades more advanced than would be indicated by their age. For instance, I have a young patient not over ten years of age, who must be classed in the fourth grade, because of the severity of the inflammation and the abnormal growths in his nasal and pharyngo-nasal cavities. This inflammation has disabled his eyesight, caused imperfect speech, consequently affected his brain, and has prevented his growth. Again, I have had patients of from thirty to forty years of age, with inflammation not more severe than those about twenty years old. Such instances, while not very rare, are not sufficient in number to disturb the gradation.

The *Five Grades of Naso-Mucositis* are as follows: *first grade*, from infancy to the third year of age; *second grade*, from the third to the tenth year; *third grade*, from the tenth to the twentieth year; *fourth grade*, from the twentieth to the fortieth year; *fifth grade*, from the fortieth year upward.

I do not mean that there are five different kinds of naso-mucositis, but that there are five grades of the same diseased condition. The lines of demarcation between the grades are not of a marked character. They blend into one another much as do the colors of the solar spectrum. If we should divide human life into infancy, childhood, boyhood, mature and old age, we would not mean that there were five different kinds of human beings, but five different epochs or ages. So it is with the different ages or grades of naso-mucositis inflammation. A course of treatment that will cure an infant will not be proper for a patient in childhood, nor will the course that cures a patient in childhood be successful for one of an older grade, and so on through all the grades. It will be seen, as we investigate the subject, that the liability to "take a cold," and its curability, is constantly in a certain relationship to the degree in which the mucous membrane is inflamed. It might seem from the foregoing that all patients were first affected at the same age, namely, infancy. While a very large proportion, indeed, a very great majority of patients are so affected, yet such is not all of my meaning. What is meant, is that the age indicates the strength and the rapidity of the reparative powers. The younger the patient the stronger and more rapid the repairing processes.

The Conditions that Control the Number of Treatments and Their Period.—The length of time required for treatment of naso-mucositis must be varied according to age, temperament, habits, severity of the disease, etc., of the patient, that is, according to its "grade." If the ears or eyes are involved, or the turbinate processes are enlarged, or the septum nasi is deviated to the extent of partially occluding one or both nasal passages, or there exists an ozena, or vocal disability, as any imperfection of pronounci-

ation of words—which is really a brain trouble—or if the saliva flows from the lips, or the mouth is habitually open, or the memory has lost its retentiveness, or the mind can not be applied studiously without producing disagreeable sensations in the head, etc., the local applications and constitutional treatment will have to be lengthened. If the voice has been weakened, or has been uncertain in singing, or is wearied upon use, improvement in these respects upon treatment should soon be observed. The same should be noticed as to the memory and the ability to study. If the breath has been affected, as in *ozena*, a very guarded promise of recovery must be given, as this is a very hard phase of the disease to control. I have had cases that I could not cure, even after over ten years of fall and spring treatments; once in a while a case seems to be beyond management, except while under more or less continuous treatment.

(To Be Continued.)

THE TREATMENT OF DIPHTHERIA.

Read in the Section on Diseases of Children at the Forty-fourth Annual Meeting of the American Medical Association.

BY F. E. WAXHAM, M.D.

DENVER, COLO.

EMERITUS PROFESSOR OF LARYNGOLOGY AND RHINOLOGY, COLLEGE OF PHYSICIANS AND SURGEONS OF CHICAGO.

It is to be hoped that in the not far distant future the inoculation treatment of diphtheria will supersede or largely displace all other treatments. The researches in the field of bacteriology; the discovery of the Klebs-Löffler bacillus and the various experiments with ptomaines and anti-toxines are most assuring. Yet notwithstanding the fact that Bering and Kitasato have clearly demonstrated that cultures, which will invariably kill susceptible animals in very small amounts, have their toxic properties entirely destroyed by the addition of the blood of an immune animal; and while the experiments upon animals have been such as to give us confidence in the future treatment of the disease by inoculation, yet for the present we must rely upon the well-tried methods of to-day.

While mice inoculated with a virulent filtrate, neutralized by the addition of immune blood have remained immune to diphtheria for forty or fifty days, yet this method has not been employed in the human subject. There are still great difficulties to be overcome and much experimentation still to be done before this treatment can be applied to man. We ascribe all honor to the investigators who have already accomplished so much and look to them with interest and hope for the future.

I shall not occupy your time in discussing the preventive treatment, important as it is, for it would only be to reiterate principles that are perfectly familiar to all.

In considering the treatment of this disease we may for brevity, confine our remarks to four headings: 1, nourishment; 2, stimulation; 3, internal medication, and 4, local antiseptics.

In the treatment of this disease, nourishment is quite as important as medication, and the life of the patient often depends, not only upon alcohol, oxygen and the local use of antiseptics, but upon proper and abundant nourishment as well. On account of the

energetic employment of various remedies, the importance of feeding is often overlooked. We sometimes neglect to inquire explicitly in regard to the amount that is taken, and we frequently find that very little is given when we had supposed that the child had been receiving a sufficient amount. On account of the loss of appetite and the pain of swallowing, a patient often refuses all nourishment; and there is sometimes an insane repugnance for all food, which can not be overcome by ordinary means. In these cases we should at once resort to forced feeding. We should endeavor at frequent intervals to give some nourishment by the mouth, while peptonized food should be given by enema. If a patient absolutely refuses all nourishment by the mouth I would emphasize the importance of introducing a small gum elastic catheter into the stomach by way of the nasal cavities.

After the introduction, a safety pin should be passed through the end of the catheter to prevent its slipping beyond reach. It may be allowed to remain as it gives rise to but little irritation, or it may be removed and re-introduced at each feeding. It, however, should be removed two or three times daily and cleansed and the nasal cavities flushed with a warm alkaline antiseptic solution. Milk and stimulants in full quantities can be introduced through the catheter by means of a syringe, and I am convinced that many lives may be saved in this manner that would otherwise perish.

There are those who oppose the idea of alcoholic stimulation in the treatment of this disease, but I believe it is the judgment of the profession generally that it is a very important remedy. While mild cases do not require its use, yet in severe or malignant cases it is imperatively demanded. It is a well-known fact that alcohol is one of the most potent destroyers of microorganisms in culture fluids. Its benefit in diphtheria is undoubtedly due to its antidotal action upon the ptomaines in the blood. In no other way can we explain the fact that alcoholism is not produced, even when it is given in large quantities. When required, it should be given freely; at least one or two teaspoonfuls of whisky or brandy or its equivalent of alcohol, every hour or half hour, according to the urgency of the case. In severe or malignant cases, other stimulants must also be given, as strychnia, musk and ammonia.

In regard to internal medication, there is one remedy that stands out preëminently above all others. While so-called specifics have come and gone, this one, the tincture of the chlorid of iron, has remained as one of our sheet anchors in the treatment of diphtheria. No one claims it to be a specific, yet it is a fact that red blood corpuscles increase amazingly under full doses of this agent, hence its usefulness as an internal remedy, while its local effect as an astringent and antiseptic increases its efficacy. It should be given in frequent and full doses; ten, fifteen or twenty drops to young children, all that the stomach will tolerate, and it should be repeated every hour or half hour. Should it disturb the stomach, carbolic acid should be combined with it.

There are other remedies, such as bichlorid of mercury, turpentine and chlorate of potash, that have been much used; but in very severe cases of pharyngeal diphtheria I believe they are too irritating to the kidneys and should be employed with caution. In laryngeal diphtheria, where the kidneys are not fre-

quently involved, however, the bichlorid of mercury is the most useful remedy at our command.

The local antiseptic treatment of diphtheria is of the utmost importance. It matters little what antiseptics are employed, providing they are thoroughly applied to the throat and nasal cavities. Carbolic acid, bichlorid of mercury, pyoktannin, chlorin water and peroxid of hydrogen are agents that have frequently been employed with more or less success. The results, however, will depend, not so much upon the remedy selected, as upon the method employed. To spray the throat with the most effective antiseptic, leaving the nasal cavities uncared for will only invite failure; while to use an antiseptic solution that does not thoroughly irrigate the whole nasal tract will be inefficient.

The bichlorid of mercury is undoubtedly one of the most powerful germicides at our command, and in the strength of 1-4000 is not irritating. The peroxid of hydrogen diluted to one part to four of water is also efficient, but its use should be followed by a warm alkaline douche. When the spray from a hand atomizer will reach the whole nasal tract it is to be preferred to the douche, as there is no danger of forcing the fluid into the middle ear. This accident which will occasionally result from the too forcible use of the douche is an unfortunate one. One of the most effective methods of treating the nasal cavities is by means of the soft rubber catheter, as first suggested by the President of this Section. This should be introduced along the floor of the nasal cavities until it reaches the post-nasal space when, by means of a small syringe, a warm, alkaline antiseptic solution can be gently introduced and the whole nasal tract thus thoroughly irrigated. The advantages over the atomizer are obvious for when the nasal cavities are obstructed the spray simply rebounds and the deeper parts remain untreated. I would advocate the early use of the douche in this manner in all cases of diphtheria where there is the slightest tendency to invasion of the nasal cavities.

It seems proven beyond doubt that the disease is primarily a local one, and that the constitutional symptoms are the result of ptomaine poisoning; this poison being produced by the bacilli which are found in countless numbers in the diphtheritic exudate. How necessary, then, that the local treatment should be most thorough and efficient. To recapitulate: the indications in the treatment of diphtheria are to destroy, as far as possible, the bacilli by the thorough and early use of our most powerful germicides; to support the system and prevent the disorganization of the blood by abundant nourishment, free stimulation and full and frequent doses of iron.

PREVENTION OF DIPHTHERIA.

Read in the Section on Diseases of Children, at the Forty-fourth Annual Meeting of the American Medical Association.

BY J. LEVINS SMITH, M.D.

NEW YORK, N. Y.

The physician, when summoned to a case of diphtheria however mild, should never neglect the manifest and very important duty of preventing, so far as possible, its propagation to others. Effectual measures to this end are within his power. Dr. H. B. Baker of Michigan, has published statistics, showing that in 102 outbreaks of diphtheria, the average number of cases, where disinfection and isolation, one or

both were neglected was 16, and the average deaths 3.26, while in 116 outbreaks in which isolation and disinfection were enforced, the average number of cases in each outbreak was 2.36, and the average deaths 0.66. Therefore prophylactic measures prevented 13 cases, and 2.57 deaths in the average for each outbreak, in the total 1,515 cases and 298 deaths. These statistics relate to one year. (*Journal of Universal Medical Science*, 1888.)

The remarkable success achieved by Prof. Grancher in preventing the propagation of diphtheria, so that of 153 patients not having diphtheria, admitted by mistaken diagnosis among diphtheritic patients, not one contracted the disease is noteworthy. The following are the measures so successfully employed by him: a metallic screen surrounds the bed occupied by the patient, and all spoons used by him, forks and napkins, are immediately disinfected by being placed in boiling water, containing sodium carbonate, about one ounce to the pint. The bedding and the clothes used are disinfected by heat and the floor, bedstead and walls are washed with corrosive sublimate solution. Nurses and medical attendants wear blouses that are disinfected by heat each day, and they bathe themselves with a solution of corrosive sublimate or a 5 per cent. solution of carbolic acid. The success obtained by Dr. Grancher, in a public institution, by such prophylactic measures easy of application, justifies the belief that it is possible by their early and continuous application, and the intelligent cooperation of families to limit each outbreak of diphtheria to one or a few cases.

Prophylactic Measures to be Employed in the Sick Room.—Usually, when the physician is summoned to a case, the diagnosis has not been made. If diphtheria be suspected or ascertained, the physician should before entering the sick room, remove his coat and vest, and cover his neck, body and extremities with a blouse as Dr. Grancher recommends, or a sheet fastened around the neck. It is necessary at the first visit, to examine the fauces, in order to make the diagnosis, and at subsequent visits in order to ascertain the progress of the disease. In examining the fauces, most physicians sit in front of the patient, and in depressing the tongue a cough is usually excited, so that particles of mucus or of pseudo-membrane if it be present, are likely to be ejected upon the face, neck or chest of the physician. These infected particles, however small, may communicate diphtheria to others. Not long since a New York physician, who examined a case with me, seeing the precautionary measures which I employed, stated that they recalled to mind a painful personal experience. A patient, whose fauces he was examining, coughed in his face, and he was conscious at the time, that something lodged in his beard, but his attention being directed to other matters he forgot to bathe his face and beard with a disinfectant, and returned home. His child of three years came to him, and after the usual incubative period, sickened with a fatal form of diphtheria. It is not difficult to examine the fauces of a child standing by his side or behind him, so as to avoid to a great extent the danger to which I have alluded. It has also been proposed to examine the fauces through a pane of glass, set in a convenient frame, which would allow a good view, and intercept any ejected particles of mucus or pseudo-membrane.

I need not repeat the judicious advice of many

writers on diphtheria, that all articles not needed for use by the patient should be removed from the sick room, such as the carpet, curtains, pictures and decorations, and no one not absolutely required should be admitted into the room. The bathing of other children of the household with an antiseptic wash, disinfection of their throats and nostrils, the change of their apparel and their removal to a distant part of the house, or better to another house, are also properly recommended as precautionary measures. When the physician has completed his examination and is about leaving the family, he should bathe his head, face, beard and hands in an antiseptic lotion, and during the subsequent hour or two he should avoid close proximity to other children if it be practicable.

The suppression of diphtheria in rural localities, with intervening lawns or gardens between the domicils, and with only one or two families in each domicile, seems comparatively easy with the intelligent coöperation of families, but in a large city like New York, with its constantly increasing pauper population, and crowded tenement houses, the prevention of diphtheria is very difficult, perhaps impossible. The difficulties in the way of prevention may be seen by the following case, which is by no means exceptional:

On a midwinter day, I was requested to visit a sick child of a poor deserving family. On arriving at the number I found a five-story tenement house, so common in the poor quarters of New York, and learned on inquiry that Mr. G., whose child was sick lived on the third floor. Feeling my way along the narrow passages, dark even in the daytime, I was admitted into the sick room, ascertained by subsequent measurement to be 12x14 feet. The occupants of the house were Mrs. G., pale and careworn, and in her arms an infant of about two years, whose guttural respiration was audible as soon as the door was opened. Its nostrils and cheeks were sore from the abundant acrid discharge and a large indurated swelling on each side of the neck extended from the ear downward. A moment's glance without nearer approach, was sufficient for the diagnosis of malignant diphtheria, with a fatal termination not far distant. The child had been sick four days, and without a physician on account of the destitute circumstances of the family. Through a half-open door, leading into a bedroom too cool to be safely occupied, I saw three children silently gazing at their mother. They reminded me of the penned sheep or calves in the East Side slaughter houses, seeing their companions one after another led out to slaughter, and quietly and resignedly awaiting their turn. The mother said that she had two other children who were attending a public school, and were at home, except during school hours. When questioned in regard to the origin of the disease, she stated that she was not aware of any exposure to a case of diphtheria, but offensive odors due to escaping sewer gas were often noticed in her apartments. Since this case of diphtheria was reported, examination of the plumbing throughout the house has been made by the Health Board, and it is found to be of the old style in all parts of the building, and entirely inadequate to exclude the effluvia from the sewer. This escape of the sewer gas is a constant source of peril to the twenty-two families occupying the house. The child that I visited lived two days. This case

related in order that we may perceive how difficult it is to prevent diphtheria in the large cities, with their tenement houses crowded with poor families, who frequently do not send for the physician or know the nature of the disease, until diphtheria has continued several days, and many have been exposed. It will be recollected that two of the children in this family, constantly exposed when at home to malignant diphtheria, were attending without change of clothing, one of the public schools during the continuance of the case.

Since many cases of diphtheria originate from exposure in places of public resort, especially in the schools, the protection of children in such places is a matter of very great importance. The New York Health Board, no doubt, prevents many cases by excluding from the schools all the children coming from a domicile in which an infectious disease is occurring, as soon as it is reported, but more stringent measures are required.

Dr. Augustus Caille recommends the daily examination, by a competent person, of each pupil on his entering the school, and the exclusion of any one who has a sore throat, nasal catarrh, or blennorrhœal ophthalmia. He also recommends that each pupil be questioned whether there be sickness at home. Certainly, thorough and searching measures must be employed against so insidious a disease if its propagation be arrested in a large city with its numerous tenement houses.

Clinical observations have demonstrated the efficiency of the preventive measures related above, but additional measures to procure prompt disinfection of the air of the sick room are required. For this purpose, I have for years prescribed the following disinfectant, and believe that it aids materially in achieving the desired result:

R. Ol. eucalypti,	ââ ñi
Acidi carbolicæ,	3vi.
Terebinthine	3vii.
℞	

One tablespoonful of this mixture is added to one quart of water, and is allowed to simmer constantly near the patient. Since these agents are volatile, they may also be employed without heat in the manner recommended by Dr. Charles Smith of Australia. He saturates with them towels placed on papers upon the bed of the patient or near him. He states that patients who constantly inhale the vapor thus produced, and recover, do not have subsequent paralysis, a remark which corresponds with my observations. The disinfection of the infected apartment, after the termination of the case, by burning sulphur in a moist air, as practiced by Health Boards, and the painting or calkimming of the walls and ceiling before the room is again occupied are still to be recommended, notwithstanding the prophylactic measures previously employed.

OBSERVATIONS ON ISOLATED CASES OF DIPHTHERIA.

Read in the Section on Diseases of Children, at the Forty-fourth Annual Meeting of the American Medical Association.

BY W. A. DIXON, M.D.

DETROIT, MICH.

Diphtheria is a frequent and most destructive disease, a large and familiar outlet of youthful life. Children of tender years are specially susceptible to it, and no condition of life seems to materially influ-

ence the liability to the disease. The rich and the poor, alike, suffer severely from it.

Sanitary conditions, as a matter of fact, seem to have little to do with its prevalence. Though most writers characterize it as a filthy disease, a view of its history shows that it pays little regard to filthy or cleanly surroundings.

Dr. Thurstfield's observations as sanitary inspector of a district in England extending over twelve hundred square miles, show the number of fatal cases of diphtheria in the rural portion to be nearly three times that in the urban.

Dr. Longstaff at another period, in his report on the "Geographical Distribution of Diphtheria in England and Wales," shows that the disease was twice as fatal a malady in rural districts as it was in towns.

Dr. Buchanan has pointed out "that it has always displayed a marked tendency to prevail in sparsely populated districts rather than in centers of population."

Many authorities could be quoted to show that it prevails to a more alarming extent in country districts than in cities and towns in the Old World. In this country, it prevails as frequently on the hill-top, in the clean and salubrious farmhouse, as in the valley or in the crowded city tenement houses, reeking with filthy squalor and nauseating vapors.

As far back as 1735 and further, we have recitals of the disease appearing in inland towns of New England, and spreading thence gradually to the thoroughfares, and by the lines of travel till it reached the larger towns and cities. This is the history of its outbreak and spreading, through all the past years to the present. It often breaks out in an obscure locality, in an elevated situation, in a remarkably healthy place, in different families without any previous observable cause. In some families practically isolated from every discernible source of infection, it passes like a plague through all the children. As it spreads, and is conveyed from family to family, the further it gets away from the original outbreak, the milder in type it becomes, until some writers upon the features of the same epidemic differ as to its real nosology. Those who see it early in the outbreak, see a veritable plague, a malignant diphtheritic membranous croup horribly fatal in its ravages.

Off in the towns and cities, which by halts and steps it has reached, having passed every obstruction interposed to arrest it in its course, it comes to the children so modified by its many transmissions, it bears about the same relation to the original as varioloid does to variola, and dies out as an ulceromembranous angina, or some other less fatal throat affection.

Since observations extending over a long period of time, and embracing so many countries besides our own, go to show that country districts suffer more than populous cities; that it attacks the young in the most sequestered situations and without a possible communication with the diphtheritic sick; that these situations are apparently free from all the conditions of milk, sewage, filth or other infection likely to develop the disease, we must look for a source in some other direction.

Many authentic instances of the association of diphtheria in children and domestic animals are recorded, tending to show the relation existing and

its communicability from the lower animals to man. The reports of the local government boards or epidemiological and pathological societies are replete with statistics showing the relation.

Dr. Greenhow cites the coincidence of diphtheria with certain diseases among cattle, as portrayed by Drs. Brocklesby, Hurd and Lynam, early in the seventeenth century.

Dr. Ghiz says: "There was a great resemblance between the epidemic angina, which prevailed at Cremona in the years 1747 and 1748, and a disease affecting the respiratory passages at that time, prevailing among oxen." He quotes many writers of that period who were "persuaded that the epidemic sickness amongst animals, and diphtheria prevailing, was of the same nature."

Severinus, who wrote in the seventeenth century also mentions, that a great mortality among cattle preceded the appearance of malignant sore throat. Dr. Thorne quotes the observations and experiments of Drs. Low and Klein in England, as late as 1888, illustrating the connection between diphtheria in children and in cats.

In our own country, Jacobi says: "Probably the possibility of contracting diphtheria directly from animals, is very much greater than the danger from water or milk." If that be so, many obscure cases, endemic or epidemic, will admit of a readier explanation than at present." He cites many observations of physicians upon diphtheritic infection of children from calves, lambs, parrots, pigeons and fowls. The correctness of their deductions is strengthened by their finding in each case the diphtheria bacillus.

Dr. J. Lewis Smith in the "Cyclopaedia of the Diseases of Children," says: "Observations are accumulating which show that diphtheria, or a disease closely resembling it, occurs among animals, and is sometimes communicated from them to man," and cites instances of epidemics in different localities, introduced by turkeys, pigeons, rabbits and other animals, establishing pretty conclusively the origin of the epidemics mentioned to be from the diseased animals and fowls in the locality.

Since, therefore, distinguished observers have admitted that diphtheria is sometimes contracted from the lower animals, I am encouraged to hold from observations in my own practice, extending over a period of more than twenty-five years, that isolated cases in the country and also in the towns and cities, may be accounted for, in a similar if not identical sickness of animals, fowls and birds prevailing at the same time and in the immediate vicinity.

The profession might profitably give more attention to this subject, because the intimate association existing between children and animals may be the fruitful source of many diseases other than diphtheria. In the rural districts the animals generally receive as much if not more consideration than the children. Children can and do in some measure care for themselves. Nothing is spared in the management and care of animals and fowls.

The association between domestic animals and fowls on the farm and the children is intimate. When the animals are sick they instinctively appeal for help, and endeavor to get as near their protectors as possible. The sick cat will be in the house, on the rug, and in the arms of the children if possible. The caged sick birds claim and receive devoted attention. The sick fowls are brought from their

roosting quarters and cozily put to bed in a corner of the sleeping room, or around the cooking stove in the kitchen. This occurs in good families, in well-to-do families in the country, and oftener than physicians suspect. If there is communicability of diseases from animals to man at all, it is therefore no surprise to find them prevailing to a greater extent in the country districts, where animals and fowls are so numerous, and kept in such close association, than in the cities and towns.

I will give a few instances of isolated cases of diphtheria out of a great number I have observed, to show that it is reasonable to conclude that the children were infected from the birds, fowls, pigeons or cats mentioned in each case. No claim is made to indisputable correctness. In no case was the membranous deposit microscopically examined. The ordinary methods only of a plodding, artless country doctor were resorted to, which were convincing.

In 1865, diphtheria prevailed as an epidemic in the section where I was practicing in Southern Ohio. It was malignant in character and very fatal in its ravages. Preceding and during this period, there was great fatality among the hogs and chickens in all that region. Farmers are aware of the contagiousness of diseases among the stock, and are generally careful to note their presence, knowing well that the infective matter, whatever it may be, lingers long on their farms after the epidemic has passed by. Many of the most prudent have learned to entirely cease raising stock so affected, for a time, in order to get rid of the disease. They do not seem, however, to understand the communicability from animals to man as they should. It is also observable that great fatality prevails among the rabbits, pigeons, cats and even rats at times.

So far back as 1865, I had but slight conviction of diphtheria being contracted from animals, and gave the subject very little attention. As time passed on, however, and anxious parents so often cornered me into answering how their children could contract a contagious disease like diphtheria in their isolated and protected condition, I began to look for a more tangible and reasonable cause than infected air, bringing it long distances to select tender children for victims. Hence these observations and conclusions.

In 1865 I saw many cases in children living in the country, perfectly isolated from diphtheritic sick. They had no opportunity in any way to be infected by other children. In the family of Mr. G., a well-to-do farmer, the children were seized suddenly with violent and malignant symptoms of diphtheria. The chickens on this farm were sick and dying with a disease affecting the throat. To care for the chickens well, as they sickened they were brought to the house and given a corner in the kitchen, where most of them died. The children spent most of their time with the sick chickens. The first child seized died early with laryngeal stenosis. The remaining three recovered, but each had characteristic paralysis following, and were long in recovering.

Another case was a child in the family of Mr. S., whose home was perfectly isolated. The child had no possible chance of infection, living far from any case of diphtheria. This child had a pet cat, which it nursed continually. The cat had been ill some days prior to the child's attack and had a discharge from the nostrils. The eyes were sore, it coughed and sneezed. The glands of the neck were enlarged. It

died about the time the child was taken sick. In this neighborhood, hogs and chickens also were dying at this time, of a disease the farmers called cholera. The child exhibited all the symptoms of malignant diphtheria, with extensive membranous deposit, and enlargement of the cervical glands, and died within seventy-two hours of laryngeal stenosis.

In the family of Mr. F., living on a high hill, in a secluded locality, the children were seized with well-marked symptoms of diphtheria, malignant in type. This instance is notable, because at the time there were no cases of diphtheria in all the country about. The children were really isolated in the strictest sense. The family had canary birds. The birds were sick; some of them died. Paralysis supervened in one or both feet of those which recovered. The fowls on the premises also were sick, many dying of a similar affection. It is reasonable to conclude the children were infected from the birds and fowls.

The following year I met with true diphtheria in the family of Mr. M., living in an out-of-the-way place, thoroughly secluded from contagion, unless from sick and dying fowls.

In 1869, a farmer, Mr. K., had a large number of hogs die of what was called cholera. At his request, I visited his farm and found about thirty hogs well fattened, dead, and many more sick. They were taken with a cough, humid breathing, and had discharge of frothy mucous from the nostrils and mouth. They rested on their bellies, with their feet drawn up under them. Many of them had difficult breathing and crowing inspiration. We opened the thirty dead hogs to obtain some clearer idea as to the character of the disease, and found in each, inflammation of the larynx, granular infiltration, spots of ulceration, and patches of membranous deposit. In many, the trachea was inflamed and quite filled with exudation. In some, inflammatory products in the lungs. Very few showed any lesion of the alimentary canal. This malady among the hogs was followed by an epidemic of true diphtheria in all that region, and by severe sore throat without membranous deposit.

In quite every year from that time forward, I have noted instances of diphtheria in isolated homes in the country, where malignant sickness occurred among the animals. I have frequently examined chickens which died during epidemics, and invariably found destructive inflammation with membranous deposit in the throat, and have observed recovering fowls suffering from paralysis.

Recently my convictions have been so strong in favor of this animal infection theory, that I invariably inquire about and examine into the condition of the animals belonging to the place where children so isolated are taken with diphtheria, and rarely fail in discovering a source in some pet bird, fowl, cat or diseased stock on the premises. I could state many instances noted in the last few years, and out of that number will give a few of the most striking ones of recent date:

In April, 1890, a young son of Mr. S. was taken violently ill with unmistakable diphtheria. There was no case anywhere in the country about, so far as known. On the way to the residence, a healthily situated farm house, in a pasture on an adjoining farm dead and sick hogs could be seen. At the residence it was found that the chickens were affected

with a very fatal disease. The little boy's pet pigeons were sick; some of them were already dead. One or two sick ones had been brought into the house to receive good nursing. The boy was devoted in his care of them. They exhibited every evidence of throat disease, but were not examined critically as should have been done to make conclusions indisputable. The boy passed through the various stages of typical diphtheria and convalescence seemed assured, when paralysis of the muscles of deglutition supervened. It being impossible to nourish him artificially he died of starvation.

The next case occurred in January, 1891, in a boy five years old, the son of Mr. M., who lived on a farm in a healthy location with the best of hygienic surroundings. There were no cases of diphtheria in all the region about. The symptoms and conditions present were beyond all doubt those of malignant diphtheria. The boy died on the seventh day, without any abatement in symptoms from the beginning. To account for the source of infection, investigation revealed that the boy had a pet cat which he nursed and played with much of the time. My associate, Dr. A. W. Francis, assisted in the examination of this cat which was killed for this purpose. We found the cervical glands enlarged and suppurating, the mucous membranes of the throat deeply inflamed with abundant membranous deposit, extending far into the trachea. Also patches of ulcerated membrane covered with mucopus emitting an offensive odor. We satisfied ourselves that the cat had true diphtheria, and that the boy had contracted the disease from the cat by immediate contact.

In October, 1892, Mr. W., living on a high hill in a secluded place, most healthy in all its aspects, early one morning reported his only child, a little girl, aged ten years, to have had croup during the night but was then better. Dr. Francis prescribed for it. In a few hours the father returned reporting the child worse. When seen half an hour later, it was found in extremis with tonsils, uvula and pharynx all covered with diphtheritic membrane, and extending into the larynx producing stenosis. The condition forbade surgical interference and the child died in an hour from complete closure of the larynx.

This child had three pet cats which she nursed, played with and made her constant companions. The cats were sick, had cough and sneezing, a discharge from the nose, and died a few days before the child was taken sick. We were, therefore, deprived of the opportunity of examining them.

In November, 1892, Mr. H., living in a secluded place, on a hill farm with good surroundings, and perfectly isolated, reported his son eight years old had croup during the night. Dr. Francis saw the boy soon and found a case of true diphtheria with membranous deposit and slight difficulty breathing. He determined to open the trachea; and if possible save the boy's life, by an early operation. He therefore returned to the office for instruments and assistance, and hastily returned, to find the patient dead. Investigation as to a source of infection revealed again the presence of sick cats, exhibiting symptoms of sore throat.

There is no reasonable way to account for the infection in all the cases mentioned, except we accept the animal infection theory. It would require extraordinarily strong proof to dissuade me from the convictions expressed in this paper.

SOME OBSERVATIONS ON TREATING CASES OF DIPHTHERIA.

By G. BENSON DENNISE, A.M., M.D.
OF THE UNIVERSITY OF MICHIGAN.

RECEIVED AT THE OFFICE OF THE LIBRARIAN, MICHIGAN STATE BOARD OF HEALTH, JANUARY 10, 1893.

THE LIBRARY OF THE MICHIGAN STATE BOARD OF HEALTH, LANSING, MICHIGAN.

There is, perhaps, no subject at this time exciting more and deeper interest in the profession, certainly there is none more important than the management of cases of diphtheria. In this connection some general remarks seem necessary with reference to the ravages of the disease. The excess of deaths over births, which is depopulating the French nation to-day, is largely due to diphtheria. In England it is not confined to the large cities alone, but the rural districts are feeling its scourge. The same may be said of the United States, where there is a growing dread of the disease and justly so, because of the gradual increase of cases, and deaths as well, which quite an extended correspondence with the different State Boards of Health, also the mortuary registers show, conclusively proving two things: 1, its infectiousness; 2, that the general efforts now put forth to stay its progress are inadequate.

As to its infectiousness in man, this has long since been settled in the affirmative and the question now is, What creature is not subject to the disease? since flying fowl, creeping beast, as domestic animals or pets, are susceptible, and like flies have the credit of conveying the disease. The cat's ability to contract and transmit diphtheria to persons has long been observed. Animal susceptibility to inoculations with diphtheria exudate and cultures of the same, has frequently been utilized; making them the experimenting ground by which important data have been obtained; settling the question as to whether diphtheria is primarily a local, or a constitutional disease, in favor of the former. This has been proven by the elaborate investigations of Wood and Formad, Klebs, Löffler, Abbott, Welch and many others. But for the specific cause of the contagion we are indebted to Löffler for his discovery of the diphtheria bacillus, which bears his name. And no less important are the investigations of Abbott and Welch, who have established the fact that in the Löffler bacillus, we have the etiology of diphtheria, a factor of paramount importance in regard to its rational treatment and prophylaxis, again to be referred to.

With reference to the present effort not being adequate to stop the progress of the disease, we have to say that while this is true generally throughout the States, we are glad for one single exception which stands out conspicuously and alone, and is worthy of our respect and emulation. We have reference to Michigan and its State Board of Health, backed as it is by legislative enactments, not only requiring scientific investigation of disease and tabulating the same, but by an enforced system of isolation and disinfection, which had reduced, in 1889, the average number of cases per outbreak from 11.66, in which isolation and disinfection was neglected, to 1.56 when it was enforced, and deaths were reduced from 2.65 to .22, showing very plainly that the

¹ Thorne-Thorne's Works, England.

² South-Western's Epithelium and Pesticidal Diseases.

Researches and Preventions of Diphtheria, Michigan State Board of Health. Printed 1892.

disease can not only be controlled, but that there is a possibility of stamping it out entirely. Until other States are guided by the State of Michigan, they will continue to write large bills of mortality; which brings us to the vital question of

ISOLATION.

In the management of cases of diphtheria, after what has been said it seems unnecessary at this late date and time to do more than refer to the excellent restrictions and preventions, even to minute details, issued and gratuitously furnished by a number of the State and local Boards of Health. But the great necessity is to have *enforced isolation*. Isolation, if not efficient, is no isolation at all. For instance, to quarantine the house is not isolation, when there is only a board fence or a wall to seal, between the quarantined and coveted liberty. Neither is it isolation, even against the physician's protest, for a mother of a poor family to separate and nurse one of her children sick with diphtheria in a down stairs, badly ventilated room, from the vitiated atmosphere of which she emerges to supply the others with the food which the husband is compelled to be absent to provide; for soon the whole family becomes a prey for the disease. To meet such an emergency one of two things is necessary: a nurse must be provided by the health authorities, or the patient removed to a hospital adapted especially for contagious cases. Hence the great need for the latter, and provision for the former. Therefore, to have efficient isolation we must have the State's legal enactments and popular support, as well as public and private co-operation, all of which will follow in the wake of an enlightened judgment and a just appreciation of the great responsibility which one individual owes to another, and the public at large.

In view of the importance of isolation, as well as the trouble and inconvenience attending the questions arising, What cases shall we isolate, and how shall we discriminate? are immediately forced upon us. Some cases of sore throat having an exudate are contagious and some are not. Under such circumstances it is always safe, particularly during an epidemic, to look upon all such with suspicion and treat the same as diphtheria, at the same time securing some of the exudate for microscopic examination, to determine as early as possible its true character.

The Klebs-Löffler bacillus is the only micro-organism always and persistently present in the exudate which, if found, establishes the diagnosis. To do this satisfactorily will require a microscope with a one-twelfth oil-immersion objective, and in some cases the bacillus may be detected by simply straining from one-half to three-fourths of an hour a film of exudate previously spread on a cover-slip in a 2 per cent. aqueous solution of gentian violet, wash in a 5 per cent. solution of acetic acid, then in distilled water, dry in air and mount, preferably, in Canada balsam. This plan, however, may be confusing just at a time when it is desired to be positive. To establish which, the inoculation of a culture fluid with a portion of the exudate will be necessary, which, after about eighteen hours in the incubator, if successful, will under the microscope reveal the character of the bacillus, which culture, if desired

can be used to ascertain its pathogenic properties by inoculating a rabbit or guinea pig. If the practitioner is fortunate enough to possess a good microscope, culture incubator and other appliances, he may possibly settle the question in doubtful cases. If not he should send a sample of the exudate on clean, white paper, securely bottled, to a competent bacteriologist, who can in twenty-four hours determine its nature. Every Board of Health should have such a salaried appointee to carry out such investigations. It having been determined that the case is one of diphtheria the patient is isolated, if he has not already been, in the upper story of the house which has been previously cleaned and divested of all drapery, upholstery, carpets and everything excepting the barest necessities for the proper care and comfort of the patient, and at the disposal of the attendants, for more than one will be required in severe cases.

They should be furnished with one or more large pails containing a 1-1000 disinfecting solution of corrosive sublimate, into which bed linens and garments of whatever character should be immersed before taken from the room. Being free from the rattle of tin, two marked papiermaché basins, one to contain the disinfecting solution before mentioned, as the best in our judgment, and the other for water convenient for the attendant's ablutions after necessary contact with the patient. Two or more covered chamber buckets, one always near containing a quart or more of a solution of chlorinated lime in strength of half a pound to a gallon of water, for the reception and disinfection of alvine dejections and promptly removed from the room, but allowed to remain in the bucket two or more hours before emptying into the closet. In this connection there should be a liberal supply of towels and soap with a view to the absolute cleanliness of the person and the surroundings. A spitting cup containing an 8 per cent. solution of carbolic acid to receive the secretions and expectorations from the mouth, throat, lungs and nose; or a better plan is to receive such material on soft muslin rags, toilet paper or small squares of cheese cloth, and immediately burned. Hence, the necessity in the room of an open grate, or stove, in which such expectorations can be cremated. Such secretions being the most infectious, because, containing the diphtheria bacillus, should be most carefully guarded and utterly destroyed. In absence of an ordinary stove, a gas or perhaps the objectionable coal oil stove, on which, with a view to prevent dryness of the air in the room and to disinfect the same, a vessel containing the following should constantly be kept simmering, a modification, we believe, originally suggested by Dr. J. Lewis Smith, N. Y.:

R. Oil cinnamon,	30 parts.
Oil eucalypt.	180 "
Oil carbolic.	220 "
Oil terbinth.	420 "

M.: Use one ounce to a quart of water.

An adjoining room should be appropriated to the use of the attendants, to the door of which needed supplies should be brought, and from which disinfected articles be removed for further disinfection with boiling water. The visits to the kitchen by the attendants, where other members of the family are, perhaps children, should not be allowed. To, or in, this room provisions can be brought and prepared as

1. For a full discussion on the causation of Diphtheria, by Wm. H. Welch, M.D., see *Journal of Medicine and Chemical Industry of Maryland*, 1892, p. 109, for a Method.

ordered for the patient, which brings us to the subject of

FOOD.

In order to support the strength of the patient, the proper nourishment is a matter of the most vital importance. Though anorexia is generally persistent, systematic feeding should be instituted early, and of such character as is suitable to the age and condition of the patient. Fluid nourishment being most tolerant to the stomach; as milk, warm or peptonized, cold milk, beef juices expressed from broiled beef, beef peptonoids and other food more concentrated, as eggs, soft boiled, eggs and milk; and when stimulants, which are required early in severe cases, eggs and milk beaten up with brandy, also milk punch, should be judiciously given.

In those cases where there is an unwillingness, or as is frequently the case, an inability to swallow nourishment, enemata of the articles just mentioned should be resorted to early, freely and continuously, until convalescence. This can not be emphasized too forcibly, for by the early and continued support and maintenance of the vital powers, we thereby assist nature to resist and withstand the septic influence of the disease, and thus we often accomplish more than by over-much medication.

LOCAL TREATMENT.

The necessity for seeing diphtheritic cases early, can not be over-estimated and in our judgment should justify the request, on the part of the family physician, for a speedy summons in time of sore throat epidemics especially; for success in a great measure will depend upon the local treatment being employed early, vigorously and with a view to destroying the diphtheria bacillus and preventing the absorption of the poison, now known to be toxalbumen. To accomplish this desirable result in

PHARYNGEAL DIPHThERIA:

First, disinfect the throat; and second, remove the exudate as fast as it forms.

To accomplish this, begin by spraying the throat with a 1-10000 aqueous solution of mercuric chlorid, using one of the many atomizers, or if the child is sufficiently intelligent have it gargle with the same solution, which will make the throat safe to work with, to be repeated every three or four hours. Then by means of brush or cotton swab, patiently and with care dissolve the exudate, by applying the following:

R Papayotin⁶ or trypsin gr. lxx
Hydrarg. chlo. cor. gr. 14
Aqua distil f. 3 iv
M.

Apply every half hour until the membrane is dissolved; and at the same time every half hour alternately, disinfect the throat by using one of our safest antiseptics; the peroxid of hydrogen, though not a germicide⁷, accomplishes the same result by interfering with the development of the bacillus. Spray the throat, using from one-half to 15-volume solution, or full strength, which will aid in dissolving the exudate in its formative stage, but fails to do so later, when imbedded in necrotic tissue, for which reasons these applications should be faithfully applied, not even allowing the patient's sleep to interfere; for very frequently the fate of the case

depends upon the first twenty-four hours of local treatment, which if persistently and efficiently done, we have reason to believe that the septic influence of the bacteria may be prevented, and instead of a lingering case, we will have a rapid recovery of the patient. We, however, can not afford to confine our remedies to one or two, but suit the remedies to the case; hence another very valuable and safe disinfectant and good antiseptic successfully used, where the other might be inapplicable, is a 10 grain solution of the nitrate of silver. The solid stick or even a too strong solution, makes it difficult to distinguish the resulting coagulated albumen from the diphtheritic exudate; besides, we have thought that its frequent application tended or predisposed the inflamed mucous membrane to a necrotic condition finally resulting in hemorrhage.

The forcible removal of the exudate and the application by means of cotton wrapped on a pincet, of the following:

R Camphor 20 parts,
Castor oil 15 parts,
Alcohol 10 parts,
Carbolic acid 5 parts,
Tartaric acid 1 part.
M.

is recommended by Grancher, also Dr. Turner of Glasgow, suggests a similar treatment but uses the application of paraffin. Being painful the treatment though successfully used in adults, is inappropriate with children, and further the danger of absorption from the wounded surface would be increased. The same objection would apply, it seems to us, to Dr. August Seibert's disc of hypodermic points, through which chlorin water is injected to destroy the bacillus, as it is now known that the bacilli are mostly on the surface of the membrane.

Since the use of corrosive sublimate, first by Billotte in 1876, it seems to be growing in favor. Renner of Germany, reports repeated successes, by wiping off the exudate with the following:

Hydrarg. chlo. corrosiv. 1 part.
Acid tartaric. 5 parts,
Aqua 1000 parts.

The remedy is being largely used in England.

In very young children, the repeated insufflation of washed sulphur, an application which can be thoroughly made where we fail with many other applications, by simply using a glass tube. The good resulting may be attributed to the disinfecting properties of sulphurous acid, set free by the oxidation of the sulphur.

As a topical remedy, we have used the perchlorid of iron in combination with glycerin, equal parts. In hemorrhagic cases it does well. With many it is the principal local treatment.

Carbolic, boracic and salicylic acid, have their appropriate use as antiseptic gargles and sprays, but as every intelligent physician has his own way of using means to ends, these with many others, if time permitted, could be named as suggestive of the fact that it is unwise to restrict our remedies, but treat each individual case, not the disease. Keeping in view and preventing if possible, the tendency of the disease to extend to the larynx as well as to the posterior nares. If to the latter we have,

NASAL DIPHThERIA.

The nasal passage may be the primary seat of the

⁶ The best at our command being papoid.

⁷ George M. Sternberg, M.D., on Disinfection, Hare System of Practical Therapeutics.

disease; frequently, however, it is the extension of the pharyngeal affection. This complication is recognized by the forced mouth respiration, the nasal passages being closed by the swollen mucous membrane which is covered with a grayish white lining, discharging a thin acid muco-purulent discharge which later on, becomes greenish yellow tinged with blood.

The glands in the neck soon become involved, with earlier constitutional involvement than in the simple pharyngeal variety. These unpleasant cases are difficult to manage on account of the intricate nasal passage which should be disinfected early by douching and spraying the nasal fossae.

The former can best be done by means of a perforated flexible rubber catheter, attaching the same to any ordinary syringe, and by bending the patient's head forward, the nasal cavities can be thoroughly and effectually douched preferably with the peroxid of hydrogen, every three or four hours.

The nasal passages may be sprayed with the same remedy, also with a weak solution of carbolic acid, or the corrosive chlorid, but some instructions to the inexperienced attendant will be necessary to the careful introduction of the nozzle of the atomizer, keeping it on a level with the floor of the nasal fossae and parallel with the septum, so as to prevent wounding and the resulting hemorrhage. The greatest cleanliness should be observed in these cases, using the 1-1000 chlorid wash, and the cremation of all nasal discharges. But as intimated the exudate may extend to the larynx and the result is the most dangerous phase.

LARYNGEAL DIPHTHERIA.

Though the duality of membranous croup and diphtheria is not absolutely settled, yet the fact of their unity, being so regarded by physicians generally, and acted upon approvingly by boards of health is accomplishing good as a check to its spread. The bacillus may primarily attack the windpipe, but like the nasal form it is frequently the extension of the disease into the larynx. Its commencement may be recognized by a hoarse, croupy cough with aphonia and later a gradually increasing dyspnea. These symptoms sometimes subside in a few days under the internal treatment of bichlorid and spray of the same from a steam atomizer, also lime water and 2 per cent. solution of carbolic acid, or, the steam from lime slaking in any ordinary vessel having a perforated lid, to which a tin tube or pipe can be conveyed into a tent constructed over the child—not forgetting proper ventilation—or to the mouth of the patient. We can not expect, however, as much from our spraying and local applications which are so beneficial in the laryngeal and nasal form of the disease. In this connection and in this form of the disease, we wish to call attention to a remedy, the results of which have been recently so satisfactory as to justify further trial, namely, oxygen. It should be given early because of the better oxidation of the blood. The increased tone and strength, both to the nervous and muscular system resulting from the improved condition of the blood, allays nervous irritation and excitability and produces sleep. All of which tends to assist the vital powers of the system to battle with the disease. Three inhalations in succession of about twenty seconds each, allowing the gas to pass through a jar of antiseptic water should be given three or four times daily, or oftener, when

there is labored breathing or a cyanotic condition. But should the dyspnea increase, preparation will have to be made to intubate or perform tracheotomy, which leads us into the domain of surgery, upon which it is not our purpose to enter, further than to state that either operation gives the patient about equal chance. Dr. Stern makes the per cent. of recoveries of the former 26.2-5 per cent. and the latter 26.1-2 per cent. The same author recommends intubation under three and a half years of age, and after that time the preference is for tracheotomy, excepting adults. Dr. Montgomery, however, who has had a large experience in intubating writes us that he has had 44 per cent. of recoveries. But in our treatment we should not forget

CONSTITUTIONAL REMEDIES.

Just how soon the poison of diphtheria is taken up by the absorbents, and how much or how little is required to contaminate the system, we have no reliable means of determining. That it is absorbed very rapidly we have only to recall the cases in our experience of heart paralysis after a few days of illness, and the amount to produce septic influence may depend largely upon the susceptibility of the person. But Welch and Flexner have shown that 2 cc. of filtered culture fluid contained toxic properties sufficient to kill a guinea pig. So it is well to begin internal remedies early, and we can make no mistake by giving the chlorid of iron and quinin in large doses suitable to the patient three or more times daily, so as to obtain not only the tonic effect of both, but the antiseptic influence of the iron; or alternate or substitute for the iron the following:

R. Hydrar. chlor. cor. gr. jss. (1½)
Syr. aurant. rub.
Aqua ad f3j.
M.

Take from one-half to a teaspoonful every six hours. The object being, as Dr. Jacobi suggests, "to have its specific counteracting effects on the diphtheritic poison in the system."

Chlorate of potash is looked upon with less favor than formerly, because of its unfavorable action upon the kidneys.

The complications or sequelæ of diphtheria in the form of paralysis of the uvula, arms or legs, can best be relieved by general tonics, change of air; we have found a sojourn by the sea of great benefit. Obstinate cases yield to hypodermic injections of strychnia, from 1-20 to 1-60 gr. three times daily. Electricity will also be of service.

Instead of summing up conclusions, allow us to say a word in reference to our future hope—

PROPHYLAXIS.

1. Against personal infection, physicians and attendants should gargle the throat, wash the nasal passages, face and hands before and after visits, in 1-1000 solution of corrosive sublimate, and nothing short of a change of garments is excusable in going from a diphtheritic case to other patients.

2. This paper would be more incomplete than it is, did we not refer to what modern bacteriologists are accomplishing for us, particularly concerning the prevention and cure of the toxic products producing the morbid symptoms which we more or less see in every case of diphtheria.

Dr. E. A. De Schweinitz, Biochemic Laboratory, Washington, D. C., replying to our query, writes:

"Experiments in this country and abroad have demonstrated that a substance (albumose) exists in and can be isolated from the cultures of the diphtheria bacillus which produces, when injected into guinea pigs, immunity in those animals from this disease." Hardly had we begun to ask the question, Why can not this immunity be safely rendered to man? when we learn from Germany that "blood serum" from immunized animals is an anti-toxine which gives immunity to the individual, and that Dr. Aronson of Berlin, claims for his blood serum immunizing strength of 1-10000 for guinea pigs; for children weighing forty-four pounds; 1 ccm. given subcutaneously, which does afford positive protection if injected before infection; being inefficient in the disease's later stages.

But "later investigations, particularly Behring, have proved that this property of blood serum to counteract the bacterial poison may be progressively intensified, so that by repeated inoculation, a complete immunizing strength can be obtained, potent even against super-virulent bacteria cultures." The injection of blood serum from such animals afforded not only protection against virulent infection, but aborted the already present infection and made it harmless, and therefore proved a *specific cure* for the indicated disease." If these facts can be established in this country and elsewhere, surely the "goal of therapeutic effort" is reached and the glory for the second Jenner is in reserve.

DISCUSSION OF DIPHTHERIA.

DR. J. A. LARRABEE, Louisville, Ky.—It is always well to give the patient the benefit of the doubt and treat the case from the first as though it were a true case of diphtheria until all doubt is removed. I do not agree with one of the speakers that filth plays no important rôle in the production of diphtheria. I think we have some points by which we can diagnose a case rather early in its course. The constitutional disturbances of tonsillitis are sometimes very grave, but they are not followed by the blood changes as in diphtheria. Albuminuria is present in almost all cases of diphtheria in the second stage. Glandular enlargements are present in diphtheria. We can not rely upon the appearance of the pseudo-membrane. I thoroughly agree that many cases have been caused by animal infection. In regard to the preventive treatment I prefer the tincture of the chlorid of iron, and it should be given during the whole course of the disease. It is usually not given in large enough amount. I deem it the best protection against the disease. It increases the number of red blood corpuscles, and thus renders it possible for a larger amount of oxygen to be taken into the body. I am of the opinion that if from ten to twenty drop doses of the tincture of chlorid of iron are frequently given to children the appetite will still remain good. I do not think that we have a better diuretic than the chlorid of iron. In regard to the local treatment, it must precede or at least accompany the constitutional treatment. Corrosive sublimate is, I believe, objectionable. If it is used as a gargle or spray we are very apt to have some cases of death from it. I have used the peroxid of hydrogen, and if carefully used it does very well. Too strong solutions are apt to produce a slough. It is almost impossible to spray or irrigate a child's throat, and for this reason I would recommend the insufflation of boracic acid and papoid; nitrate of silver is also entitled to consideration. One case of diphtheria does not secure immunity for the patient, and hence I think the inoculation method doubtful, although I am very hopeful.

KNEELAND DISCUSSION.

DR. C. S. GREENE, Buffalo, N. Y.—I believe in giving the tincture of chlorid of iron in large doses along with quinin and whisky. Of course nourishment should not be overlooked. As a local treatment, the persulphate of iron in a saturated solution can be used. In regard to the prophylaxis I believe in the use of whisky and chlorid of iron. I also think peroxid of hydrogen a good agent.

DR. POSTER, Chicago, Ill.—I am sorry to see that chlorid of mercury trampled down and the tincture of iron for diphtheria used, both internally and externally. There have been many good results from the use of 1 gram. boric acid and the chlorid of potassium. I believe much of the good derived from the use of bichlorid of mercury is due to the chlorid present.

DR. G. A. LEVY, Pennsylvania.—I do not believe that the bichlorid of mercury is usefully given in the best way, and that it is frequently not given in sufficiently large doses. The chlorid of iron, glyceroline acid and the chlorid of potassium, which were in vogue some years ago, are still the principal agents in the treatment of this disease.

DR. BOGHIASSI, Detroit, Mich.—I think we should not be too enthusiastic in the use of iron, and as we are sure there is a sufficient amount of fluid in the stomach to render it sufficiently dilute to prevent its escharotic action, thus preventing vomiting. I think if the tonsils are much inflamed and swollen and encroach upon the air passages, it is well to tent into them. I have never had this operation followed by septic poisoning. I have found some of the tonsils soft and others hard, and in some it was surprising how far the inflammatory action had extended down into the tissues.

DR. COOK, Chicago, Ill.—I would like to know what per cent. of cases of true diphtheria present albuminuria? I have treated many cases with pyoktanin with good results. It has not been my experience to find albuminuria in all true cases of diphtheria. Does the use of bichlorid of mercury increase the albumen in the urine?

DR. INGALLS, Chicago, Ill.—I think our present treatment is about the same as our forefathers used. I am of the opinion that the tincture of the chlorid of iron is a very good agent in the treatment of diphtheria. I think it is well to combine it with glycerin and the syrup of tolu. Before giving this combination a draught of water should be taken and the medicine held in the throat some little time before swallowing; in this way we get some local effects from it. If the heart begins to fail, nuxvomica is the best agent. If laryngitis presents itself, I think the mild chlorid of mercury should be given until the bowels are moved. Nourishment should never be neglected, milk being the best. A child eight years old should have at least three quarts a day.

DR. G. B. DENNIE, Philadelphia, Pa.—I am a strong advocate of the use of bichlorid of mercury.

DR. W. A. DIXON, Ripley, Ohio.—I believe whisky is valuable because it stimulates and carries the patient over the period of depression. Mercury is also valuable. We should use our judgment in the treatment of diphtheria. Do not think we should be tied to any one remedy. The tincture of the chlorid of iron has been very satisfactory to me. So also has whisky and bichlorid of mercury. Give plenty of nourishment.

DR. F. E. WAXHAM, Chicago, Ill.—In regard to the use of aseptic instruments, I wish to say, that cases of diphtheria vary greatly in virulency and for that reason along with many others, aseptic instruments should be used.

Blank Applications for membership in the Association, at the Journal office.

RESECTION OF THE RECTUM FOR MALIGNANT DISEASE AND UNION OF THE DIVIDED GUT WITH MURPHY'S BUTTON.

From the Secretary's Report of a Meeting of the Cambridge Society for Medical Improvement.

BY HENRY O. MARCY, M.D.
BOSTON, MASS.

At a recent meeting of the Cambridge Society for Medical Improvement, Dr. Marcy presented the following case:

W. S., aged 46, merchant. During the early part of the summer Mr. S. first noticed slight pain at stool followed by the discharge of a little bloody mucus. First seen late in July. Upon the anterior wall of the rectum fully two inches above the anus, there was situated a well defined growth of an irregular ovate shape, about an inch and a half in its longer diameter. The diagnosis of the disease appeared all too evident, but its location rendered surgical interference seemingly unwarranted. When again seen in September, the growth had completely surrounded the bowel and much suffering was experienced because of partial obstruction. Blood in considerable quantity was daily lost, and colotomy was at once advised. He entered the hospital September 12th, the operation being performed the same day and was discharged the 26th, much improved, free from pain, but still losing daily a considerable quantity of blood. Notwithstanding the various measures that were tried to control the hemorrhage, it gradually increased to such an extent, that danger to life from this cause alone seemed immediate and imminent.

He was re-admitted to hospital on the 17th of October, and assisted by Dr. A. P. Clarke, a modified Kraske operation was performed for the purpose of removing the diseased portion of the rectum. To this end an incision was made posteriorly, about one inch from the anus and was carried upward in the median line upon the sacrum. The coccyx and about two-fifths of the sacrum were removed, which gave room to dissect the rectum from its attachment, dividing the meso-rectum and entering directly into the peritoneal cavity from below. Sufficient length of the bowel was brought down for easy manipulation. The rectum was now divided two inches above the anus, and the constricting diseased portion was split open upon its posterior border, for the double purpose of ascertaining the limitation of the disease, and to aid thereby in the careful separation of the bowel from its anterior attachments, which at the base of the bladder were everywhere closely adherent. The rectum was then divided above the growth, the diseased portion removed, measuring about four inches. Quite a number of vessels were divided in the dissection, but they were easily secured.

During the summer Dr. Marcy had profited by the experiences and instruction of Dr. J. B. Murphy of Chicago, in the use of his anastomosis button, which had been supplemented by experimental studies upon animals. Dr. H. O. Walker of Detroit, only a few days previous to the operation, had suggested to him that this method might be advantageously used in the restoration of the continuity of the rectum, although it had never been applied for this purpose.

The ends of a large sized button were adjusted in the divided extremities of the bowel and compressed,

Owing to the thickness of the rectal wall, (the muscular coat of the upper portion being greatly hypertrophied) he reinforced the parts with a continuous suture. He sutured the opening in the pelvic floor in order to prevent the prolapse of the small intestines, which had appeared in the wound, as also to cut off the peritoneal cavity from possible subsequent infection. The posterior wall of the bladder was re-attached to the divided tissues, and a large part of the wound was closed by several lines of buried tendon sutures. An iodoform gauze drain was inserted and dressing applied. Convalescence thus far is rapid and uneventful, the temperature scarcely reaching 100 per cent.

Dr. Marcy also exhibited an interesting specimen of cancer of the uterus removed by vaginal hysterectomy. Mrs. W., age 36, had suffered for years from a badly lacerated cervix, and had been operated on for the removal of a growth which had supervened. Patient is extremely emaciated, and the disease had extended widely upon the vaginal margin. The uterus measures quite four inches in depth and is several times larger than normal. After division of the left broad ligament, the uterus was brought down and with it the right tube which was so distended with a dark colored fluid as to resemble a loop of the small intestine.

Considerable sloughing followed, quite beyond the site of the application of the forceps, and a vesical fistula is the result. This may require subsequent operation, otherwise the convalescence is excellent.

November 10th.—The button was removed the twelfth day, and the patient sent home the twentieth day after the operation. A spring pad has been applied to the colotomy opening, and he has had the liberty of the house. At present there is no evidence of the return of the disease. If he remains well it is proposed to close the opening in the side and restore the continuity of the bowel.

SELECTIONS.

On the Treatment of Malaria and Diphtheria by Methylene Blue.—

In thirty cases of malaria with intolerance for quinin, the author has obtained good results by the internal employment of methylene blue. The conditions of the cases are that there were no counter indications against its use, such as nausea, vomiting or polyuria.

It need not be given in very large doses; for example .30 grams two or three times per day. It should be associated with py. myristica to prevent the appearance of hematuria. The dose of .50 grams per day for adults and 25 to .40 grams for children of four to eight years of age, suffices to obtain an action against the attack of malaria. Methylene blue does not prevent new attacks, but renders them less intense, the same as other anti-malarial remedies.

In fourteen cases of diphtheria, the author has obtained notable amelioration, from painting with methylene blue of 10 per cent. solution in water. This substance, he states, is preferred to chromic acid, carbolic acid water, chlorid of zinc or sublimate, because it is not irritating to healthy tissues.

In saturating the false membranes, it probably prevents the secretion of toxic substances, and opposes itself to the propagation of the bacilli.

Lerrera, in *Bollettino Clinico e Terapeutico*, gives twenty-one observations of infantile malaria treated with methylene blue. He concludes that methylene blue merits large employment in infantile malaria.—A. N. Kazem-Bek in *Revue des Sciences Medicales*.—From *Viertel*.

(31)

Journal of the American Medical Association

PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE,
PER ANNUM IN ADVANCE \$7.00
SINGLE COPIES 15 CENTS

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
535 N. WABASH AVE., CHICAGO, ILLINOIS.
F. J. REHRMAN, LONDON AGENT, 11 ABING STREET, STRAND, LONDON.
W. H. LOWDERMILK & CO., WASHINGTON, AGENTS.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or Local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Dunglison, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues and subscription for THE JOURNAL. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above information the weekly JOURNAL of the Association will be forwarded regularly.

All members of the Association should send their Annual Dues to the Treasurer, RICHARD J. DUNGLISON, M. D., Lock Box 1274, Philadelphia, Pa.

SATURDAY, DECEMBER 2, 1893.

THE VIRCHOW JUBILEE.

In our miscellaneous column of the issue of Nov. 18, we noticed the Virchow Jubilee as a matter of current news, transmitted by cable by the slower medium of the mail we have the details of that most interesting event.

Our Berlin special is a little late this week, owing to delays in the mails, but none the less interesting is the narrative, told in true German fashion, of the eventful day which celebrated Virchow's entrance as a master in medicine fifty years ago. The venerable KÖLLIKER for once left off looking through his microscope to attend the feast and do honor to his great associate, who has for many years without question, been acknowledged as the most famous medical man of our times. Virchow is known by his writings to the medical men throughout the civilized world, and here in America are many who have been honored by a friendly grasp of his hand and a pleasant salutation, and we but feebly voice the sentiments of our Association, and of all medical men everywhere, when we join our German confrères in saying: Hoch! Virchow! Long life and happiness to the Father of Nineteenth Century Pathology.

MICROBIOLOGIC POISONS.

Microbiologic chemistry is opening to view a series of agents which are capable of influencing the system with greater intensity than any of our mineral or alkaloidal poisons. They are the *toxins* produced by the vital processes of pathogenic bacteria. As alcohol, a product of the growth of the yeast plant, produces when taken into the system a temporary abnormal condition, intoxication, so these agents, products of bacillary growth, exercise on the system temporarily as powerful an impression as disease itself. But as the disease-producing effects of the *toxins* can be controlled by regulating the

dose, it is not unlikely that among them some may hereafter be found to be of value in antagonizing dangerous poisons or in conferring immunity to certain diseases by exhausting the susceptibility of the individual to the morbid agencies. Indeed, successful experiments in the latter direction have already been recorded.

The tetanus poison is the subject of the latest published investigations in this line. In the fifteenth volume of the *Zentralblatt für Bakteriologie*, No. 1 Professor LEUWIG, BIELEFELD and Dr. GEORGE COHN, give an interesting account of their researches. They cultivated the bacillus in veal broth containing one per cent. of peptone and one-half per cent. of sodium chlorid. The cultures were passed through a filter of hard-burned porcelain, and large quantities of this filtrate were used in the research. The tetanus poison was separated by adding an excess of ammonium sulfate to the filtrate. It rose to the surface and was skimmed off with a platinum spatula. By placing it on unglazed porcelain plates the liquid attached to it was absorbed. This crude poison contained some ammonium sulfate, albumen and peptone. After numerous failures the experimenters succeeded in removing the albumen by careful treatment with basic lead acetate and a minute quantity of ammonia. By exposure for from twenty-four to forty-eight hours in a dialyzer, in running water, it was further purified from peptone and salts. Finally, the purified toxin was dried in vacuo at twenty to thirty degrees C. It consisted of transparent, slightly yellowish, inodorous scales, easily soluble in water. It is said to be not a true albumen as it fails to respond to the usual tests for this substance. The purified poison was fatal to a mouse weighing fifteen grams, in a dose of .00000005 gram. In one-fifth of this quantity it caused tetanic symptoms, from which the animal recovered. If equally poisonous to man, the fatal dose for a man weighing seventy kilograms would be 0.23 milligram, or about one two-hundred-and-eightieth grain. The smallest lethal dose of atropin for a grown person is said to be 130 milligrams, and that of strychnin from thirty to one hundred milligrams. The author says: "From this one can judge what fearful weapons the bacteria possess in their specific poisons." Against chemical and physical agents the dried and purified tetanus poison is not very resistant—even when protected from air, light and moisture it slowly loses its potency. It is soon destroyed by diluted alcohol, but absolute alcohol, chloroform and anhydrous ether do not injure it. In aqueous solution it is destroyed by small quantities of acids or alkalis, and it is even injured by passing carbon dioxide through the solution for three or four hours. On the other hand, oxygen when passed through a solution does not injure its potency, which is destroyed, however, by hydrogen sulfid.

EXACT ELECTRO-THERAPEUTICS A SPECIALTY.

The subdivision of practical medical work in our large cities, and to a certain extent, also, in smaller communities, into departments that engage the special attention of members of the profession is not merely a result of the ever-widening field of medical knowledge, which of itself makes it impossible for any one man to master it fully, but points also to a sadder truth that should not be forgotten, namely, that medical skill in each department is yet so imperfect as to demand the undivided skill of a devotee. This recognition of the advantages of special expertness is but a recent development in modern medicine, though once fully developed in ancient Egypt. Thirty-five years ago there were even no ophthalmologists, the enormous work now performed by these specialists being but imperfectly done by the general surgeons. To-day, the general practitioner or surgeon may at times measure a refraction or determine the presence of a heterophoria, but it is exceedingly seldom that they so far disregard the rights of the patient as to depend on themselves alone in such a matter.

Other specialties are less fully recognized as yet, much dabbling being indulged in otology, laryngology, gynecology and abdominal surgery by good physicians who are not experts in these special lines; but this habit has the excellent excuse in many cases of necessity by reason of the impossibility of obtaining more expert skill on the spot, and the inability of the patient to leave home. It is also warranted by the good results often attending intelligent work of this kind in acute cases. But, aside from abdominal surgery, which has such a host of self-satisfied experts, few amateurs in these several specialties honestly believe that their own efforts cover all possibilities for good to their patients. The need of greater skill in difficult cases is fully admitted by them.

This natural deference to the possibilities attending a special training and daily devotion to a given department of medical effort is, as yet almost entirely wanting in the attitude towards one of the newer specialties, that of electro-therapeutics. No one would for a moment presume to pass judgment against ophthalmology, because his clumsy use of a newly acquired set of instruments failed to enable him to properly extract a cataract, yet this is precisely the attitude of many well-meaning physicians who import from Paris, or elsewhere, a complete set of batteries and electrodes and proceed to attempt some of the most delicate applications of electric energy to internal organs. The object aimed at may be praiseworthy, and even the results may be excellent, as we have often heard attended first attempts in abdominal section, but the method is bad, for it involves the use at once in major work of a powerful instrument

of which the user is necessarily ignorant. A peculiarity of this specialty is that, to the qualifications attending expertness in other specialties, such as a particular pathologic, diagnostic and therapeutic knowledge and manual dexterity, there must be added a full acquaintance with the physics of a great natural force, which separates it at once from specialties in which material substances alone are to be handled. A material substance or procedure may achieve results varying with the expertness of the operator, but the possibilities of increasing its value in good hands are necessarily limited and easily defined. In electro-therapy, material results are attained by the application of a force which is capable of almost infinite extension in degree, together with various modifications in quality, resulting in a variability in effect only possible in a force of nature.

These intricacies and latent possibilities of electricity in medicine and surgery are yet by no means a bar to its intelligent use by any broad-minded practitioner who may be determined to afford his patients all that science can offer at his hands. It is, in fact, his duty to test the effect of all well-recommended remedies in cases that prove refractory to tried methods, but unless himself an expert electro-therapist, he has no right to assume that electro-therapeutics is a failure in a given class of affections, simply because his own imperfect efforts have not succeeded. His ethical duty to his patient and science should impel him to question his own skill first, and to ascertain if better results could not have been attained had he served the apprenticeship to the art, that is essential to the highest development of skill in any department of human effort.

SALE OF PREPARATIONS CONTAINING POISONS.

A new and unusually interesting question has just been raised in England, of almost as much importance here as there, namely, whether a proprietary medicine containing a poison in very small quantity is a poison within the meaning of a statute which makes it unlawful "for any person to sell or keep open shop for retailing poisons . . . unless such person shall be a pharmaceutical chemist or a chemist and druggist," as there termed. The County Court Judge, who first heard the case, which was an action brought to recover the statutory penalties, gave judgment for the defendant, and the Queen's Bench Court Division of the Supreme Court of Judicature, to which appeal was taken, has decided (under date of Oct. 31, 1893) the same way, dismissing the appeal. In a case decided a little before this one, it was held that a compound containing one or more of the scheduled poisons as one of its ingredients was a poison. In that case, however, there was evidence that there was sufficient morphin in the bot-

the sold to kill an adult. In this case, a resident of Manchester, not a qualified chemist, who keeps, as the English say, a shop, called a "drug store," sold a bottle of "licoricine," apparently duly labeled, as required by law. The contents of the bottle were analyzed. Morphin was found in it. The actual quantity was not estimated, but the analyst said there was "more than a trace," and there might have been one-fiftieth of a grain per ounce, or three-fiftieths in the bottle. He was not prepared to say whether taking the whole contents of the bottle would do an adult any harm. The analyst was, by the way, purposely left uninstructed about finding out the quantity, in order to raise the question of whether the mere presence of a poison was enough to secure a conviction. The Queen's Counsel maintained that the object of the law was to prevent unqualified persons from dealing with morphin and similar poisons at all. It would be no answer for the seller, who disposed of morphin by itself in very small quantities to say it could not possibly be injurious. It was therefore no answer that it was mixed with other drugs, as here, unless, indeed, it could be said to have changed its character. But the court, as already stated, looked at the matter otherwise, declaring the offense not proved, because there was so little evidence as to quantity, and denying a further appeal, when it was sought to take the case further.

RIGHT OF PHYSICIANS TO AN APPEAL IN MONTANA.

The act of the Montana Legislature of 1889, after providing for the organization of a Board of Medical Examiners, and prescribing its duties in respect to the examination of applicants desiring to practice medicine and surgery in that State, as to their qualifications to be licensed thereunto, and for the issuance of a certificate of license by said board to persons found duly qualified, further provides that "such board may refuse or revoke a certificate for unprofessional, dishonorable or immoral conduct, or refuse a certificate to any one who may publicly profess to cure or treat disease, injury or deformity, in such a manner as to deceive the public. In all cases of refusal or revocation, the applicant, if he or she feel aggrieved, may appeal to the district court of the county where such applicant may have applied for a certificate." This provision for appeal in such cases appears to have been held unconstitutional by one of the district courts, but the Supreme Court of Montana pronounces it constitutional in a decision rendered Oct. 2, 1893, in the case of *State v. District Court*. The statute, it says, takes no constitutional jurisdiction from any court in the State, but invests the district court with jurisdiction of a class of important cases, to come into it, by way of appeal from the action of the Board of Medical Examiners,

just as other statutes on the same footing provide for other important cases to come into the district court by way of appeal from the primary action of other boards or commissioners. Nor does it consider that a physician's right of appeal, with such a hearing as the Legislature contemplates he shall have in the district court, can be denied, because no special rules of practice to be followed therein were prescribed. No doubt the Legislature contemplated that such proceedings should be conducted in such an orderly manner as that no substantial right would be denied. The court being wise in the law and all its analogies, would, it might be confidently expected, adopt such appropriate procedure in the adjudication as would vouchsafe to the accused and to the prosecution a proper hearing; and thereupon such judgment would be pronounced as the law and justice of the case would warrant on the facts shown.

THE APPLICATION BLANK AND ITS USES.

Blank applications for membership in the AMERICAN MEDICAL ASSOCIATION have been sent to many gentlemen who are now members. It was not practicable to expend the time necessary to sort out from State Society lists the names of those who already belonged to the Association, and so the entire list of several States were furnished with application blanks. It was also intended as a pleasant reminder of the best means of increasing the Association membership. That is, for each member receiving the blank to make an attempt to secure an additional member by application. Our already great Association will grow greater, and greater, exactly as fast as our members become enthusiasts in its support. In what noble general movement can our profession hope to succeed, without organization? What expectation is there of forming any other great medical organization to take the place of the old AMERICAN MEDICAL ASSOCIATION?

Use the blanks then, dear readers, in aiding to build what you may, if you choose, make the greatest medical organization in existence, and one with great power for good to all mankind.

ASSOCIATION NEWS.

The American Medical Association Journal.—Let it be remembered by every State Medical Society in America, and by every district or sectional society, that the American Medical Association is the only officially organized body of the profession. With a loyal, energetic effort on the part of the present membership of this society, aided and abetted by the ASSOCIATION JOURNAL, which, under the present management is improving in every issue, there can be no doubt that within a very short time the membership of the Association can be quadrupled, and it will not be long until it surpasses in numbers, strength and influence the British Medical Association.

With such a support, both moral, scientific, and financial, what have we not a right to expect from the *JOURNAL*? Indeed it will soon be the leading medical journal in the world.—*St. Louis Medical Mirror*.

Change of Date of Meeting—Official Notice.—In order to enable the State Medical Societies to send instructions as to their action in the matter referred to them by the AMERICAN MEDICAL ASSOCIATION at its recent meeting at Milwaukee, and for other reasons, the time of meeting of the ASSOCIATION at San Francisco has been changed from the first Tuesday in May to the first Tuesday in June, 1894.

WILLIAM B. ATKINSON,

Permanent Secretary.

JAMES F. HERRICK,

President-Elect.

SOCIETY NEWS.

Southern Surgical and Gynecological Association.

Abstract of the Proceedings of the Sixth Annual Meeting, held in New Orleans, Louisiana, Nov. 14, 15 and 16, 1893.

FIRST DAY—MORNING SESSION.

The Association convened in the assembly room of the Medical Department of Tulane University, and was called to order by the President, DR. BEDFORD BROWN of Alexandria, Va., at 10 A.M.

Prayer was offered by the Rev. B. M. Palmer of New Orleans.

An Address of Welcome was delivered by DR. ERNEST S. LEWIS on behalf of the local profession, which was responded to by PRESIDENT BROWN.

DR. A. B. MILES of New Orleans, then reported, as Chairman, on behalf of the Committee of Arrangements.

The reading of papers was then proceeded with, and the first paper read was by DR. HOWARD A. KELLY of Baltimore, entitled

DIAGNOSIS OF PELVIC INFLAMMATORY DISEASES.

He called attention to certain common sources of error in making diagnosis of pelvic inflammation. An erroneous conclusion is often reached in these cases both by general practitioners and specialists by relying for the diagnosis upon such symptoms as dysmenorrhea, more or less persistent pain in the pelvis, attacks of pain confining the patient to bed, diagnosed as peritonitis, difficult locomotion, encephaloid (due to morphia habit), tenderness on pressure over the ovarian region, and extreme tenderness at the vault in a vaginal examination. Such a group of symptoms frequently characterizes a false or pseudo-pelvic-peritonitis, in which there is actually no demonstrable lesion of any pelvic organ.

In order to make a diagnosis of true pelvic inflammatory disease the inflamed structures must be regarded as of secondary importance in reaching a diagnosis. Even the patient's observation that she has passed a quantity of pus can not be relied upon, unless the pus is seen by the physician, as patients often mistake mucopurulent discharges from the uterus for the emptying of an abscess. Fever, and especially recurrent attacks of fever, are valuable aids in making the diagnosis, but fever is generally absent, even in abscesses when the pus is encapsulated. The direct examination, the sole test, is made by the vagina, or by the vagina and lower abdominal wall, and the diagnosis of pelvic inflammatory disease is made when a definite hard resisting mass is felt on one or both sides of the cervix.

Through an empty rectum these masses are still more distinctly outlined. When the disease is not quite so evident, a manual examination through the rectum and abdomen should be made, carrying the index finger of the lower hand above the rectal pouch behind the uterus and laterally out on to the broad ligaments. The most minutely accurate examination of the pelvic organs which can possibly be made is called for when ovaries and tubes are enclosed in delicate bands of adhesions which allow considerable mobility to structures not enlarged. This is accomplished by the manual method by vagina, rectum and abdomen simultaneously, under anesthesia.

Dr. Kelly exhibited his corrugated tenaculum devised to facilitate this examination. The point of the tenaculum is caught in the anterior lip of the cervix which is drawn down to the hymen, and the tenaculum is held between the third

and fourth fingers, and the ball of the thumb, while the index finger is introduced into the rectum and, aided by the hand making pressure above giving a plane of resistance, is enabled to examine minutely the posterior surface of the uterus, and all surfaces of the ovaries and the tubes, detecting the slightest adhesions binding these organs down. The examination under anesthesia is a matter of the utmost importance and not sufficiently appreciated. Without anesthesia the most accurate examinations are impossible; it is therefore a *sine qua non* to the diagnostician.

DR. C. KOLLOCK of Cheraw, S. C., followed with a paper entitled,

THE CONSERVATIVE TREATMENT OF PYOSALPINX.

He said in cases of pyosalpinx, much caution and a very careful and rigid examination are called for to determine the cause of the presence of pus, the length of time it has been there, and the condition of the walls of the tube in which it is found. Attention should also be given to the peritoneum and ovaries, but above all, there should be the strictest inspection of the endometrium, a disordered condition of which contributes much to the production and continuance of pus in the tubes.

Within a year or two, changes have been made in the treatment of pyosalpinx, and conservatism now enters largely into its management. Men of high position in the profession are more decidedly agreed that a moral obligation rests upon us to relieve patients without the sacrifice of any organ, or part of one, when this is compatible with safety. Recently Polk, Pryor, Krug, Boldt and Dudley had reported to the New York Obstetrical Society a number of cases of pyosalpinx treated by the conservative method now in vogue. This treatment, when faithfully carried out by curettement and aseptic division, has not only been successful in saving the tube and ovary on the non-affected side, but in several instances the diseased tube was entirely relieved of the presence of pus. That many cases of pyosalpinx have been accurately diagnosed and radically cured without the mutilation of any part of the sexual organs, is well authenticated. Dr. Kollock's experience, while limited compared to that of others, has been sufficient to convince him that the conservative system of practice is bringing us to that period when the mutilation of women, once supposed to be necessary, should cease.

Dr. Kollock then reported a few cases of pyosalpinx which had fallen into his hands, the happy termination of which had placed him under obligations to the pioneers in the conservative treatment. All but one of four cases were relieved entirely without resorting to celiotomy.

DR. GEORGE J. ENGELMANN of St. Louis, emphasized the importance of administering an anesthetic in examining patients with pelvic inflammatory disease, before serious operative procedures are entered upon. It was not alone the anesthetic, however, but the practiced touch.

DR. JOSEPH PRICE of Philadelphia, alluded to "dropsical tubes," as being a group of cases that puzzled the practitioner from a diagnostic point of view, and later surgically. Angry pus cases, while acute in their early history, were simply cases to be dealt with surgically. The attacks of pain were numerous, and fixation and tenderness characteristic symptoms. Everything in the pelvis was board-like, and when the surgeon got into the abdomen from above, it was difficult to distinguish the uterus from the appendages and vice versa. These were trying cases to deal with.

DR. JOHN D. S. DAVIS of Birmingham, Ala., said he was in favor of evacuating pus wherever it was found in the body. There were, however, some cases in which pus could be removed without sacrificing the ovaries or tubes. As to the use of an anesthetic, he considers it absolutely essential in the examination of doubtful cases, but where the diagnosis is plain it is not necessary.

DR. R. B. MAURY of Memphis, said the great difficulty in the class of cases referred to by Dr. Kollock, in which there was pelvic inflammation associated with mucopurulent discharges from the uterine cavity, was to decide whether there is pyosalpinx. We have what is denominated endometritis, associated with it normal discharges and exudation in the pelvis, but Dr. Maury says he is at a loss sometimes with the most careful diagnostic measures, whether under ether or without it, to form in his own mind an accurate picture of what the precise state of things is in the pelvis. The rule he has laid down in the treatment of such cases is, if they are acute, non-puerperal or puerperal, that the woman is entitled to a certain period of rest and other measures non-surgical, before deciding upon a radical operation.

Dr. W. E. B. DAVIS of Birmingham, Ala., believes that in the examination of patients, it is exceedingly difficult in some cases to make an accurate diagnosis without an anesthetic. However, there were women who could stand the examination well without it.

In regard to endometritis, by judicial and careful criticism, he believes many patients can be saved the necessity of an abdominal section. The trouble is that practitioners often denounce one procedure and uphold another without outlining the indications for a certain position. It is very important to cure the endometritis before it spreads to the tubes, etc.

Dr. R. M. CUNNINGHAM of Pratt City, Ala., was inclined to look upon endometritis in the vast majority of cases of disease of the appendages as the *forerunner* of the whole affair, and he believes that the operation which has been systematized and popularized by Dr. Polk is a safe, conservative and reliable procedure. Furthermore, in the hands of the general practitioner it would relieve many of those cases that go to the laparotomist.

Dr. BEDFORD BROWN of Alexandria, Va., said the mobility of the uterus and its fixations were questions of great importance in diagnosing pelvic inflammatory disease.

Dr. L. S. McMURTRY of Louisville, Ky., delivered a

MEMORIAL ADDRESS ON DR. EPHRAIM McDOWELL.

He said it would seem almost a work of supererogation to submit an elaborate biographical sketch of McDowell, after the very complete accounts of his life and labors which have been contributed to medical literature by the late Prof. Samuel D. Gross and the late Dr. John D. Jackson; yet, he presumed, that no one would for a moment question the good taste and wisdom of perpetuating in the volumes of Transactions of the Association, the names and deeds of eminent Southern surgeons who had done so much to lay the foundations in America, and the whole world, for the present splendid system of surgery and gynecology. This galaxy of illustrious names would be incomplete without that of McDowell's, the father of ovariectomy and the pioneer of abdominal surgery, which in modern times has grown to such grand proportions.

In the year 1852, twenty-two years after the death of McDowell, Prof. Gross, in his celebrated report on Kentucky surgery to the Kentucky State Medical Society, presented a sketch of the life of this eminent surgeon, with a detailed account of his original surgical work. This sketch was subsequently incorporated in Gross' American Medical Biography, published in 1861.

After giving a sketch of his life, Dr. McMurry then referred to McDowell's first ovariectomy on Mrs. Crawford, and noted some points with reference to his operative technique. The operation in this case was done without an anesthetic. The incision was made to the left of the median line, about three inches external to the rectus muscle, and was nine inches in length. After opening the peritoneum, he first tied the pedicle with a strong ligature, and then cut open the tumor and removed its contents. He then divided the pedicle, it having been previously tied, and removed the sac. As soon as the incision was made into the abdomen, he states the intestines rushed out upon the table, and were not replaced until the operation was completed, which, he adds, "occupied twenty-five minutes." He then turned the patient upon the left side to allow all fluids to escape. He closed the incision with interrupted sutures and brought out the ligature attached to the pedicle at the lower angle of the wound.

In reporting his cases, he omits mention of the material composing the ligatures, and Dr. McMurry had been informed by a friend of McDowell, now dead, who was a great deal about McDowell's office in his boyhood, that the ligatures used were made of shoemaker's thread and waxed thoroughly before being used. Adhesive strips and bandages completed the dressing, and in the author's language he prescribed, "a strict observation of the antiphlogistic regimen." The special features of the technique are: 1, the incision was made through the muscular layer of the abdominal wall, three inches external to the rectus muscle; 2, the cyst was not evacuated until after the pedicle was tied; 3, an effort was made to cleanse the peritoneum of fluids; 4, drainage was sought, as well as escape of ligatures, by bringing the ligatures out the lower angle of the incision; 5, the operation occupied only twenty-five minutes, expedition being more the result, doubtless, of the want of an anesthetic than otherwise.

In his report of his second case, he used this language: "I laid her side open." In his third case, however, he adopted

the expression, "I saw," and his report, as given, is characterized by plainness and brevity. The case was a case of ovarian cancer, the great tumor being removed. It is a case of adhesions or tapping of the ovaries. It is a case of adhesions that the original case of McDowell had reported, and at the end of which the tumor was taken out.

Thus, Dr. McMurry's address was

Dr. J. D. P. of Philadelphia, read a paper on the subject of

THE INCISION IN THE ABDOMEN IN THE TREATMENT OF PELVIC DISEASES.

He said the question that most vitally concerns surgeons and gynecological work was how can the mortality be reduced? The abdominal incision and vaginal fingers repeatedly determine the issue of life or death.

—We have nothing from which we can ever approximately determine to what extent the length of the incision influences the mortality. The statistics of comparative results would not prove satisfactory for the reason of the entry of so many other complicating elements, adhesions, their character, extent, and locality. That the surgeon exercises a greater influence than is generally recognized or admitted, he entertained little doubt. As to being able to make a rule of mathematical certainty could be laid down. In his own experience, he finds the balance of both convenience and safety to lie with the short incision. The short incision narrows the limits of hemorrhage. It is safe to begin with a small incision, and where the size and character of the tumor or complications present require a larger one, it can easily be made. Very many abdominal work can be done through an opening admitting only two fingers. The reliance of the abdominal surgeon must be largely in educated fingers. In the majority of cases, an operation can be done through a small incision without the operator or spectators seeing viscera. Universally adherent, irreducible or solid tumors require a long incision for delivery and for dealing with complications that can only be dealt with through a long incision, those beneath and on the sides of tumors. In the majority of cases, to enlarge the opening as to obtain a view of the parts, we augment the risk of ventral hernia and provoke tedious convalescence.

The importance of a perfect closure of the incision has only recently received that attention it deserves. The effort should be to approximate as nearly as possible normal conditions, antiseptic and dealing with all existing or possible complications with scrupulous carelessness and care, thus guarding against those accidents which are too frequent. He would not pretend to suggest uniform procedures to be carried out in all cases, as each operator has his own way and does his own work best that way, and it would not be possible for him to apply the methods of others safely and successfully without special training. He is satisfied that the exposure and manipulation of the incision, as well as the peritoneum is harmful. Incisions bathed in pus and fibrin and freely manipulated often refuse to unite. Suppurating wounds are largely due to careless closure or to tight sutures, including too much tissue. Tight suturing is too common, and has destroyed life in many feeble subjects. Suppuration due to tight suturing and stitch-hole abscesses, in all sections, where they do not result fatally, prolong convalescence. Cases were cited in point.

Through and through suturing, including all structures, more of the central structure than skin or peritoneum, with either silkworm gut or pure silk, give and continue to give the most satisfactory results. Silkworm gut seems to be the favorite material at present, as it possesses all the natural and essential qualities of a suture, is small, strong, and non-irritating, the three cardinal virtues of all good suturing material. Terracing sutures has nothing to recommend it; on the other hand, Dr. Price believes it prolongs an operation. Distraction of skin and peritoneum by the introduction of silkworm sutures gives incision to more central structures and the least possible tension on skin and peritoneum. Keith, Tait and Hancock all use a fine straight needle, and their work has been about perfect. The use of large, curved cutting needles is harmful; their use primarily favors hemorrhage and secondarily stitch-hole abscesses.

Dr. KELLY thinks that long incisions have little or nothing to do with mortality except in an indirect way. Where there are many adhesions a long incision is necessary. Handling of the viscera in pre-antiseptic days increased the chances of suppuration, and consequently of peritonitis and death. The chances of infection, he believes, are greater with a long incision. Hernia comes from improper closure

of the abdominal wall, or the use of the drainage tube, weakening of the abdominal wall at one of its points.

Dr. L. S. McMERRY of Louisville, demonstrated his method of suturing on the board. He brings peritoneum to peritoneum, muscular structure to muscular structure, fascia to fascia, skin to skin and says the least quantity of interposing material that we have between the tissues that are to be brought together the better. He disagrees with Dr. Kelly that the drainage-tube is the cause of hernia after closing the incision.

Dr. R. B. MURRY of Memphis, favored the silk-worm gut suture. His experience covers nearly three hundred sections, and he has simply used the through and through suture. He has had almost no abscesses and the fewest possible number of hernie, which he says can be counted on the fingers of one hand.

Dr. T. J. CROFFORD of Memphis, said it was considered that all hernias resulting from abdominal section were due to failure to get union between the opposing layers of transversalis fascia. He uses a long curved needle instead of a straight one. With it he can put in stitches in one-third of the time he can with the ordinary needle. He has used it in upwards of two hundred sections, and has not had a case of hernia to follow one of them. He has also had the fewest number of stitch abscesses.

Dr. PRICE in closing, said there was an immense amount of theory about the matter of long and short incisions, and there was a tendency on the part of some to brush aside pre-antiseptic work. Notwithstanding this, however, some of the old back numbers, or hay-seeds, so-called, had as good results in their day as are obtained in some of our hospitals to-day. He urged great caution in the terracing method of suturing.

IS OPERATION DEMANDED IN ALL CASES OF APPENDICITIS? THE BEST TIME TO OPERATE.

This paper was read by Dr. A. M. CARTLEDGE of Louisville, Ky. He said that inflammatory conditions of the appendix are essentially intra-peritoneal lesions. Modern surgeons have an abiding faith in the surgical maxim that whenever pus is believed to be present in tissues or organs of the body, it should be removed; hence the new pathology of a very old and frequently fatal malady inspired surgeons to attempt some radical means of relief. Perfection in technique can only come from individual experience and a knowledge of the work of others.

The pathology of a disease is the only true keynote to its rational treatment. Probably the best classification of appendicitis is: catarrhal (simple); ulcerative (from tuberculosis from foreign bodies); perforating (from ulcerative perforation from strangulation, the result of twisting). This classification deals strictly with the changes occurring in the appendix, and should be considered apart from the peritoneal and other conditions which may ensue and cause well-marked variations in the clinical course of the disease. If the walls of the appendix give way in a mass of fibrous adhesions, the result of long-continued irritation, the pus which forms is rather securely encapsulated and may be days, weeks, even years finding an outlet. In fact, as is often the case, if the bacillus coli communis predominates and a few staphylococci are present, it may remain encapsulated unless it receives a new impetus of irritation. Cases were reported, illustrating this point. Cases were also reported, illustrating the part played by injury as an exciting cause in appendicitis, and the belief was expressed that a chronic form of unrecognized appendicitis existed prior to such injury.

We know more about the pathology of ulcerative or suppurative appendicitis than we do of the catarrhal form, because the cases not operated upon which recover are mostly called catarrhal. These are cases which progress with little pain, with very little fever, 101 degrees F., as a maximum, and have a tumor which subsides. These cases are the pride of the politician and the opium practitioner. Ulcerative appendicitis must be either tuberculous or traumatic, the trauma consisting of foreign bodies and enteroliths, usually the latter. The tuberculous would only give rise to acute symptoms as the result of cicatrization and stenosis, with distal distension, or secondary inflammation with pus organisms. Either of these results favor perforation. This is essentially the chronic variety, but will eventually lead to perforation, probably in the ways indicated.

When physicians come to view inflammations of the vermiform appendix in their proper light, the author said the prognosis will assume a very different shade. We should

consider any appendix once so affected as to deserve the name of appendicitis whether from tubercle or trauma, a lastingly diseased structure, and the fancied cures are quiescent states, the results of very easily recognized conditions. If we could trace our so-called first attack cases of appendicitis through subsequent ones, we would say the progress, not only as to health and comfort but as to life is bad, very bad. A man has the trouble three, four or five times, apparently recovers, all counted as cures probably by different physicians. Finally he dies in an attack; the death is counted but once and sometimes not then; for if, as is often the case, death results from the rupture of an unrecognized appendiceal abscess, or from diffuse peritonitis after perforation, the chances are that the cause is never suspected and death is recorded as occurring from peritonitis. Every case of appendicitis, not barred by surgical limitation, should be operated upon. The best time, provided the symptoms are not too urgent, is after the bowels have been thoroughly moved.

Dr. JOSEPH PRICE agreed with the author of the paper that there was but one treatment for appendicitis, namely, removal of the appendix. He considers it a murderous disease, to be classed with extra-uterine pregnancy. Both demanded prompt surgical treatment when first discovered. He recommends in acute cases of appendicitis without pus, removal of the appendix and freeing of the inflammatory adhesions.

Dr. G. W. LONG of Richmond, opposed operation in every case of appendicitis. Autopsies had shown that one-third of the human race had had at some period of their lives this disease. That being true, and considering the small per cent. of deaths, it naturally follows that appendicitis does not always kill, even if it is not operated on. In the catarrhal form, he thinks there is no reason for operating. In the perforative form we should operate. In the perforative form without adhesions we should also operate as soon as we make a diagnosis.

Dr. WILLIAM T. BRIGGS of Nashville, had been operating on every case of appendicitis that came into his hands where the diagnosis was clearly established, and he has had no occasion to regret it. He has operated in cases where there were perforative symptoms, and in others where there were none; in some where there was, and in others where there was not, suppurative, and still others where there was, and where there was not, sloughing.

Dr. C. KOLLOCK of Cheraw, S. C., had seen a great many cases of appendicitis. He recommends saline treatment in the first attack, but if there is a recurrence he invariably operates and has never lost a case.

Dr. W. E. B. DAVIS of Birmingham, Ala., had never operated on one of these cases without advising a secondary operation for removal of the appendix, telling the patient that the disease would recur. He thought, however, there were many cases that got well without operation, but it was a difficult matter to tell in what cases we should not operate.

Dr. HUNTER McGEURIE of Richmond, said he had many a time operated too late, but never in his life had he operated too soon. If, after free and full purgation with salts, administered by the mouth and rectum, the symptoms are not relieved, he thinks the time for operation has come and does not hesitate to operate. He had never known the mere operation in the hands of skillful surgeons to kill or add to the danger of the patient's life. Appendicitis kills, and it is put down to inflammation of the bowels, peritonitis or something else.

Dr. LOUIS McLANE TIFFANY of Baltimore, said that the cases that require consultation should be divided into those that are going to live without bursting, and those that will rupture inside of three days; and then next to the question of making the diagnosis, was to get the consent of the family physician. The cases that are dangerous die within seventy-two hours, before the family physician is able to make a diagnosis.

Dr. WILLIS F. WESTMORELAND of Atlanta, favored early operative interference. He had never been called in sufficiently early by the general practitioner to operate, consequently the patients died promptly. It was necessary to educate the general practitioner to send cases to the surgeon for operation earlier.

Dr. W. B. ROGERS of Memphis, had seen cases of catarrhal, ulcerative and gangrenous appendicitis, but had never been able to make a diagnosis till he got inside. The symptoms of the disease were the same as those of peritonitis, localized at the site of the appendix. In the cases he had operated on, he was satisfied that no medicine would have effected a cure.

Dr. CUNNINGHAM agreed with Dr. McGuire, that an operation should be done in case medical treatment failed to afford relief.

Dr. RIDGES of Birmingham, advocates operation in the recurrent form of the disease during the interval of attacks.

Dr. JAMES A. GONGYANS of Alexander City, Ala., had operated early on seven cases; all recovered.

SECOND DAY—MORNING SESSION.

Dr. LOUIS McLANE TIFFANY of Baltimore, read a paper entitled,

INTRACRANIAL NEURECTOMY, AND REMOVAL OF THE GASSERIAN GANGLION FOR INTRACTABLE NEURALGIA, WITH REPORT OF CASES.

Within the past few years, intracranial excision of portions of the fifth nerve, together with removal more or less complete of the Gasserian ganglion, has been done for the cure of intractable trigeminal neuralgia. The credit of first doing such an operation rests with Rose of London, after whom is to be mentioned Novaro, Horsley, Andrews and others. Dr. Tiffany then gave an account of Hartley's method, which appears in the *Annals of Surgery* for May, 1893.

It has been Dr. Tiffany's fortune to operate four times for excision of intracranial portions of the fifth nerve. In each case the reason for the operation was trigeminal neuralgia, not due to disease of the brain. Hartley's method was followed. All cases recovered from the operation and were relieved of neuralgia, it is to be hoped, permanently.

The operations have been long, but recovery in each instance has been rapid and complete. In all cases the wounds healed at once, except in the fourth case, where the patient scratched the recent wound and infected it.

It is worthy of note, that in the case of the patient upon whom operation was performed fourteen months ago, there is less anesthesia and more perverted sensation than in the other cases. Sensation seems to have returned somewhat, and it is interesting to speculate as to whether sensation will ever completely return, and if so, by what route. Preservation of the sense of taste after division of the second and third divisions is to be noted. That the power to recognize heat and cold exists in a region rendered devoid of ordinary sensation by nerve section, is of much interest, and recalls an observation made some time since, that a conjunctiva insensitive from the local application of cocaine still appreciates the difference between heat and cold.

When dividing the third division of the nerve in Case 4, Dr. Tiffany believes that he isolated and recognized the motor branch before dividing it. Not having provided himself with a sufficiently long and fine electrode, he could not prove the accuracy of his opinion by electric stimulation, and therefore divided everything. By leaving intact the motor branch, the patient would not have food collect in the cheek of the paralyzed side, and in future operations an effort should be made towards this end.

THE VAGINAL ROUTE AS COMPARED WITH THE ABDOMINAL, FOR THE REMOVAL OF PELVIC VISCERA.

By Dr. GEORGE J. ENGELMANN of St. Louis, Mo. Dr. Engelmann called attention to the advantages offered by the vaginal route for many of the operations, and especially some of the more dangerous now practiced, by means of abdominal section for the removal of the uterus and appendages, and especially in suppurative cases with multiple pus centers. It was vaginal hysterectomy for malignant disease of the uterus which first paved the way to the more extended use of the vaginal route for such operations. He paid a fitting tribute to American surgery when he said that this, like other of the great operations of recent times, emanated from a Southern surgeon. In New Orleans in 1846, Dr. Duboucq fully described this operation, which he had repeatedly practiced with success since 1829, but it was again forgotten until revived within the last decade, and vaginal hysterectomy for malignant disease of the uterus is now everywhere an accepted operation, which is rendered especially safe and rapid by the *force* pressure method of Pean; and it was the French surgeon who extended the field to the removal of other contents of the pelvis by the vaginal route, resorting to the piecemeal removal, the *morcelement*, for the extirpation of masses too large to be delivered in their entirety through the vaginal opening. The leaders in this new departure are Pean and Sigmond of Paris, Doyen of Reims, and Jacobs of Brussels, and followed for the present by the French school only. In Germany and England these operations are practiced but little if at all, and in this country the vaginal route is limited to the removal of the

uterus, vaginal hysterectomy for malignant disease and perhaps for prolapse or inversion. Isolated cases of removal of prolapsed ovaries resting on the vagina, or small and conveniently situated ovarian cysts through the vaginal opening are now and then performed everywhere, but this is a very different matter. The surgeons who are leading in this field vary somewhat in method and in the extent to which they apply it, but the vaginal route now serves them 1, for hysterectomies for the removal of malignantly diseased uteri, and moderately enlarged uteri, for hysterectomy by *morcelement*; 2, for uterine tumors which do not extend above the navel; 3, for the bilateral removal of appendages with diseased uteri; 4, for the treatment of pelvic suppuration of all kinds; 5, Dr. Jacobs even prefers the vaginal method for certain cases in which the appendages of one side only are to be removed. Pean limits hysterectomy by *morcelement* to benign growths and to all cases of pelvic suppuration treated to-day by laparotomy; whilst Sigmond still prefers laparotomy when operation is indicated in unilateral cases, above all in unilateral salpingo-oophoritis when non-suppurative. The indication given by Terrier and endorsed by Jacobs is: 1, the resort to the vaginal route for cases in which suppurative pelvic peritonitis has returned, if laparotomy has already been practiced; 2, suppurative pelvic peritonitis with fixation of the uterus and multiple pus sacs, whilst laparotomy may be resorted to in inoperable non-suppurative salpingo-oophoritis.

The advantages of the vaginal route are the rarity, if not absence, of shock in cases in which we would have to treat it if the abdominal method were resorted to; rapidity of operation, by reason of the *force* pressure method and the total absence of ligature or suture; nearness of the parts to the finger, and in aggravated pus cases guarding of the abdominal cavity from the pelvis proper or the field of operation, by the adhesions and inflammatory products which form a perfect barrier. It seems the natural route for the reaching of parts below the pelvic brim. There is, after operation, perfect drainage established by the forceps and the dressing per vaginam, so that there is no possible stagnation. Recovery appears to be more rapid and more satisfactory than by the abdominal method, the forceps being removed in forty-eight hours, the patient sitting up on the fifth or sixth day, and moving about between the tenth and fourteenth, when cicatrization is completed.

TREPANING AS A CURE FOR TRAUMATIC EPILEPSY.

By Dr. JOHN T. CHAPMAN of Bessemer Ala. He operated on a boy, who some years previously had received an injury of the head by a blow fracturing the parietals. Three weeks after the injury he began to have epileptic convulsions. At the time Dr. Chapman saw the patient the convulsions had become more frequent, and with greater force. Two buttons of bone were removed at the seat of injury; there was considerable pressure from depressed bone; the membranes were hard and indurated. The indurations were cut out and edges of dura brought together by continuous suture. The wound healed by first intention. For two months after the operation the patient continued to have convulsive seizures, but they gradually grew less until they ceased. The operation was done four and a half years since. The patient is now 18 years old, weighs 170 pounds, and works in a foundry. He believes the doctrine that depressed fractures of the skull without symptoms require no operative interference, is in a measure responsible for many of the unfortunate sequelae of head injuries.

(To be Continued.)

American Electro-Therapeutic Association.

The Third Annual Meeting Held at Chicago, Sept. 1, 2, and 3, 1893.

AUGUSTIN H. GOELET, M.D., President.

(To be Continued.)

INACTIVE ELECTRODES.

The best material for the active electrode, when employed at the positive pole, without doubt is platinum. It is everlasting, can be heated red-hot for disinfection, hundreds of times without injury; it can be bent to any desired curve and is not affected in any way by the strongest currents. Its one and only objection is its first cost. Many expedients have been resorted to, to reduce the cost of the electrodes

such as making the electrode of platinum in its lower half and the rest of brass; winding fine platinum wire onto a copper gum elastic or other cheap sound; using carbon aluminum, iron, tin, etc.

Next to platinum comes carbon which is quite equal to platinum in cases in which it is to be applied to the surface of the body or to a large internal mucous membrane, as the interior of the uterus. We would suggest that manufacturers be requested to supply carbon sounds similar to the platinum ones. If that be impracticable, owing to brittleness, to thread carbon beads on a stiff platinum wire so as to give a sound which will be cheap, flexible and capable of disinfection in the spirit lamp and unaffected by its flame. Carbon tips screwed onto an insulated stem are valuable, when they can be made small enough to enter narrow canals like that of the uterus. When the uterine canal is large enough, the carbon electrode is quite equal to platinum in its effects. For intra-uterine galvano-cauterization, zinc has a great advantage of offering an easy means of applying a solution of chlorid of zinc. When the negative pole is attached to the active electrode, gold, silver, copper, iron or steel are admissible. Steel is also useful when employed for negative galvanum punctured in the form of needles. The best way to connect it with the rheophore is by means of a standard binding post and screw, to which the cord of the active pole is attached. For all conducting cords we would recommend the cords used by the Bell Telephone Company, as the standard size and length, as they can be obtained everywhere at very moderate cost. Hard rubber is the best insulating material in general, but in emergencies collodion is very effective, shellac being inferior to either. A good form of insulation is a well disinfected gum catheter. When the active electrode is connected with the positive pole, and when the electrolytic and not the chemic cauterizing effects of the current are desired, both electrodes may be of clay, or carbon covered with clay. The best form of construction where flexibility is required for tortuous canals is a moderately stiff gum bougie, wound for a portion of its length with annealed platinum wire, which can be used on a fresh bougie when one is worn out, but some improvement on this is desirable.

The shapes and sizes for standard electrodes should be as follows: for intra-uterine application the shape should be that of Simpson's sound; the sizes those of the French scale. When carbon or zinc beads or when olivary tips are used, or when the surface is irregular, the best method of estimating the area of surface is by plunging them in water and noting how many centimeters of water they displace. When designated by numerals, as to size and surface, we would recommend that they be stamped when possible by two numbers; the first, representing the size French scale; the second, the area in centimeters of surface. Thus, if one states that he employed an olivary tipped electrode, No. 12-1, it would mean that it would pass through the twelve hole in the French scale and that it would displace 1 centimeter of water. Or, if we said that a uterine sound 17-1, it would mean No. 17 in diameter French, and that it had 4 centimeters of surface exposed.

Simplicity of construction and cost of manufacture would be reduced without impairing efficiency, if a standard insulated handle with a uniform thread were adopted throughout the world. Onto this one handle we could screw sets of carbon tips made by a Paris firm, platinum tips made by a Berlin firm, zinc tips made in Chicago, gold tips made in London, flexible tips made in Philadelphia, and soon, the practitioner feeling certain that no matter where he purchases the tips they would fit his insulated handle. As the wear of the screw on the handle would be greater than that of the hole in the tips, the handle screw should be made of steel. The standard thread should be that known to manufacturers as No. 2-10 American gauge. The best means of cleansing is to wash all electrodes in soap and water after using, and to boil them for five minutes before using, in the case of bougies, or by passing them a few times slowly through the flame of a spirit lamp in the case of all metal electrodes.

III.—ACTIVE AND INACTIVE ELECTRODES.

The terms active and inactive, are the best standard ones we can employ. We have been unable to find any better term to express the fact that we wish to concentrate the effect of the current at one pole and to disperse it at the other. Alternative terms might be concentrated and diffusing electrodes, but as proper active and inactive are more expeditious

We urgently recommend that all connections be made by means of No. 6-32 binding posts, so that the screws of all manufacturers would be interchangeable. Owing to the risk of plug and socket connections becoming loose and dropping out, we recommend that all connections be made by means of standard hole and pressure screws. In case that our suggestion in this respect be adopted by the Association we would recommend that a circular be sent to manufacturers whose address is known, in America and Europe, urging them to adopt this standard screw thread in all connections of instruments made by them.

All of which is respectfully submitted.

A. LAPHORN SMITH, Chairman.
CHARLES R. DICKSON.

The Committee had its attention drawn to some new electrodes for external use, by Dr. Lucy Hall-Brown. These electrodes were of perforated brass plates of different sizes and shapes, designed to be covered with punk, and with brass springs on back, by means of which connection was made, the springs fitting into split tips on the ends of the conducting cords, which latter also possessed some novel points. Dr. W. J. Morton had also presented a circular, soft rubber cap to cover electrodes and prevent dripping of water, also a sample of "punk" with which he covered his carbon electrodes, a cataphoric electrode with reservoir with a capacity of 1 drachm, also an intra-uterine electrode possessing several advantages.

All of which is respectfully submitted.

DISCUSSION.

DR. MASSEY—remarked that five years ago he devised a spiral platinum electrode, inclosing a second spiral, for use in tortuous canals. It can be rendered aseptic by heating. He did not approve of a soldered connection with the gauze, as it was very apt to break off during the application. No. 20 wire made into a flat coil furnished an excellent groundwork for an electrode. He saw no advantage in having a standard surface for the external electrode, as this did not affect the scientific accuracy of one's work.

DR. MARTIN—said he was the originator of the spiral electrode, and exhibited one before the International Congress in 1887, and published a description of it in the *New York Medical Record*, and other journals.

DR. MASSEY—replied that his allusion was only to a spiral electrode wound about a base which could be readily rendered aseptic. His electrode would be found in practice very different from the one devised by Dr. Martin.

DR. J. B. GREEN, Indiana—said that in 1887, his attention was called to Martin's spiral electrode, and that he then used it in intra-uterine work. As an American and a Yankee, he saw no reason in adopting the French scale. For instance, No. 22 caliber might just as well mean twenty-two one-hundredths of an inch. There was nothing more disgusting to him personally than the saturated clay electrode. The least objectionable is Martin's electrode, although it must be admitted that the animal membrane when moistened soon becomes fetid. For the past two years he had been using an electrode made of saturated wood pulp. It takes up water readily, does not dry easily, and is as cheap as rags, and so can be thrown away when used.

We can not possibly fix upon a standard size for electrodes. If the electrodes are close together, there is marked sensation on the part of the patient—the electric reaction is chemic reaction. We can divide the current over different parts of the body with the same electro-therapeutical effect, and to the great comfort of the patient.

DR. DICKSON—said he had been opposed to the clay pad until the meeting last year, when Dr. Goelet described his modification of the Apostoli pad. This he found very satisfactory.

As an addendum to the report of the Committee, Dr. Lucy Hall-Brown read a paper on

LECTURES FOR EXTERNAL USE.

in which she recommended a special electrode made of perforated brass plate, with a special device for connecting it with the rheophore.

The sponge electrode to be of any service must be so thoroughly wet that the slightest pressure put upon it will squeeze the water over the patient; and unless a sponge is held by pressure in close contact with the skin it is of little use, for the reason that the current will be so unevenly distributed.

It was felt upon the assistance of the electrical experts in coming to conclusions of practical value.

tributed from its surface that the using of a high current is out of the question, that is, without causing a severe burning sensation to the patient—a high current may be qualified in this case, at, say, 100 milliamperes.

"Felt," although of a close texture, is really a poor absorbent, and can never be made to lie in sufficiently close contact to the skin. It will curl away at every opportunity. The material known as "spongio-pylone," consisting of a mixture of sponge and felt, is practically no better than the felt and for the same reasons.

Absorbent cotton is not sufficiently porous; it packs to such an extent that it gets lumpy, and then becomes an uneven distributor for the current.

Clay, to be serviceable, must be kept well kneaded and when thus applied as a poultice will give good results. It is, from an electrical standpoint, the best by far of all the electrodes thus far mentioned but, on the other hand, it is cold, unclean and troublesome to keep in condition.

Briefly, my electrode consists of a piece of "amadou," or punk, first made moist and laid upon the patient, and on this, but a little smaller than the amadou is laid an annealed piece of perforated brass having suitable device to connect with the battery.

Amadou is a species of fungus—a substance which grows upon old trees in England and on the continent of Europe. It will readily take up more than its weight of water, and in so doing contracts to at least half its former size. When saturated with water it has a fleshy touch, and will readily conform to the irregularities of any body upon which it may be placed. This substance will remain moist for a long time, and a sand bag or other pressure may be put upon it without fear of water running from it over the patient. It is exceedingly porous, and when thoroughly wet forms an excellent conductor. The current is evenly distributed over the whole surface covered by it, and consequently no burning spots are experienced by the patient.

The metal used is a plaque, or flat piece of perforated brass; several of different shapes are herewith submitted. You will notice that they are very smooth on one side, and owing to the punches of the machine in making the perforations slightly rough on the other. The brass, after first being well annealed, can easily be cut with an ordinary pair of seissors to any desired shape, care being taken to follow the perforations in such manner as to leave an unbroken edge all around the plaque.

The flexible conducting cord from the battery is connected to the perforated plaque through the intermediary of a short and well-insulated piece of flexible conducting cord, having at each end a split tip of special design. Two of these short conducting cords are herewith submitted; one complete, the other partly cut away, that you may understand its construction. You will see they are some twenty inches in length and consist of four lengths of the ordinary tinsel conductor twisted together to form one conductor, and pulled through a piece of small rubber tubing which they about fill. A larger size piece of tubing is then drawn over the whole and the tips attached to the ends. This makes a strong, well-insulated and flexible conductor.

These short cords are of value in practice; for instance, it is often found desirable, while having one pole of the battery in continuous connection internally, to have the other pole connected first over the abdomen, then across the back and again over the abdomen, thus changing back and forth several times during the treatment. In practice, therefore, two external electrodes of large surface are used, each having connected to it one of the intermediate cords. One electrode is placed in position under the back and the other across the abdomen. It is then a simple and quick matter to detach the battery cord from one and connect to the other as desired.

To make the connection between the plaque and the short cord, the little brass strip of the plaque is forced into the slit of the tip; thus the corrugations on the former retaining it in place and assuring a perfect connection. The cord from the battery is then connected to the other end of the short cord, by pushing the pointed tip of the former into the longitudinal hole of the latter, the spring sides of the tip, as in the other case, assuring a tight and perfect connection. The whole is simple and easily kept in order, each part being separate and complete in itself. There are no screws to get lost and no chance for sulphites to form between the metal and moist material; the amadou not being attached to the metallic plaque, is easily kept clean and the plaques can be brightened in a moment by rubbing them with a piece of fine emery paper.

(To be continued.)

CORRESPONDENCE.

An Easy Conundrum.—What He Should do with It.

DETROIT, MICH., NOV. 25, 1893.

To the Editor.—In my mail, the other day, I received a blank application for membership. I am already a member and have been for years. What do you expect me to do with this blank?

Yours truly, J. W. X.

P.S.—Get a new member with it, please.

Pathology of Influenza.

PORT MADISON, IOWA, NOV. 19, 1893.

To the Editor.—In our JOURNAL for Nov. 18, 1893, under caption, "Pathology of Influenza," I find an excerpt from the *St. Petersburg Medical Weekly Bulletin*, in which a painstaking microscopist finds on postmortem, intra-fibrillar hemorrhages invariably unilateral, from which pathologic find he draws the conclusion that the lesions in influenza involve the sympathetic centers. JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, p. 774 November, 1893. The observation substantiates my anatomico-physiologic deduction as presented in the Iowa State Medical Association in May, 1892. See Transactions of Iowa on page 93. Permit me to inclose reprint and oblige.

Very truly,

W. T. ECKLEY.

Fiftieth Annual of Virchow's Promotion.

FROM OUR SPECIAL CORRESPONDENT.

BERLIN, WED., NOV. 6, 1893.

There have been many extraordinary proceedings of medical societies in Berlin in honor of the fiftieth return of the day when Rudolf Virchow took his degree at the hands of the Faculty of Medicine in the Berlin University. We will only take note of the proceedings in the Berlin Medical Society (*Medizinische Gesellschaft*) as this is the most prominent among the aggregations of this kind in Germany. The meeting took place on the 25th of October in the new-built house of the Society, which as its name implies is devoted to the memory of Prof. Langenbeck. The room was fully decorated with flags, banners and emblems touching the significance of the day. The rooms were so crowded with medical men in holiday attire, that movement of persons was at times very difficult. The meeting was opened by an address of Prof. von Bergmann, who delivered into the hands of the "jubilar" a paper devised by the Society, in which Virchow is made acquainted with his election as Honor-President. In his address, von Bergmann said that the uniting link and the aim of the Medical Society was the promotion of medical science. In his answer, Virchow rejoined that it was right to say that promotion of medical science was the aim of the Society, but not less, advancing of the profession itself. It was true, Government in some directions had well provided for the medical staff, but there remained yet much to be done until the medical order had that position in society which was due to it. As to the motives for this holiday, the fiftieth return of his promotion, some days ago he had been reading his dissertation for the title of M.D. once more. By this he had become conscious how much everybody was influenced in his method of thinking by the opinions of his times. Two pupils of Virchow's, Prof. Rindfleisch who is now Virchow's successor in the Chair of Pathological Anatomy in Würzburg and Prof. Ponfick of Breslau, formerly assistant of Virchow had come from afar to read papers in honor of the day. Prof. Rindfleisch treated a rare abnormality of the skull which he had seen, producing the speci-

mens. In this paper he recalled Virchow's researches about pathologic alterations of the bones of the skull, especially his fundamental studies on the skulls in cretinism. Having ended his speech he delivered over to Virchow a letter of gratulation of the Medical Faculty of Würzburg, in which was mentioned that, Berlin excepted, Würzburg was the only University at which Virchow had professed his science. Only one of his then mates in the years 1849-1856, Prof. Albert von Kölliker, is a ruddy worker yet; but in Würzburg, the time when Virchow was living there and teaching, was well remembered. In his reply, Virchow especially greeted Kölliker, who then had instructed him well. The last days often had recalled to him his Würzburg years, and he had in mind to give expression to this remembrance by a publication. Prof. Ponfick gave a report on several weighty observations on metastasis of bacteria. By a large line of preparations of bones he showed that bacteria which had made their entrance at any peripheral point of the body remained at last in the bones, and most probably in the lower strata of the periosteum where they under certain circumstances caused pathologic actions whose connection with the first process had not been cleared up till to-day. Ponfick said his investigations were a consequence of the theory of metastasis as founded on Virchow's inquiries. Ponfick ended the speech by delivering the gratulation of the Medical Faculty in Breslau.

Among the many honors presented to Virchow on this occasion, we will yet mention his being nominated Honorary Member of the Physiologic Society of Berlin.

THE CHARITÉ HOSPITAL.—In the Royal Charité Hospital in Berlin, one of the largest buildings devoted to curing the sick in Europe, there have of late been opened two new Sections for diseases of the ear, and also for diseases of the throat and nose, under the respective direction of Prof. Frankmann, physician to the German Emperor, and of Prof. B. Fraenkel. With these two Sections the number of clinical institutions in the Charité Hospital amounts to eighteen. Each part and especially of medicine, has now its separate Section in this Hospital, serving as well for curative purposes as for the instruction of students. Not only in Germany but in Europe this versatility of instruction in one house or, rather collection of buildings, is unequalled. The "Charité" was founded in the year 1727, having then six departments with 200 beds. Together with the progress and specialization of medicine, step by step, the number of buildings serving even more disciples has been augmented. Among others on the grounds of the "Charité" there is the house in which the famous Virchow has his rooms for dissections and microscopic researches, from where his glory and renown has been dispersed throughout the civilized world. Nearly all the Sections of the Hospital are in connection with "clinics." The Hospital has now accommodations for nearly one thousand eight hundred patients. The department for medical instruction has now in contemplation the rebuilding of the oldest parts of the Hospital, adapting them to all newly devised comforts for the sick, with an estimated cost of thirteen millions of marks.

Cerebrin Again.

CHICAGO, NOV. 22, 1893.

T. the Editor.—In your issue of August 26, you published a communication of mine on Hammond's cerebrin, in which the presence of nitroglycerin was suspected.

The results of my chemical examination of that article, also of a bottle of Hammond's medullin showed how well founded was that suspicion.

A few weeks later Dr. Hammond made public a reply, the essential part of which is that I could not have analyzed the

genuine article, since I failed to find alcohol and boracic acid in it.

Such a way to meet the issue was so weak, under the light of my statement of the true object of my investigation, that I was contented to let the matter rest without any further remarks.

Since then I have seen a circular issued by the Columbia Chemical Co., the manufacturers of Dr. Hammond's animal extracts, which says that I failed to find water, alcohol, boracic acid and animal matter in the samples examined by me.

Therefore, the trade is warned that unscrupulous dealers get empty bottles of Dr. Hammond's products, and fill them with some dangerous imitation, and palm them off as the real article, out of pure deviltry evidently.

Let us bring back the question on its true ground. I never pretended to publish a complete analysis of Dr. Hammond's cerebrin and medullin, because that was unnecessary.

The only question for me to solve was whether the physiologic effects of the two articles are due to some extraneous matter, namely, nitroglycerin, or to some ptomaine.

A priori, there was a faint possibility that a six months' maceration of brain matter might be attended with the production of *neurin*, or *neurin* and *cholin*, possibly *muscadin* also.

Those three alkaloids have decided and powerful physiologic properties, not entirely unlike those of nitroglycerin. The general tests for alkaloids failed to show their presence.

On the other hand, I obtained decided reaction, characteristic of nitroglycerin, or, I added, some other closely allied substance (some nitrite for instance).

Since the publication of my first note, I examined with exactly the same results, another *unbroken package* of cerebrin.

The original bills seen by me, show that the three samples were sold by the Columbia Chemical Co., (New York) to Messrs. Lehn and Fink (New York) who forwarded it to Messrs. Gale and Blocki (Chicago), from whom I received it unopened.

With high regard,

M. DELAFONTAINE.

BOOK NOTICES.

Twenty-Fourth Annual Report of the State Board of Health of Massachusetts. Boston, 1893.

No health reports have ever been issued in America of a higher class than those of Massachusetts, whether we regard the matter from the standpoint of practical utility, or that of pure science. The fortunate possessor of a set of these reports from the beginning has an excellent library on practical hygiene.

This report is in no wise inferior to its predecessors. It contains 1, the general report containing a summary account of the doings of the Board during the year; 2, a series of special reports on water supply and sewerage; 3, report on artificial ice; 4, report on food and drug inspection; 5, weekly mortality report of cities and towns; 6, reports (5) upon epidemics of typhoid fever in Massachusetts in 1892; 7, health of towns.

The foregoing enumerations of the headings of the table of contents, by no means give more than a suggestion of the valuable reports contained in the volume; they must be seen and read to be appreciated.

We suggest to our brethren in those States where there is yet no Board of Health, that the proper distribution of this report to influential members of their Legislature, would be the most effective object lesson they could use.

The Diseases of Childhood. Medicine. By H. BEVAN DONKIN, M.A., M.D., Oxon., F.R.C.P., East London Hospital for Children, at Shadwell; Physician and Joint Lecturer on Medicine and Clinical Medicine, Westminster Hospital. Octavo, 440 pages. Muslin, price \$4.00. New York: Wm. Wood & Co. 1893.

"This book," says the author in his preface, "is based to a great extent on the records and recollections of nearly twenty years' experience at the East London Hospital for Children, and includes the substance of some lectures given at Westminster Hospital, and of a few contributions to the Westminster Hospital Reports."

The work is divided into six sections, of which Section I, containing fourteen chapters, is devoted to "Disorders of the Alimentary Tract and of the Abdomen;" Section II, containing five chapters, to "General Diseases;" Section III, "Acute Febrile Diseases," contains nine chapters and an appendix, the latter being an abstract of the conclusions given in the report of a committee appointed by the Clinical Society of London, to investigate the periods of incubation, and contagiousness of certain infectious diseases. Section IV contains nine chapters on "Disorders of the Nervous System;" Section V has eight chapters on "Diseases of the Respiratory System," and the concluding Section, VI, is given to the consideration in four chapters of "Disorders of the Heart and Circulation." The appendix to Section III will be of especial interest to health officers, as there is given, for smallpox, chickenpox, measles, rubella (Rotheln), scarlet fever, influenza, diphtheria, enteric fever and mumps, the incubation period, the infectious period, and the time of quarantine for each. The book is well printed on high class paper, but contains no illustrations. It is well worthy a place in the library.

Surgery; A Practical Treatise with Special Reference to Treatment. By C. W. MANSELL MORTLIM, M.A., M.D., Oxon., F.R.C.S., Surgeon and Lecturer on Physiology to the London Hospital, etc. Assisted by various writers on special subjects, with 600 illustrations, many of which are printed in colors, about two hundred having been made from special drawings. Second American Edition, Revised and Edited by JOHN B. HAMILTON, M.D., LL.D., Professor of the Principles of Surgery and Clinical Surgery, Rush Medical College, Chicago; Professor of Surgery, Chicago Policlinic; Surgeon Formerly Supervising Surgeon General U. S. Marine Hospital Service; Surgeon to Presbyterian Hospital; Consulting Surgeon to St. Joseph's Hospital and Central Free Dispensary, Chicago; Secretary General of the Ninth International Medical Congress, etc., etc. 8vo, cl., pp. 1,238. Philadelphia: P. Blakiston, Son & Co., Chicago: The W. T. Keener Co. 1893.

From the editor's preface we extract the following:

"Its wide scope, its clear expression, and its excellent illustrations made it (the first edition) a favorite; and these characteristics have been preserved in the American edition now offered. The work has undergone thorough revision wherever necessary, and many new illustrations from the most recent foreign and domestic monographs have been added, and such changes in the text have been made as recent changes in theory and practice required. Some rearrangement has been made of the text, and a brief chapter on the outlines of military surgery has been added. To make room for the new matter and new illustrations, without materially increasing the bulk of the book, certain portions of the former chapters on diseases of the skin, diseases of the eye, diseases of the ear and larynx as were not strictly surgical, have been omitted. Among other additions, the chapter on amputations has been enlarged by the addition of a number of new illustrations, and surgical bacteriology has been newly illustrated by colored engravings from recent monographs."

This edition, we notice, retains the same frontispiece as the former one, except that Prof. Senn's face has been sub-

stituted for the somewhat insipid-looking face of the original. The other parts of the picture, which by the way do not represent the operation, might as well have been omitted. The other illustrations introduced for the first time are mainly from the recent "Traité de Chirurgie" by Duplay and Reclus, the most exhaustive encyclopedia of surgery yet published, and the beautiful illustrations from Esnare's "Chirurgische Technik," and many colored illustrations from Woodhead, and in military surgery from the official manuals and instructions.

A comparison with other works on surgery for the year will show that the book has been brought fully down to date; as examples we may mention a reference to Senn's bone "thimble" or "ring" for gun-shot fracture, p. 1212, and the same author's new hip-joint amputation, p. 1195; Watson's prostatic cannula, p. 1080.

NECROLOGY.

Dr. William Winchester of Elgin, Ill., November 29.

Dr. James Campbell of Detroit, Mich., November 19.

Dr. Alfred North of Waterbury, Conn., November 18.

Dr. E. Lane Schofield of Chambersburgh, Pa., November 19.

Dr. A. J. Hiserole, one of the pioneers of Hardin County, Iowa, died November 1.

MISCELLANY.

Doctor's Drummers Must Wear Tags.—We learn from the *H. Springs Medical Journal* that the City Council of that enterprising resort has enacted that hereafter the drummers who solicit patronage for the local physicians must be duly labeled according to law, and wear a numbered tag.

Office Thief Caught.—Dr. J. W. Middleton of Steelton, Pa., had his office robbed, and valuable surgical instruments stolen November 13. The thief was caught next day at Middleton, Pa., having attempted to sell the instruments to some of the physicians of that place. The first to whom the instruments were offered, suspected that they were stolen and the telephone did the rest.

New Hospitals.—The Catholics have leased a building at Des Moines, Iowa, for the purpose of establishing a Mercy Hospital. The institution will be in charge of the Sisters of Mercy.

A new hospital at Clifton, Staten Island, is projected by certain society people of that place. The use of a building at Belair Road and Tompkins Avenue has been donated by Mrs. Nathaniel Marsh for two years. The new hospital will be open to receive patients December 18.

Locked in Jail by Mistake.—A physician of Cassopolis, Mich., was called to attend a sick prisoner in a jail. The turnkey, who let the doctor in, is a little absent-minded, and he forgot all about the circumstance. The doctor whose feelings may be easily imagined, was locked up with his sick prisoner for several hours before the turnkey happened to think about him.

Alumni will Smoke Four Times a Year.—The Alumni Association of the Medical Department of the University of Pennsylvania, held the first of a series of unique entertainments called a "Musical Smoke" November 18, at the Colonnade Hotel, Philadelphia. The University Glee and Banjo Club furnished the music. There were about two hundred and fifty members present.

The Journal of the American Medical Association

VOL. XXI.

CHICAGO, DECEMBER 9, 1893.

No. 24

ORIGINAL ARTICLES.

PATHOGENESIS OF BRONCHITIS IN INFANTS AND CHILDREN.

Read in the Section on Diseases of Children, at the Forty-fourth Annual Meeting of the American Medical Association.

BY W. S. CHRISTOPHER, M.D.

PROFESSOR OF DISEASES OF CHILDREN, CHICAGO POLYTECHNIC AND COLLEGE OF PHYSICIANS AND SURGEONS, CHICAGO.

The doctrine that bronchitis is the result of exposure to cold and moisture, is so generally accepted, that it is rather uncommon to lay stress upon the other factors which lead to it. And yet a consideration of the subject leads to the belief that these other factors are perhaps the more important and the more frequent causes.

Your attention is therefore invited to a general consideration of the etiologic factors leading to bronchitis in infants and childhood.

Many of the exanthemata have bronchitis as a concurrent symptom. Especially is this true of measles and röteln. Influenza and whooping cough must also be included in the list of acute infectious diseases which present this condition. It is customary to speak of the bronchitis accompanying these diseases as a specific bronchitis. The qualifying title is very proper, but the bronchitis does not differ in any way from the same condition induced by other causes. Hamilton has shown that the morbid anatomy of acute bronchitis is always the same, whatever its cause.

It will probably be admitted without question, that bronchitis occurring in an acute infectious disease is but one of the symptoms of that disease, and is produced by the same poison which is producing the other symptoms. Whatever be the poison, its ultimate action must be a chemic one, so that it is possible to formulate the doctrine that in certain infectious diseases, a chemic poison, acting in all probability through the medium of the central nervous system, is capable of producing the condition, bronchitis.

In this connection, it is well to refer to a case reported by Hamilton in his well-known work on the "Pathology of Bronchitis," etc. He noticed in an otherwise healthy man, dead of opium poisoning, a condition of bronchitis, which he concludes was produced by the opium poisoning itself. This seemed rather anomalous to Hamilton, but with the light of modern pathology, it is not surprising at all to find a purely chemic substance leading to the production of this symptom.

Besides the diseases already mentioned, typhoid fever must be referred to as a cause of bronchitis. This cause is particularly active in infants and young children, in whom the other symptoms of typhoid are often, indeed usually, but poorly marked, while the bronchial symptoms are exaggerated. It is not

an uncommon experience for me to have a child brought for a "cold" so-called, and to find on examination, besides the bronchitis, an eruption of rose-colored spots, an enlarged spleen, an elevated temperature, and the typical tongue of typhoid of infants and young children; that is to say, a tongue coated in the center of each lateral half, with a whitish or yellowish fur, and having red edges and red tip, the redness often extending up the center of the tongue in a wedge-shaped patch. These conditions justify the diagnosis of typhoid fever. I am perfectly certain that many cases of typhoid fever in infants and young children are overlooked, and simply the diagnosis of bronchitis made from the symptom which happens to be most prominent.

There is another source of poisoning which frequently leads to the development of bronchitis, particularly in infants, and that is the presence of putrid feces in the gastro-intestinal tract. Some years ago, Sevestre of Paris, called attention to a class of cases of broncho-pneumonia, accompanied by fetid diarrhea. He believed that the pneumonia was secondary to an infection, originating in the bowel contents. Quite recently these views have received a striking confirmation at the hands of his pupil, Le Sage, who in a number of these cases found after death, the bacillus coli communis in the pneumonic tissue. It is pretty well established that this micro-organism, innocent enough so long as it remains in its normal habitat, the bowel, acquires virulent properties when it migrates, and that when it migrates it is capable of producing quite a wide range of pathologic conditions. Two other of Sevestre's pupils, Gaston and Renard, about a year ago re-investigated the subject, but were not able to establish Le Sage's observations altogether. In some cases they found the bacillus coli communis, and in others they found the pneumococcus, or another encapsulated bacillus, or a streptococcus. At times, several of these in one case.

These observations show quite conclusively that the bowel may be the starting point for an infection which leads to the development of broncho-pneumonia. Exact researches have not been made in this direction with reference to bronchitis, but it is far from uncommon to find severe bronchitis accompanied by a fetid diarrhea, and to find that emptying the bowel is followed by a marked improvement in the bronchitis. There is much reason to believe that, in infants particularly, the bowel is often the source of a poison which when absorbed produces bronchitis.

Rickets and other forms of innutrition in infants predispose very strongly to the development of bronchitis. And this is true, even when the innutrition does not present any very striking or obvious evidences of its presence. Rickets, even in its most incipient stages, often leads to the occurrence of bron-

chitis. For this reason, it is particularly desirable that the earliest manifestations of rickets should be observed. A child whose food has been for a considerable time deficient in fat or proteids, and who is restless at night, and desires to remain uncovered, and who sweats profusely about the head, has rickets. Particularly is this true if, in addition, there is delayed dentition, and laryngismus stridulus, or some other neurosis. Bronchitis occurring in such a subject demands treatment directed to the general malnutrition rather than to the local condition. It is often said that dentition causes bronchitis, but so far as my own observation goes, dentition seems active as a cause of bronchitis, only in infants whose nutrition is below par.

Every attack of acute bronchitis leads to some enlargement of the bronchial glands. Repeated or prolonged attacks often cause a very considerable hypertrophy of these organs, particularly in those children who are predisposed to glandular enlargements, the so-called scrofulous. Broncho-adenitis once established becomes a very potent factor in the causation of subsequent attacks of bronchitis. Bronchitis occurring several times during a winter usually means that the child is the subject of enlarged bronchial glands. There is probably no other one factor in the pathology of bronchitis more important than this of broncho-adenitis. Often these enlarged lymphatics become the seat of tuberculosis, which fortunately only rarely terminates in pulmonary phthisis. Not infrequently, however, these glands remain enlarged, and resist purely medical treatment quite strongly, and require for their complete cure a removal to the seashore. Such cases are not infrequently mistaken for pulmonary tuberculosis.

Chronic bronchitis, which is rather uncommon in the child, acts in much the same way as broncho-adenitis, as a cause for new attacks of acute bronchitis.

What is the influence of cold and dampness in the causation of bronchitis? That they have some influence can hardly be doubted, because of the relatively large number of cases of bronchitis which occur in the cold and wet seasons. But that they have the over-weening importance so commonly ascribed to them, is more than doubtful. That they do not always produce bronchitis indicates that some other factor is necessary to complete their operation, and this other factor is probably to be found in broncho-adenitis, or some form of malnutrition.

Other causes of bronchitis, such as inhaled irritants, obstructive heart lesions, Bright's disease, etc., we will not discuss.

The following conclusions are offered:

1. Bronchitis arises from a wide variety of causes.
2. The great variety of causes giving rise to this condition indicates that it is probably always secondary and never primary, and should be considered as a symptom, rather than a disease.
3. The principal causes of bronchitis in infants and children are the poisons of the acute infectious fevers, intestinal poisoning or infection, malnutrition, and broncho-adenitis.
4. The diagnosis of bronchitis should include a diagnosis of the causative factors so far as possible.
5. The treatment of bronchitis should include not only attention to the local conditions, but also the amelioration or removal of the causative factors.

THE PATHOLOGY AND SYMPTOMATOLOGY OF ACUTE BRONCHITIS AND BRONCHO-PNEUMONIA.

Read in the Section on Diseases of Children, at the Forty-fourth Annual Meeting of the American Medical Association.

BY C. L. DODGE, M.D.

BINGHAM, N. Y.

ACUTE BRONCHITIS.

Pathology.—The late Dr. Flint sums up the pathology in four lines. Although brief it covers the ground, and I can not do better than reproduce it: "Acute ordinary bronchitis is an inflammation affecting a mucous structure, leading to a secretion of mucus and the production of muco-pus in greater or less abundance. Resolution takes place in this situation without the occurrence of ulcerations. It belongs among the asymmetrical diseases."

Symptoms.—The symptoms of bronchitis differ much in degree, from a slight cough and indisposition barely noticeable, to the severe attacks denominated capillary bronchitis, from which few ever recover.

In young babies and children under five, the disease usually commences with coryza, or in common parlance, "a cold in the head." This is not invariably the rule, however, for we sometimes notice abrupt seizures similar to attacks of pneumonia or croup. In addition to the usual symptoms of coryza, such as wheezing, defluxion from the nostrils, etc., there is a dry, harsh paroxysmal cough sufficient to prevent the child from sleeping in many cases. The respiration is somewhat accelerated, and nursing babies are made very cross and fretful when attempting to nurse, from the inability to breathe readily through the nose. They are obliged to let go of the nipple from time to time, to take a breath, and then resume their meal. The amount of fever in these mild cases is slight; the temperature perhaps will not rise above 99 degrees. The pulse is more affected, and from the increased frequency of respiration and the nervousness and excitement consequent upon the disorder the pulse may run up to 120 or 130. In the more severe cases the child is plainly sick. It wants to be rocked or carried, continually cries and worries at the approach of strangers and refuses to play or be amused in any way. The fever in these cases is considerable, but must not be estimated by the rapidity of the pulse, which is usually 160, and often as high as 200 to the minute. The temperature, which alone is to be relied on in these cases as to the severity of the febrile process, usually reaches 103 degrees F., in simple uncomplicated bronchitis. A fair average would be 101 degrees to 102 degrees.

The skin is dry, hot, and burning to the touch, and the cheeks are flushed. The respiration is very rapid. The cough is dry, harsh and persistent, and after a time somewhat painful. The expectoration—which in babies is a misnomer—is scanty and consists of a little viscid mucus which is swallowed the moment it is coughed up. The tightness persists for some days unless appropriate treatment be instituted, and is a source of much annoyance and suffering. Mild attacks may terminate in a week, but when at all severe the disease is apt to last longer; that is, the principal symptom, which is the cough.

In older children we observe some deviation from the description given above. A child of six or eight is able to expectorate and to describe his feelings. There

is no expectoration at first, but after a day or two, especially if treatment has been instituted early, the cough loosens and the phlegm is raised with little effort. The child complains at first of tightness and constriction across the chest, with a scraping sensation beneath the sternum on coughing. There is also more or less laryngitis present, with pharyngitis of a mild grade in many cases. This gives rise to a sense of tickling in the throat which provokes a desire to cough almost constantly where the local irritation is pronounced.

Many cases of bronchitis in children of this age begin as laryngitis and extend down by continuity of structure. The fever is not so high with older children, nor is the respiration so rapid. After the cough has lasted several days, most children who are old enough to talk will tell us that they have pain in the stomach—the result of traction on the diaphragm from the persistent coughing.

BRONCHO-PNEUMONIA.

Pathology.—This disease is known by many names. By some writers it is termed capillary bronchitis, a most unfortunate designation. By others it is called lobular pneumonia or catarrhal pneumonia. The result has been to utterly confuse the minds of students, and many practitioners have only a vague conception of the actual pathologic condition.

Catarrhal pneumonia is not like croupous pneumonia, a distinct and independent disease clinically, but in the great majority of cases it is a secondary phenomenon, which may develop in the course of acute and chronic diseases of various kinds. It almost always follows bronchitis. The same process which produces catarrh of the bronchial mucous membrane, in its further course invades the bronchioles and the alveoli, and here leads to catarrhal pneumonia. (Strumpell.) Measles, in my opinion, has been given undue prominence as a factor in the causation of this disease. Bronchitis from whatever cause, measles, whooping-cough, or the simple variety, is the starting point in most cases.

The ball-valve theory, where a plug of viscid mucus acts as the valve, has been accepted by many writers to explain the occurrence of collapse or atelectasis. Others believe that pus is sucked into the alveoli by the labored respiration. Dr. Morrill² thus tersely sums up the matter: there is inflammation of the bronchial mucous membrane, which involves the walls of the smaller tubes and the surrounding connective tissue by direct extension, and the bronchioles, alveolar passages and air-cells, either by direct extension or by the migration of inflammatory material. Moreover, this material may occasion collapse of groups of vesicles, an accident in the causation of which feeble respiratory power and narrowing of the lumen of the smaller tubes materially assist.

Symptoms.—As has been already mentioned, broncho-pneumonia almost always develops secondarily in the course of other diseases. Hence it happens that its symptoms are often subordinate to other prominent symptoms of the disease. When broncho-pneumonia follows an attack of measles, it begins with the symptoms of an acute bronchitis. The inflammation advances rapidly and involves the pulmonary tissues. On the other hand, when the disease supervenes in cases of whooping-cough, its

advent is slow and insidious, and is usually accompanied by a decrease of the paroxysms. When it occurs as a distinct disease by itself, however, the length of time during which it may be preceded by acute bronchitis, without any rational or physical signs of consolidation, is extremely variable. Morrill gives the extremes as five and twenty-eight days.

The extension of the disease to the lung tissue proper, manifests itself by increase of fever, dyspnea, and a change in the character of the cough, which becomes short, painful, hacking, and as a rule much more frequent. The child is no longer able to rid its lungs of the steadily accumulating secretions. The respiration increases in frequency and the face assumes an anxious, frightened expression. It makes no attempt to talk as a rule, instinctively realizing that it has no breath to spare for that purpose. Young children do not expectorate, but during a violent coughing spell viscid and frothy mucus frequently escapes from the mouth and then is seen to differ from the typical sputa of lobar pneumonia. As tracheal areas of lung become involved, paroxysms of dyspnea occur and all the symptoms increase in severity. When extensive collapse so takes place, the dyspnea increases, the temperature falls, the cough ceases, and the child rapidly sinks into a comatose condition. At the same time the face becomes livid, the skin cold and clammy and death usually follows in a few hours. This disease has no regular march of invasion. Its focus seater and attack different areas of the lungs.

The morbid process is complex, and absorption of the products of inflammation, as a rule, is so slow that it is extremely difficult to define the stage of resolution. (Morrill.) The pulse is extremely rapid from the beginning of the attack, and continues so for some time after the decline of the temperature. This is usually explained as being due to the weakness of the patient. As is well known, the pulse varies greatly in sick children, and writers differ as to what constitutes an average rate for this disease. As a rule, I think they place it too low. There are few cases of true broncho-pneumonia in young children where it will be less than 150, and more where it will be nearer 200. Morrill says that the latter number (200) has been observed more than once in cases terminating favorably. I have recently had an opportunity to corroborate the truth of this statement. The respiration also varies greatly, and what has just been said with regard to the pulse rate applies with equal or even greater force to the breathing. Excitement from any cause, however slight, will immediately affect the rate and rhythm. When the disease is fully established, the respiration becomes very rapid, often reaching 80 per minute, and I have seen it even higher. Expiration is often jerky or grunting. Sometimes the child makes a moaning sound. Morrill tells us that the breathing of young children in broncho-pneumonia is no longer abdominal; the ribs rise and fall as in adults. Osler³ states that death occurs from heart paralysis, but I believe with Morrill that "death in broncho-pneumonia results more frequently from respiratory than from heart failure." The temperature varies with the other symptoms. It will average 104 degrees to 105 degrees F., during the acute stage of severe cases. It has been known to reach 107 degrees F., and yet recovery follow. A remission of three or four degrees in the morning is usually observed, but the fever is

¹ Keating's Cyclopedia.

² Practice of Medicine.

very irregular and often the morning temperature will be higher than the evening, but this does not continue for any length of time. There is no regular ratio between the pulse, the temperature and the respiration.

According to Morrill, a favorable result in broncho-pneumonia is never immediately preceded by an abrupt decline in the temperature. This phenomenon when present means collapse, and is of the gravest import. The tongue is usually coated more or less in the early stage but is not invariably so; it sometimes looks red and raw. In the later stages, the tongue becomes dry and sore. Complete loss of appetite is the rule from the beginning of the acute symptoms. Thirst is present in most cases but sometimes is less than might be expected from the severity of the fever. On auscultation during the early stages of broncho-pneumonia, râles of all sorts and sizes may be heard, but at a later period there are persistent sub-crepitant râles in one or more spots. The course of an extensive broncho-pneumonia is usually quite protracted. Even in favorable cases the disease rarely lasts less than two or three weeks, and often much longer.

SOME PHASES OF BRONCHO-PNEUMONIA IN CHILDREN.

Read in the Section on Diseases of Children, at the Forty-fourth Annual Meeting of the American Medical Association.

BY J. M. G. CARTER, M.D., ScD., Ph.D.

WABKING, ILL.

PROFESSOR PATHOLOGY IN THE COLLEGE OF PHYSICIANS AND SURGEONS OF CHICAGO; FELLOW OF THE AMERICAN ACADEMY OF MEDICINE, ETC.

In France, England and the United States of America, broncho-pneumonia is usually reported in mortality tables as catarrhal pneumonia, capillary bronchitis or congestion of the lungs, and in a study of statistics this should be borne in mind and these terms included under the designation, broncho-pneumonia, at least until greater harmony in terminology prevails. It may sometimes be mistaken for acute bronchitis or pneumonia. That these mistakes are made is evidence of two things: 1, a possible carelessness in diagnosis; and 2, some confusion as to the precise pathologic condition termed broncho-pneumonia. It is certainly confusing to read some of the definitions given of this disease. If one is to understand the obstruction of a small bronchial tube and the resulting inflammation about it to be the special condition in broncho-pneumonia, then the autopsy would usually have to determine the diagnosis. If an inflammation of the connective tissue of the walls of the minute bronchioles is the chief element in broncho-pneumonia, the diagnosis will always be difficult. If broncho-pneumonia is a disease involving inflammation of both the bronchial tubes and lung tissue, a diagnosis can almost always readily be made. It is in this sense that I use the term. A broncho-pneumonia may originate in a simple catarrhal inflammation of the mucous membrane lining the bronchial tubes; this morbid condition may extend to the deeper tissues, and eventually involve the lung tissue.

It often happens that the thickening and induration of the walls of the minute bronchial tubes close the lumen of the passages and a portion of lung is destroyed, the vessels to the part may become obstructed and degeneration result.

The catarrhal origin and the involvement of the lung tissue are more easily discerned than the obstruction of vessels or the degeneration of a small area of lung substance. If, however, there are a number of air vesicles occluded, and an appreciable area of lung substance involved, a diagnosis may easily be made.

I desire in this place to call especial attention to a class of cases which may be followed by serious results, but for which the physician is usually not consulted at the proper time. I refer to common colds. It may not infrequently happen that an acute catarrhal cold involving the nose and throat persists, and the inflammation extends into the bronchi and thence to the air vesicles and lungs, and an acute broncho-pneumonia is excited before the patient considers it necessary to call a physician. This class of cases will be met with most frequently in children, but may often be encountered among adults likewise. Such a cold frequently subsides without the interference of medication, and that common fact leads people to be careless in regard to such ailments. This undoubtedly is one of the casual factors of the high mortality of cases which come under the observation of physicians. Even those cases which do not die at once, frequently are the subject of lesions which eventuate fatally. To illustrate my statement I will refer briefly to two cases occurring in children and two in adults:

Case 1.—Robert D., 6 years old, had suffered with two or three hard colds during the fall and winter. January 30 I was called to see him. I was told that he had been sick for a week, and that I was called because his cold did not yield to the domestic remedies which had previously been sufficient. The tonsils were swollen and red, with small deposits of yellowish-white exudate. Bronchitis was marked and the inflammation had already involved the air vesicles and lung tissue. The respirations were somewhat labored. Bronchial râles were abundant. Respiratory sounds subdued and interrupted in both lungs. Percussion revealed slight dullness over left lung; right slightly, if at all modified. Pulse 125, temperature 103.5 degrees. Next day patient was slightly better and improved until the sixth of February when he was dismissed cured. The sputum was not seen in this case, but in the following it was stained with blood.

Case 2.—Zadie S., 8 years old, had spent the winter in the South with her parents. Upon returning home she contracted a severe cold. Had catarrh of the nose and throat and a cough. Medicine was secured "to break up" the cold, but she gradually grew worse until after a week it was found necessary to call a physician. When I saw her she had catarrhal sore throat and some bronchial râles with a persistent and severe cough. I was informed that for several days she had been ailing with what seemed to be only an ordinary cold. Percussion sounds normal. Auscultation revealed nothing beyond a bilateral bronchitis with a tendency to involvement of the small bronchi and in a few instances the air cells. Pulse 120, temperature 102 degrees. The symptoms increased in severity for a week, the temperature gradually rising to 104.6 degrees, and the pulse to 140. Percussion revealed small areas of dullness in the middle third of both lungs, but chiefly in the left. The respiratory sounds were modified, presenting bronchial râles, vesicular crepitation, dyspnea; some distress was complained of in the stomach. No other pain was present. The symptoms began to subside in eight days and at the end of another week she was dismissed, the lungs being clear and respiration normal. The third case was an adult.

Case 3.—Mrs. E., was in usually good health, had always been well, having never needed to consult a physician, except for sore throat from which she suffered at times. At the time of her exposure she was in a severe snow-storm and became thoroughly chilled. For several days she suffered from a severe catarrhal cold of the nose, throat and bronchial tubes. Soon however, she felt quite well and resumed her ordinary household duties. The first exposure occurred at Christmas time. Another exposure occurred in one

month. The cold was more severe. I made an examination of the patient and found her to be suffering from a well-defined case of broncho-pneumonia. Careful nursing and the usual treatment for ten days restored her to comparatively good health, but a slight yet persistent cough remained. Upon my advice she did not resume all her household duties and exercised greater care in guarding against exposures. Notwithstanding every precaution, in about eight weeks, that is in the latter part of March, another attack supervened. This time the patient was in bed two weeks. The characteristics of broncho-pneumonia were well marked and later, hepatization of the lower lobe of the right lung occurred. A rusty or sanguinous sputum, which had not been present in previous illnesses, was expectorated for a week. The disease was bilateral, the chief obstruction to respiration existing in the upper portion of the left lung and the lower portion of the right lung. This seizure was more obstinate than any preceding. The patient rallied slowly, and a well-defined interstitial inflammation remained, in a comparatively active state, involving the lower lobes of both lungs. The pulse remained at 90 to 100, and the temperature at 100 degrees to 101 degrees. The cough was persistent and the expectoration and dyspnea troublesome. The microscope showed an abundance of bacilli tuberculosis. From this time the case progressed gradually downward, with seldom a temporary rally, until death occurred just two years and six months from the first exposure. An uncle and an aunt of this patient are said to have died of consumption.

Case 2.—The last case I wish to report is now under observation (June, 1893). She has been subject to catarrhal colds for several years. Last autumn she was living with a married sister, and the sickness of one of the children caused her to overwork. Later, she contracted a cold from which she recovered slowly. She returned home in the early winter and felt quite well, but had a slight cough until February. The latter part of that month she contracted a cold which was very obstinate. March 1, 1893, I was called to see her and found a well-defined case of broncho-pneumonia. I learned that she had suffered in the first place from a catarrhal cold, involving the nose and throat. She recovered after a week, but a persistent cough remained. In a few weeks she called at my office and I found an interstitial inflammation of the lungs involving the lower and middle thirds of both lungs. Both nasal and laryngeal catarrh were present, and she suffered considerable from dyspnea. Pulse 80, temperature 99. The microscope showed many micrococci but no bacilli tuberculosis in the sputum.

These four cases have been related to show the difference in the prognosis usually in adults and children. In children, the temperature may run higher, the symptoms be more acute, but the prognosis is more favorable, especially after five years.

Of the last 1,000 cases of all diseases that have come under my observation, 221 were cases of lung disease and of these 20 were cases of broncho-pneumonia. One was in an old lady who died. Four in adults between 28 and 37, one of whom died and another is the fourth case related above; the other two have a persistent cough with a doubtful prognosis. Fifteen were in children from two and a half to eleven years. One, the subject of whooping cough, was two and a half years old and died. The others all recovered, of whom only two were considered dangerously sick.

I refer to this experience to illustrate four facts which I believe to prevail in reference to the etiology and prognosis of broncho-pneumonia:

1. Old people almost always succumb to an attack of broncho-pneumonia.

2. Young adults are likely to recover slowly or develop phthisis.

3. Children over five years generally recover.

4. Children under five years show a heavy mortality. Another fact which may be reiterated here for the purpose of making it more emphatic is: Many cases of broncho pneumonia are so slight as to be allowed to pass without consulting a physician. It may be

affirmed with probability that many cases of severe catarrhal colds in children, which come under the care of physicians and are treated merely as severe colds, would upon careful examination, be found to be cases of mild broncho-pneumonia.

It is known that the rusty sputa, commonly supposed at one time to be pathognomonic of pneumonia, may be present in severe cases of bronchitis and broncho-pneumonia. Hence great care is often necessary to prevent a confused diagnosis.

Any physician may be troubled to make a correct diagnosis in many obscure cases, and it requires a very accurate ear to be positive without the aid of instruments.

The limited area of dullness on percussion, the slight disturbance of the respiratory murmur, except by bronchial sounds, the slight change in vocal fremitus and bronchophony all aid in determining the character of the disease.

The treatment of mild cases is simple enough. A jacket of cotton batting should cover the chest. Some stimulating liniment, turpentine, or camphorated oil applied twice or thrice a day will assist in making the patient comfortable. Soothing and anodyne cough mixtures, inhalations of medicated steam or sprays, and rest in bed will serve to restore the patient to health in the majority of cases, in a few days. If the case is prolonged, or if there is a tendency to recurrence, as in the two cases reported which occurred in adults, a sustaining and general tonic treatment must be prescribed; viz: concentrated food, malt, cod liver oil, hypophosphites and iron. I have felt that the use of aromatic sulphuric acid, boric acid and salicylic acid and creasote internally have given me excellent results.

PNEUMONIA—PATHOLOGY AND SYMPTOMATOLOGY.

Read in the Section on Diseases of Children, at the Fourth Annual Meeting of the American Medical Association.

BY F. S. CURCHILL, M.D.

CHICAGO.

Croupous pneumonia, in the child as in the adult, may be defined as an acute, infectious, self-limited disease, having its chief pathological manifestations in the lungs. In this paper the writer proposes to discuss some of the points in the pathology and symptomatology of the disease.

A.—PATHOLOGY.

A clear comprehension of the pathology of the subject necessitates a brief glance at the child's lung in its normal condition. Here, the chief points of difference from the adult lung are as follows: the bronchial tubes are larger, the alveoli smaller, proportionally, than in the adult; the intra-alveolar spaces are more extensive, and more richly supplied with blood vessels; also in the alveolar walls, the blood vessels are seen to be larger and more tortuous, giving to the organ the appearance of the lung of obstructive cardiac diseases. These are the main points of difference between the adult and child lung. Obviously, a slight temporary congestion of the pulmonary vessels could easily give rise to some of the physical signs obtained in croupous pneumonia, e. g., dullness, bronchial respiration and even bronchophony. In such cases we might be led astray and think we were dealing with a pneumonia; but

time and the course of the disease will clear up any doubts we may have. The writer recently saw what he believes to be such a case, occurring in the practice of Dr. Christopher, during the latter's temporary absence, by whose courtesy he is allowed to refer to it:

A boy, 8 months old, was passing three to five loose, greenish foul-smelling stools daily, when he suddenly developed a rather rapid respiration (60), with a high temperature. Examination of the chest showed at lower angle of left scapula a small area of rather high-pitched respiration, with numerous fine and coarse moist râles, both right and left, especially left; no dullness. Next day and the following, there was distinct dullness, increased vocal fremitus, bronchial respiration and bronchophony, with continued rapidity of respiration. The writer was in doubt as to whether he was dealing with a pneumonia or a temporary congestion of the pulmonary capillaries, but was inclined towards the latter view, his opinion being based on the following facts: absence of the crepitant râle, the significance of which we shall mention later; absence of pain, the continued crying and struggling of the child on examination, the absence of dyspnea and cyanosis, for though breathing rapidly, the patient was not distressed for breath—was not "oxygen-hungry"—and most of all, the course of the temperature-curve. With the belief that the main trouble was in the intestinal tract, and inclining to the view that the pulmonary lesion was an inflammation of the smaller tubes and even of the alveoli, *secondary* to the bowel trouble, the infant was given large rectal enemata of water at 90 degrees F., each one of which was followed by a decided drop in temperature within one hour; had there been a pneumonia, the temperature would probably not have been so influenced. Within a few days the physical signs noted in the chest disappeared entirely, and there was nothing in the history of the case suggestive of crisis. There is now no doubt in the mind of the writer that he had to do with a temporary congestion of the pulmonary capillaries, secondary to the intestinal lesion, and giving rise to physical signs identical with those obtained in genuine croupous pneumonia. Finding such signs we ought, it seems to me, always to bear in mind the possibility of such a temporary lesion, reserving our diagnosis and awaiting the further progress of the case. This from the clinical standpoint; pathologically, we should of course, have more positive evidence to guide us.

The pneumonic lung of the child has not the distension nor solidity observed in that of the adult; it is denser and darker colored than normal and of a bluish-violet or leaden-tint. On section, the surface is comparatively smooth, the granular appearance seen in adults and caused by the filling of the air vesicles with the inflammatory exudation, being much less marked and sometimes even absent owing, (according to Fox, Atlas Pathological Anatomy, p. 17), to the small size of the vesicles. As is well-known, the three stages of engorgement, red and gray hepatization, are observed in the child, but are more apt to coexist than in the adult; instead of resolution, it is not uncommon to find abscess following the third stage, and thus we may even see the three stages and abscess coexisting; these abscesses may be multilocular, each division being separated from its neighbor by a wall of hepatized tissue; they are

apt to be found near the surface of the lung and, in such cases we, of course, are apt to find coincident adhesive pleurisy. Here the abscess may break into the pleural sac and give rise to a hyo-pneumo-thorax; one or two such cases have been reported (Meigs and Pepper, Barthez and Rilliet). During his service as hospital interne, the writer saw such a case in an adult, the diagnosis being confirmed by autopsy.

Microscopically.—The appearance of the pneumonic lung in the child, is much the same as in the adult: in the first stage the blood vessels of the alveoli are seen protruding into the lumen, and already there has begun the exudation of a viscid fluid and red and white corpuscles; in the second stage, this exudation continues, but in greater quantity; usually the exudate is fibrinous, rather than cellular in character, but entangled in the meshes of the fibrin, we see numerous red and white corpuscles; in the third stage, the exudation has begun to liquify and is more purulent in character. Von Jaksch (Arbieten Pædiatrische-Henoch, Fest, 1890) has also observed in microscopic preparations, immense numbers of diplococci, which, in their morphologic appearance, resembled very closely the pneumonia microbes described by Fränkel; they appeared to cluster most thickly in the alveoli, and, in the opinion of Von Jaksch, emphasize the observation made by many that the microorganisms described by Fränkel, stand in the closest relation to pneumonia. Banti also (*Centrabl. f. Bakteriologie*, 1X-5), in his analysis of forty-seven cases, notes the almost invariable presence of the diplococcus lanceolatus, not only in the lungs and pleura, but also in the blood; and states that variations in the intensity of the disease depend on the degree of virulence of the microbe.

Locality.—Well-known facts as to the locality of pneumonia are: its tendency to affect the lower, rather than the upper lobes; its occurrence on the right more frequently than on the left and also the occasional existence of a central patch, surrounded by healthy lung tissue, often causing much doubt as to diagnosis. Henoch (Sect. Dis. Children) says we may see a "mixed form" of pneumonia, i. e., patches of a croupous nature occurring in the same lung, with those of broncho-pneumonia, and in this connection quotes Steffen (Klinik der Kinderkrankh., i S. 146) Steiner and Damaschino (Paris, 1867) and Virchow.

B.—SYMPTOMATOLOGY.

The diagnosis of croupous pneumonia in adults is usually a comparatively easy matter, so generally do we see the classical picture of sudden onset, with chill, stabbing pain in the side, suppressed cough and "rusty sputum." But in children we are by no means so apt to find this complex of symptoms, and the diagnosis is often very difficult, even impossible at the first visit, when one is apt to get such a history as the following: the child has been taken suddenly ill, or there may have been premonitory symptoms for a few hours; rarely do we see the rigor so common in adults, though Latimer says (Archiv. Ped., Nov. 91) it is usually present, and Henoch (Vorlesungen über Krankheiten, S. 330, 1881) has occasionally observed one in children over five years old; rather is the nervous disturbance apt to manifest itself by vomiting or convulsions—the latter more especially in infants, and they are sometimes followed by active delirium, general hyperesthesia or

by stupor, with slight opisthotonos and retraction of the abdomen; pain, if complained of, usually localized at the epigastrium; headache is also common. Thus, at the very outset we may have our attention directed either to the head or abdomen, rather than the thorax, as the seat of the trouble—and having any one or all of these symptoms suddenly developing with a rise of temperature, we should bear constantly in mind the possibility of a beginning croupous pneumonia, and proceed to a thorough physical examination of the child.

1.—*Inspection.* Patient usually found lying on bed or on mother's lap, breathing rapidly, often with expiratory "grunts;" face flushed, sometimes more on one side than on the other; dilatation of the "ala nasi," is often noticeable and may be the earliest sign suggestive of intra-thoracic trouble. The general expression of the face is one of pain though the child usually does not cry nor resist examination, doubtless on account of pain from co-existing pleurisy; for the same reason cough, if present, is apt to be suppressed; rarely expectoration, except in older children, but we should carefully examine the vomitus for any sign of "rusty sputum," which very likely has been swallowed, after being coughed up. Inspection of the chest is very apt to show the affected side lagging in respiration.

2.—*Palpation.* Vocal fremitus may be increased, or a peculiar thrill may be imparted to the hand or respiration.

3.—*Auscultation.* may give rise to the typical sign of bronchial respiration, moist râles, and bronchophony; rarely do we hear the crepitant râle in children under three years of age; if heard it is, according to Dr. J. L. Smith, proof positive of the presence of pneumonia; its usual absence is due to the small size of the alveoli.

4.—*Percussion.* which should be practiced last, in the physical examination of the chest, may reveal dullness, or, as is more commonly the case, there is, to the finger, a greater sense of resistance over the affected area. Here we shall, of course, remember the fact that the liver may be forced up by the crying of the child and thus give rise to dullness at the right base.

The above might be regarded as the classical picture of a croupous pneumonia, but unfortunately we too often fail to find the group of symptoms—one or many of the characteristic signs may be entirely lacking; e. g., physical signs in the lungs may be entirely absent at first, not developing till later, in two to seven days, or in a few cases which have been reported, never appearing. (Townsend Archiv. Ped., April, 1889, who also gives D'Espine, Rev. de Méd., February, 1888.) Such cases are not rare, though often are not detected. Here we have to do with a "central pneumonia," i. e., a patch of consolidation in the interior of the lung, so surrounded by healthy lung tissue that we fail to detect any abnormal signs on examination of the chest, and the diagnosis must rest on other symptoms. But sometimes we can detect deep-seated consolidation by deep percussion, when we may also obtain the sense of resistance spoken of above. Repeated and thorough exploration of the chest should be made daily, and sooner or later we shall probably detect the characteristic signs, except of course in the few cases where the pneumonic process continues central. As the writer has in several cases found characteristic signs only high in the axilla, he ventures to emphasize the im-

portance of *Percussion* as a means for detecting such a condition—though its last point is not a little less than mentioned by all the authorities.

5.—*Color.* *Cyanosis* varying in intensity from slightness to severe convulsions, are very common, but contrary to the prevailing opinion, they do not seem to be especially associated with apical pneumonia as observed by Heat (Med. Rec. Apr. 7, 1888). Minot (Kent's Encyclop. of Easton Smith (Eds. of Clin. Journ.) Townsend (Archiv. Ped. March, 1889), and others, yet in this connection may be mentioned two interesting cases reported by Antrebt (Archiv. Ped., Oct. 1890), in which pneumonia of the right and left apices was followed by right and left hemiparesis respectively, both recovering. Speculations as to the cause of these complications is of interest, probably either an extension of brain and meninges, or a meningitis of infectious origin, secondary to the pulmonary lesion.

A certain degree of cyanosis is usually observed in croupous pneumonia, but seldom to the extent seen in bronchopneumonia. Von Jaksch (loc. cit.) has, however, observed two cases, already referred to in this paper, in which there was a very marked degree of cyanosis, steadily increasing till death; but here, this symptom was due to the presence of a pericardial effusion, which, however, manifested absolutely no other suggestive sign till one day before death, though careful exploration of the chest had been daily made. Von Jaksch concludes from these two cases that increasing cyanosis in pneumonia, even with no other sign of pericardial effusion, should warn the medical attendant that this complication is imminent and the prognosis, consequently, more grave.

The same author also reports (loc. cit.) the existence of a considerable degree of leucocytosis, (140, 60 or 70) even being observed; it is of course temporary, and occurring early in the disease may be of value in determining the diagnosis; moreover the observation could be easily made, for, occurring in such a marked degree, a blood count would not be necessary, microscopic examination of the blood alone being sufficient to show a very great increase in the number of white corpuscles. In these cases the hemoglobin is also much diminished.

The range of temperature varies in different cases, from 102–103 degrees in moderate cases, up to 106–107 degrees in the more serious; very apt to be a slight morning fall, but occasionally is seen the so-called "inversion of the thermic curve" (Townsend loc. cit., i. e., morning temperature higher than the evening. A continued temperature of over 105 degrees is serious.

The pulse and respiration are more rapid than normal, especially the latter; and this disproportion between respiration and pulse is 1:2 or 2.5, instead of 1:4, the normal, may be of diagnostic value; cases have been reported in which the respiration reached 104 (Edwards—Archiv. Ped. March, 1892,) and even 127 (Hirsch, Annals of Gyn. and Pediatry, December, 1890); the former died, the latter recovered.

The end, like the beginning of croupous pneumonia, is apt to vary somewhat from the same stage in adults; the proportion of cases ending by crisis is greater than in adults; also physical signs are more apt to persist after crisis in children, and may continue for weeks, or even months. Such cases of

course give rise to considerable anxiety, especially for those with a tuberculous heredity; the prognosis, however, is not necessarily unfavorable and in the course of time all the signs may disappear and the patient completely regain his perfect state of health.

In conclusion, it may be said that croupous pneumonia in children differs from that of adults, clinically more than pathologically, that its diagnosis is often very difficult; its symptoms varied, and, as a rule, less well marked than in adults; the physical signs often appearing late, occasionally not at all; its course generally favorable in strong children; and, finally, that, though in obscure cases we should make repeated and thorough daily examinations of the chest, our diagnosis must be made from the history and general clinical picture, and not be dependent entirely on the results of careful explorations of the chest.

THE THERAPEUTICS OF BRONCHITIS.

Read in the Section on Diseases of Children at the Forty-fourth Annual Meeting of the American Medical Association.

BY I. N. LOVE, M.D.

PROFESSOR, CLINICAL MEDICINE AND DISEASES OF CHILDREN, MARION-SIMS COLLEGE OF MEDICINE; EDITOR MEDICAL MIRROR, ST. LOUIS.

Some observers have taken the position that bronchitis is due to a special germ; its point of entry being the air passages, and that the resulting disturbance is but an incident. The majority of us, I believe, will admit, however, that bronchitis as a rule is occasioned by simply "taking cold." The conditions favorable are constipated habit, improper diet, disturbed digestion, perverted secretions and exposure to cold, resulting in the chilling of the surfaces. As a consequence of this combination, we may have bronchitis or, in fact, a catarrhal condition of any one or all of the mucous membranes of the body. Were it not a bronchitis it might be a laryngitis, a rhinitis, a gastritis, an enteritis, a nephritis, a cystitis, or in fact we might have all of them combined in the same case. If in any marked degree, we would not have our case long.

However many germs there may be floating in the medium which surrounds us, the conditions just mentioned are ample in themselves to produce serious disease, and in my judgment are the direct cause in most instances. Possibly, were it not for the condition of the system developed which I have just mentioned, the human organism might be able to resist the attacks of most germs; at all events, these conditions furnish a standing invitation to any and all germs, whether they be the Klebs-Ehrlich bacillus, the germ of Friedländer, Eberth or others which have not yet been named.

In the therapeutics of bronchitis we must bear in mind that the cause in the majority of instances has been, chilling of the surfaces, a disturbance of the circulation, a stasis in various parts of the body, chiefly in the bronchial mucous membranes. We must not ignore the general torpor of the glandular outfit. Having interrogated all the vital organs and investigated every point, in the majority of instances we can safely purge our patient. We should not be satisfied with the statement given by the attendant that the bowels were moved to-day or yesterday.

Even though a diarrhea be present, as it frequently is, produced by the same causes as produced constipation, we are safe in flushing out the alimentary canal, securing the decks for action. Fer-

mentative material, irritative matters and accumulated ptomaines will thus be gotten rid of, and to this end a reasonably brisk calomel purge, followed by castor oil or something pleasanter, solution of citrate of magnesia, etc., will be in order; and by the way, added to the castor oil or in conjunction with the purgative, ten or fifteen-drop doses of oil of turpentine on a lump of sugar may well be given every two or three hours. It is one of the best stimulants of the glandular system that we have. It is a sweetener of the alimentary canal. It is almost an ideal remedy in bronchitis and pneumonia, and in this connection, I would suggest that cloths wet in turpentine from time to time may be placed in position for evaporation near to the patient. The remedies which we have given for the clearing out of the bowels, together with the turpentine, also serve to stimulate secretion upon the part of the mucous glands of the air passages and favor expectoration. In our treatment, however, this thought should be followed up, and to this end nothing is better than the benzoate of soda given in doses ranging from ten grains to a drachm, well diluted, every hour according to the age of the patient.

Local applications to the chest, such as turpentine stupes and camphorated oil, together with a dry poultice made by covering the chest with oiled silk; upon the outside of this, a layer of cotton batting—the whole held snugly in place by a tightly, well adjusted dannel bandage. The bandage properly applied to the chest is of great value in bronchitis and pneumonia, serving to support the often over-taxed chest muscles, acting as does a splint to a broken leg.

In the initiatory stage of the attack of bronchitis, the temperature must be watched. If very high, some one of the antipyretics should be given in a stimulating menstruum to reduce the temperature within proper limits. I am not of those who believe that fever is conservative and physiologic and may be ignored, no matter what its cause may be. Too high a temperature is dangerous, whether the patient have typhoid fever, pneumonia or bronchitis. A temperature of 105 degrees in a case of bronchitis should be reduced the same as in other conditions because the nerve centers are in danger. We need not disturb ourselves about a temperature which is not higher than 102 degrees, although it should be carefully guarded.

We must bear in mind that in bronchitis in children, however limited the surface involved, we may soon have a very pronounced aggravation of our case; extensive inflammation by continuity of surface, even to the point of a capillary bronchitis or one step further, to a catarrhal pneumonia. It should be our effort to encourage secretion on the part of the inflamed mucous surface, and expectoration. In children, particularly in infants, here is our chief difficulty; their inability to expectorate. A very slight cold with the resulting bronchial catarrh in a babe, is a serious, dangerous condition, and that which in one older would be simple and readily thrown off may soon result fatally. The mucus secreted is retained. The inflammation extends downward into the smaller bronchial tubes; retention goes on and our little one practically drowns from within. A free emetic will often save a life. Indeed prompt measures are essential to the proper management of bronchitis in children, and in fact this should be the

rule in adults also, for no doubt the sensitive mucous membrane present in a light case of bronchitis, invites the germs of pneumonia, diphtheria and other diseases.

Stimulation at the proper time is important, and I often give to good advantage, one or two teaspoonfuls of equal parts of whisky, glycerin, Forbes' diastase and honey.

Another important step is the securing of rest, and bearing in mind that we must not check secretion, this must be obtained at all hazards.

In all the diseases of children, the sensitive nervous system must be kept in mind, and no word in our therapeutic vocabulary should be so prominent as *Rest*. The old-time remedy, Dover's powder, heretofore in handily—one to three grains every one or two hours, as may be necessary to accomplish sleep.

We can not safely overlook the teething process, for while this is not the direct cause of bronchitis or other diseases, it is a predisposing one. In other words, the teething child's nervous system is "on edge," and it is prone to explosions in digestive apparatus as well as its respiratory system. Interrogate the gums and lance them if angry and resentful.

Malaria can never be ruled out of our medical philosophy—least of all in children; but its expression in the latter is more varied and indefinite than with adults. It is remarkable how often it is the most potent factor in a case of child's bronchitis—and in no case can we safely ignore it. Often, when all other remedies have been futile, the liberal administration of quinin will clear up a bronchial catarrh as if by magic.

After the acute stage has passed, with a view to prevent a sub-acute and chronic continuance, ten-drop doses of turpentine or one or two doses of terpin hydrate should be given every three or four hours, along with mild tonics and the most nutritious food.

In closing, I desire to lay special emphasis upon elimination, tranquillumization, stimulation, nutrition and oxygenation.

THE TREATMENT OF BRONCHO-PNEUMONIA IN CHILDREN.

Read in the Section on Diseases of Children at the Forty-fourth Annual Meeting of the American Medical Association.

BY FRANK S. PARSONS, M.D.
NORTHAMPTON, MASS.

A comfortable room, well ventilated, and good cleanly surroundings are as essential to the successful treatment of broncho-pneumonia as any other disease.

Care should be exercised to prevent all undue exposure to sudden changes of temperature, draughts of air, etc., which will in any way increase the liability of contracting a "cold," or aggravating one when already contracted.

The child, sick with bronchial inflammation, should be clad in a warm, long nightdress made of soft flannel, or cotton flannel, and kept in the same and in bed, until the severity of the disease has passed, unless absolutely necessary to make a change for the sake of cleanliness. In the first place, in these cases of broncho-pneumonia, it is well to direct that a chest protector be made of eiderdown flannel, which is warm and thick, besides being very soft and unirritating. This can be easily made out of one

piece, doubled, and cut of sufficient length to reach as far down as the level of the umbilicus all around; an opening large enough to slip over the head is made in the center of the piece, and armholes cut out to fit; then into each of the sides are sewed some bits of tape for tie-strings, so that when applied the sides can be so fastened as to completely inclose the chest.

I am of opinion that some such protector is of more value in broncho-pneumonia than all the poultices, ointments, or other applications usually made.

Whatever be the value of a poultice applied to the chest of a child with simple bronchitis, which I believe is small, it has no place in the treatment of broncho-pneumonia; indeed, I have seen them do more harm than good, unless frequently changed they become cold and clammy, and the exposure necessary to change them is an unwarranted one, which does not benefit the infant in this disease. Counter-irritants, as strong as blisters, are not to be thought of in the treatment of catarrhal affections of the bronchial tract in children. It is a harsh treatment, without any benefit to be gained above other simpler methods.

When we can see the case early enough, we often have time to confine our medication, to simply the treatment of the cough, and the assistance of resolution; but when the vital powers of the child are weakened, there must be given some support to them by stimulation, previous to any attempt to treat the cough, otherwise the child may quickly succumb to over-train of the heart.

For such stimulation, I have been in the habit of employing a mixture of one part brandy to five parts pure boiled water, preferably hot, and of this mixture half a teaspoonful is given every half hour until there is evident effect manifested on the pulse. Occasionally a drop of digitalis is added, if the case requires further stimulating support. The condition of the pulse is the best guide to the strength of the child.

In some cases, it will be necessary to combat the elevated temperature with antipyretic drugs, and of these the best results are, perhaps, obtained by the use of acetaniloid or acenit. I prefer the latter in very young children, because the former is insoluble in water. It is always a good plan to be on the safe side and combine digitalis with other antipyretic.

Occasionally it may be found necessary to give an emetic, during the course of the disease, to free the stomach as well as the bronchial tubes of viscid mucus, but among the weakly there is more or less debility to be expected following an emetic, which should cause us to move with caution in its administration.

For similar reasons, a little calomel given occasionally, to free the bowels and stomach of mucus is often beneficial.

During the course of the disease the position of the child's body should be often changed, so that the danger of hypostatic congestion will be lessened.

When a case presents that indicates an especial degree of "tightness over the chest," or suppression of cough, there is often benefit to be found in the boiling of water in the sick-room; the steam arising therefrom gives a moisture to the atmosphere which favors the expulsion of the secretion by adding to it watery elements.

I have purposely left the consideration of the treatment of the cough until the last, because of its importance. When a cough is treated by the administration of drugs there should be a definite reason for every one that enters into the composition of the prescription. Compounding a cough mixture at random, with the hope of hitting something that will stop the cough, is not only an unscientific way of treating it but one will be fortunate if he escapes doing actual harm. Stopping a cough is not a desirable thing to do; cough is nature's mode of getting rid of offending matter in the respiratory tract, and to stop it, in these catarrhal diseases of children, simply allows the accumulation of mucus in the bronchi to increase more and more, without the necessary efforts of nature to expel it.

In broncho-pneumonia we have a condition of stasis of the expulsive powers of the bronchi, due to the thickness of the mucus and the weakened condition of the muscles of the tubes, from repeated exhaustive attempts to cough up the secretion during the preëxisting bronchitis. Our first indication in treating the cough seems properly to be the stimulation of the mucous glands to increase the watery elements of the secretion, and, thus render the latter less tenacious. For this we may employ steam, by spray, or the boiling of water as previously indicated; but the drug best adapted to this purpose is ipecac in some form.

Combined with ipecac, some slight admixture of opium tends to hasten the second stage, as well as to relieve the irritability of the first; the form of opium which has, in my experience, had the most happy effect in this respect is the combination with camphor in the form of pægoric.

In all fever cases, and broncho pneumonia is no exception, there is high color and concentration of the urine, indicating more or less tax on the kidneys from congestions; therefore, I have employed the citrate of potash to encourage some mild diuretic action and increase the ease of elimination. For such reasons, I generally employ the following formula in bronchial affections of children:

R. Vin. ipecac.	5 i
Potass. citrat.	2 ss
Tinct. opii camph.	2 ii
Elixir simplis	2 i
Aque distil.	qs ad 5 iv

M. Sig. A teaspoonful every two hours to an infant one month old.

The use of the simple elixir will prevent the mixture souring in warm rooms or hot weather, where often syrup vehicles will render the mixture unfit for use in a few days.

The stimulating expectorants, so-called, and especially ammoniac, are useful in the later stages of this disease, after free, watery secretion has been established and all that is necessary to be accomplished is the promotion of efficient efforts at its expulsion from the bronchial tract. In the first stage they are useless. Tonics of iron are often indicated in convalescence, and good nutritious diet in older children is always useful.

SMALLPOX.—There are more cases of smallpox at this time in different parts of the country, than have been reported for many years. The continued neglect of vaccination can only have one result; that is, an increase of smallpox.

THE THERAPEUTICS OF CROUPOUS PNEUMONIA.

Read in the Section on Diseases of Children at the Forty-fourth Annual Meeting of the American Medical Association.

BY JOHN A. LARRABEE, M.D.

PROFESSOR OF OBSTETRICS AND DISEASES OF CHILDREN, IN THE HOSPITAL COLLEGE OF MEDICINE, LOUISVILLE, KY.

In an attempt to present to you for discussion, the subject which, by your too partial choice has been assigned to me, I shall endeavor to keep as nearly as possible within its limits, and with a due regard for the value of your time, I shall be as concise as possible.

It will, of course, be understood that pneumonia known as catarrhal or bronchial, which prevails to so much greater extent in infancy and childhood, but differs so widely in both etiology and treatment, shall form no part of this discussion beyond mention.

The attempt to draw an age limit around croupous pneumonia by many of the older writers has been responsible for many failures in diagnosis.

While few physicians at the present time fail to diagnose croupous pneumonia in the adult at some time during its progress, I must record my conviction, based upon experience, that many infants go to their graves annually, from croupous pneumonia, with death certificates signed "worms," "teething," and convulsions, and that quite as many aged persons escape diagnosis and are marked "senile debility." So much, then, for former teaching, that croupous pneumonia is a disease of vigorous adult life.

In the discussion of the therapeutics of croupous pneumonia, I recognize the importance of tabulating only those means which through a long period of time have proven valuable in the hands of the writers. The value of papers of this kind, is in direct proportion to the truthfulness of the statement therein contained, and to the careful clinical observation and experience of the author. In treatises designed for text-books, it is quite proper that all the known therapeutics, both practical and speculative, should be compiled, the endorsement of which is not made by the author and little of which has been the result of his experience.

I shall, therefore, make no attempt to enumerate the so-called remedies for this disease, however much extolled by others, nor shall I criticise those which in the experience of others have been valued. I recognize various therapeutic roads leading to the same desired terminus, and I care as little what means may be employed by others equally skilled, as I would to know with what tools a carpenter has completed my house, if he has completed it according to the plans and specifications.

Regarding pneumonia croupose as an acute, infectious disease, running a definite and limited course with a pronounced tendency to recover by natural processes alone, I might be expected to say very little concerning its therapeutics.

Notwithstanding the fact that medicines are powerless to cut short the disease, and the conviction expressed that very many will recover without any medication, few physicians possess a clientele of sufficient intelligence to risk a trial.

For this reason, as well as to favor the course of nature in repair, I constructed the following prescription, some twenty years ago, since which time I

have made it the sole treatment from the beginning to the close of the attack.

Moreover, it has been given as a part of my instruction to medical classes for nineteen years, and it is safe to say that at least a thousand practitioners have made it their chief reliance and have so expressed themselves to me by letter or person.

The indications—therapeutical—which are met by their combination are:

1. Satisfaction on the part of friends, that something is being done for the patient.
2. The satisfaction on the part of the practitioner that he is not doing harm to his patient.
3. The promotion of diuresis.
4. The promotion of diaphoresis and increased elimination of carbonic acid with reduction of temperature.
5. Increased alkalinity as shown by urine and a lessening of fibrin in the blood, promoting free mucous secretion and lessening the tendency to coagulation of blood.
6. Gentle, but diffused stimulation of the nerve centers, favoring sleep and preventing spasm.

R Spts. eth. nitrosi.

Potassæ acet. 5jss

Spts. mindereri.

Aque. camphoræ 5jij

To be left with slightly acid reaction as shown by litmus. M.ft.: Adult, dose, tablespoonful; child, dose, teaspoonful, every two hours.

To this may be added tr. acenit or veratrum if needed, and in convalescence tr. ferri chloridi. Such additions always to be made as extra doses, and not a part of the prescription.

CARDIAC STIMULATION.

Death approaches the sufferer from croupous pneumonia always through the heart. For this reason it is of the utmost importance to watch this organ, from the inception to the close of the disease. With the trained finger upon the pulse and the educated ear over the precordia, we catch the first signal of danger. To be forewarned is to be forearmed. Nothing is more essential to the cardiac therapeutics than a knowledge of the mechanism of heart failure in pneumonia. *Pari passu* with the consolidation of lung and in direct proportion to its extent, we have a mechanical obstruction to the transfer of blood from the right to the left heart, and added thereto the addition of carbonic anesthesia to muscle and frame. This occurs at a time when ptomaines from vegetable diplococci are in circulation and before the anti-pneumotoxin has been formed in the albumen of the blood. More blood is coming into the right auricle than can be forced through the lung by the ventricular stroke. The right ventricle becomes so distended that the apex beat is completely removed from its original site, between the fifth and sixth ribs, and the ear placed over the heart detects a heavy dull sound, while percussion reveals an increased area of dullness. In this condition the indications for improvement in the circulation become extreme and pressing. How shall this be best accomplished? Is it philosophical to attempt relief by a vis-a-tergo, or is it more rational to attempt a vis-a-frontis? Are these the indications for the employment of digitalis? It may be a good plan to goad the tired ox that has fallen in the furrow if you want a little more work, but you will kill the ox. It may be good therapeutics to stimulate a diseased

kidney if you want a little more urine, but you will have a little less patient. It may be good practice to give digitalis to a tagged-out heart in the stage of hepaticization of croupous pneumonia, but I doubt it. Digitalis stimulates a weak heart by contracting the arteries and arterioles, by throwing the blood back upon the heart itself, and where there is no pulmonary obstruction the action is prompt and efficient, as in valvular patulencies, etc., but the very condition which is killing the patient in pneumonia would be rendered still more dangerous by such an agent. Our fathers did eat manna in the wilderness and they are dead, but is it strange that venesection should occur to the mind as a possible solution of the question? Experiments in vivisection have demonstrated that a heart brought to a stand-still in such diastole may be revived by aspirating the right ventricle.

It has been ascertained that even ligation of the lower extremities just sufficient to prevent the return of venous blood, is followed by immediate relief to the heart. In the same manner is the explanation of the sense of relief felt by the patient upon the application of dry cups and hot flaxseed poultice to the chest walls. Pediluvia would also prove of service, were it not for the ever present danger of assuming the erect position.

Notwithstanding it comes to us as a voice from the past, there is to-day much truth in the statement that "blood-letting is good in pneumonia." Bleeding and tartar emetic marked the heroic treatment of the sturdy yeomen of the early nineteenth century, and yet we find from statistics that the mortality for 1822 to 1832 was 10 per cent., while from 1880 to 1890 it was 18 per cent.

Without attempting to revive a therapeutic so long abandoned and so universally condemned, it must be admitted that those old-time doctors struck some underlying principle in therapeutics which we, with all modern accomplishments, have failed to recognize. That principle was the relief of the overburdened heart. I propose, therefore, to demonstrate how this same desirable end may be obtained without jeopardizing the life of the patient and without inflicting upon him a long and tedious convalescence.

I.—BY AGENTS WHICH DETERMINE THE BLOOD TO THE -KIDNEY.

This may be accomplished by the warm pack, which, applied at a temperature of 98½ F., and protected by light woollens, envelops the body in an atmosphere of steam. By this means the peripheral nerves are soothed and almost invariably this procedure is followed by quiet sleep.

II.—BY BELLADONNA.

This time-honored and faithful servant of materia medica is too often lost sight of in practical therapeutics. It has a place in all hyperpyrexias accompanied by paleness of the skin and in low stages of fever. It is particularly adapted to the condition under consideration, being an indirect stimulant to the heart, diminishing the blood pressure by dilatation of the capillaries. It is also a stimulant to the respiratory centers of the brain, thereby inducing a more perfect aeration of the blood. The comparative harmlessness of this remedy in infancy and early childhood enables us to push it quite up to its toxic effects. It has done me yeoman's service

in many an apparently hopeless case of threatened cardiac failure in pneumonia.

III.—NITRO-GLYCERIN AND THE NITRITES

May be expected to rescue a heart after the manner of aspiration, taking off the pressure and flushing the skin, even when brought to a standstill in the diastole of a full right ventricle. Aconit and veratrum viridi certainly have a place in the treatment of pneumonia; the former, being a sedative from the start, is too dangerous for administration by continued dosing; the latter is safer than digitalis. Fothergill's statement that "digitalis is both spur and oats to a heart," is preëminently true, and in low forms of fever where the adynamia is due to long-continued hyperpyrexia. I have attempted to show that the mechanism of cardiac failure in pneumonia has its foundation in an entirely different pathology. I have been led to these conclusions by clinical observations and not by theory.

Finding that in this disease alone I failed to obtain the usual slowing and filling of the pulse in the radial artery, I began to investigate the cause of the failure of this grand old drug so generally serviceable in crippled hearts.

Alcohol will prove a far better cardiac stimulant in pneumonia, by reason of its power to dilate the capillaries, thereby retaining more blood in the skin, while at the same time it may have some value as a respiratory food.

IV.—APPLICATIONS TO THE CHEST.

The feeling that something may be accomplished, at least for the comfort of the patient suffering with pneumonia, by local applications to the thorax is universally believed by the laity. No doubt this idea had its origin in individual experience in many painful diseases. Shall they be cold or hot, moist or dry? Heat is a stimulant and cold is a sedative. Heat relieves pain under any and all circumstances. Heat locally applied is a powerful stimulant to the heart, and, by its action upon the vaso-motor nerves, lessens active hyperemia of the brain.

Physiologic experiments made upon the heart of a frog show that pulsations may be restored after a complete cessation by the application to this organ of a bit of cotton wrung out of very hot water, but they are again arrested by the application of cold. I prefer warm to cold applications, although some authorities, particularly Germans, speak favorably of cold, and even ice packs in the treatment of pneumonia. The choice is between poultices and cotton batting, protected by oil silk.

Those of us who have experienced the relief of a congestive headache by a warm foot bath containing mustard, are best prepared to answer this question. Is it probable that the same relief would follow putting the feet in cotton batting instead of hot water? Poultices are rarely properly made and seldom properly applied. Moreover, they are, at best, a very clumsy application, and by adding weight to the chest walls embarrass still further the labored respiration. A towel wrung out of very warm water wrapped once or twice around the chest and neatly covered by oiled silk is a far more elegant and comfortable application.

By this means the entire thorax is surrounded with a atmosphere of equal warmth and moisture, the superficial vessels are dilated, pain is relieved and repair hastened. Stimulating embrocations are

also of benefit and are useful in proportion to the chronicity of the case. The following prescription is a favorite of mine:

R Ol. succini rectificati ʒss
Ol. caryophylli mxx.
Liniment saponis ʒiiss.
M.ft.

EXPECTORANTS.

Cough is a constant accompaniment of pneumonia. At first dry, frequent and distressing, it soon succumbs to consolidation of the lungs and returns with commencing resolution. This return is hailed with pleasure by the physician and with unnecessary alarm by the laity. Perhaps it is the latter observation which has led to the employment of expectorant mixtures, most heterogeneous in composition and most therapeutically incompatible in application. These mixtures generally contain the entire list of so-called expectorants in the materia medica. Ipecac and squills to loosen, senega and ammonia to stimulate, wild cherry and other tannates to check secretions, alkalies to lessen viscosity of mucus and opium to benumb sensibility. Some of these prescriptions are a pharmaceutical curiosity. Yet one meets with them with such frequency in consultation practice that it would appear that reform in this direction is making slow progress. Such mixtures do little more than destroy the appetite and disgust the patient. Water, given in abundance, and at short intervals, is the best and only expectorant required. In cases of children, about the time of crisis of pneumonia with restlessness, cold extremities and pinched features I have seen great good from tincture of assafetida with whisky toddy. As a protection to the chest during convalescence a neatly fitting vest made of one layer of carded wool or absorbent cotton quilted and covered by oiled silk should be worn upon the chest.

PURGATIVES.

It is probably the observations of others besides myself, that purgatives administered during the stage of hepatization of a lung are bad. I have so often been called to cases made worse by the officiousness of some grand-dame, whose desire to purge amounts almost to insanity, that I am able to detect such interference by the collapse that has followed. I can give no explanation other than that purgatives add to the general depression at a time when the child is poorly able to stand it. If the bowels need attention they should be moved by simple enemata.

TEMPERATURE.

The enthusiasm for the treatment of high temperature so popular a few years ago, has, in a large measure subsided, and it may now be said that thermometric observations are less liable to plunge us into therapeutic errors than formerly.

I have never participated in this "Don Quixotic" fight of temperature, to the extent of allowing it to control my therapeutics, but have been content to treat hyperpyrexia alone, and always in relation to other existing symptoms.

In catarrhal pneumonia I am guided altogether by respiration ratio; in croupous pneumonia by the pulse ratio as compared with temperature.

It is exceedingly rare that I find a hyperpyrexia which does not yield to the warm bath or the warm pack, which I greatly prefer, and to the "tubing coils," known as my invention.

Some danger always attends upon the patient suddenly assuming an upright position in pneumonia, on account of the sudden strain placed upon the heart. I have more than once seen an immediately fatal result following such a procedure. Hence the preference of the pack to the bath. As I grow older in the profession and more experienced in practice, I am less courageous in the use of heroic measures. I must confess to a timidity in the use of the so-called antipyretics known as the coal-tar products or derivatives so highly praised by many excellent physicians. Reduction of temperature, however desirable, ought not to be purchased at the expense of de-oxidation of the blood in pneumonia.

CEREBRAL SYMPTOMS.

Previous to the investigations of Sternberg and Fränkel and the discovery of the diplococcus or pneumococcus of Friedlander, cerebral pneumonia admitted of no rational explanation. Various theories, in themselves ingenious, were made to account for the intense cephalalgia in adults, and for the initiatory convulsions of croupous pneumonia in infancy and childhood. It was at one time thought that cerebral manifestations were more frequently associated with apex consolidation and I, myself from observation, was inclined to corroborate this statement.

Prof. J. Lewis Smith recording his own valuable experience during an epidemic of cerebro-spinal meningitis in 1872 in New York city, makes a special mention of the great increase in the number of cases of croupous pneumonia prevailing at the time. He evidently recognizes a pneumonic form of cerebro-spinal fever. I have many times witnessed the recession of typical cerebro-spinal symptoms *pari passu* with the development of consolidation of the lung. In infancy these cerebral symptoms, marked by convulsions and vomiting, are so common an accompaniment of croupous pneumonia that one is never warranted in pronouncing upon meningitis without a careful examination of the chest. I am convinced that nothing but clinical experience will prevent young practitioners from making this serious error, so completely do the brain symptoms overshadow those of the pneumonia. In etiology, however, they do not differ from the symptoms produced by alkaloidal products of the microorganisms—toxalbumins—in other diseases circulating in the blood, e. g., scarlatina, smallpox, measles and typhoid fever.

So soon as the characteristic lesion of these diseases becomes established, these so-called brain symptoms subside as rapidly as they came. With this etiology it is scarcely possible that one will be found administering drastic cathartics or applying leeches to the scalp. Bromids and chloral are also of doubtful propriety.

The warm bath, the warm wet pack to the chest and tubing cap to the head, is almost certainly followed by relief, quiet sleep and by reduction of temperature, which is also a factor in disturbances of the nerve centers by no means to be lost sight of in our therapeutics.

CRISIS.

So long ago as 1880, in my lectures, I stated that the sudden and remarkable change which occurs usually from the fifth to the seventh day, known as crisis must have some other explanation than the

subsidence of inflammation. Auscultation and percussion so frequently revealed no improvement which could reasonably account for such a change; for days after convalescence was established the local lesion could be readily demonstrated.

The study of the micrococcus pneumoniae croupous and its product, pneumotoxin, has led to the discovery of a so-called anti-pneumotoxin, supposed by the celebrated German scientists, the Klemperer Brothers, to be antidotal to the former. The opening of this window certainly throws a flood of light into a dark recess. Should the fond expectations of these earnest investigators prove true, your patience will not be burdened in future by lengthy papers upon the therapeutics of croupous pneumonia.

The sick will be made to cure the sick, and the physician, armed with his hypodermic syringe, will act as a mediator between the two. Unfortunately, however, for all these beautiful theories which comet-like, dart across the medical sky, dazzling our vision, they are soon lost below the horizon, leaving us to "darkle in the trackless void."

In diseases which secure an immunity against a subsequent attack, we have a right to expect much from inoculation. Pneumonia in so far from securing exemption from future attacks, predisposes to them, and this has been the observation of physicians from time immemorial the world over. I have in my practice a patient who has had croupous pneumonia seven times in six years and whose life has been in jeopardy several times.

In conclusion, permit me to say that, while the majority of cases require little medicinal treatment, the successful practitioner will be on the alert to detect constitutional and hereditary weaknesses, in his little patients. The importance which attaches to diathesis can not be over-estimated. Pneumonia in a rachitic infant carries with it a far more grave prognosis than in a healthy child.

The strumous and tubercular diatheses entail a series of consequences peculiar to each. Delayed resolution in the lung and enlargement of the bronchial glands, indicate the use of potassium iodid and muriate of ammonia with the daily application of tincture of iodine to the upper portion of the thorax.

Cod-liver oil with marshmallow emulsion and the elixir lacto-peptine with tincture ferri chloridi and gentian as prepared by the New York Pharmacal Co., have proven to be excellent reconstructive tonics.

DISCUSSION ON BRONCHO-PNEUMONIA.

DR. JAS. B. HERRICK, Chicago, Ill.—I think Dr. Churchill rightly said that the diagnosis of pneumonia in a child was often difficult, for the reason that the classical symptoms are oftentimes entirely lacking. We frequently have central pneumonia where the physical signs are so imperfectly marked that the diagnosis is very uncertain. The pain is so frequently referred to the epigastrium that the attention may be drawn to this region, but the rapidity of the respirations should draw our attention to the chest. I agree with Dr. Christopher that the cough, which is often noticed in children, is frequently nothing more than a symptom of walking typhoid. The broncho-pneumonia which occurs in the newborn is probably due to the inhalation of liquor amnii. I do not favor the use of poultices in either bronchitis or pneumonia. At first I attempt to lower the temperature by the bath, and if unsuccessful I then resort to the coal-tar preparations. I have never seen a bad effect from these antipyretics.

DR. GRAHAM, Philadelphia, Pa.—If I were limited in the treatment of pyrexia, I should not hesitate to accept cold as the best means. I have used the cold bath frequently with good results. If cold is applied at all it should be done fearlessly. I have never noticed any depressing effects from its use. We should begin the bath at a temperature of 72 to 80 degrees F. I have also obtained good results from cold water injections; a pint to a pint and a half can be injected at a time. I think aconit should be used with the greatest caution.

DR. WORK, Indiana.—I am in favor of poultices. Have had good results from the administration of cinchonidia. I invariably eliminate the bowels first. I would not apply cold, for I prefer the application of stimulating poultices. Onions and flaxseed meal make a very efficient poultice. I continue effective elimination all the way through the disease.

DR. DORLAND, Philadelphia, Pa.—I think the pneumonia of the new-born is almost always due to the inhalation of liquor amnii.

DR. CHAS. G. JENNINGS, Detroit, Mich.—In bronchitis, which seems to be extending well down, we should be very accurate in our procedure. It is a well-recognized fact that this extension can be frequently arrested. I find that a very sharp administration of antimony, ipecac or apomorphin is followed by good results. Along with the antimony, one of the preparations of opium serves very well to modify its depressing action and also allays the nervous symptoms. I believe the bath to be a stimulant to both respiration and circulation, as well as a good antipyretic. Drugs may be used in the beginning of the disease, but during the latter part of the course I think the bath, beginning at 90 degrees and gradually reduced to 80 or 75, is a very great stimulant to all the functions and it will reduce the temperature to a very safe point. I should certainly prefer a hot water poultice to an onion and flaxseed meal poultice. In the rapidity of the respirations is a very important diagnostic sign. I think digitalis is good occasionally.

DR. W. S. CHRISTOPHER, Chicago, Ill.—I do not think an exceedingly rapid respiration without areas of consolidation should be diagnosed pneumonia. Bronchitis may present exceedingly severe symptoms when the smaller tubes are not affected at all. For the prognosis we are to be guided by the illness of the child. An elevation of temperature is only serious when it reaches such a point that it interferes with the action of the white blood corpuscles, which is about 105 degrees. In pneumonia, the labor is thrown upon the right heart, which leads to an over-filling of the veins, and for this reason digitalis should not be given. Sweet spirits of niter is a very useful drug. Purgatives which will empty the liver, and above all things which dilate the capillaries locally are to be recommended. Capillary dilatation of the skin is very important and can be obtained by the use of poultices or jackets. For my own part I prefer the poultices, yet in careless hands they are exceedingly dangerous. I think we can derive a great deal of benefit from baths given at the temperature of the body. Water at a temperature of 98, will often reduce the temperature, and such baths may be continued for from fifteen minutes to an hour.

DR. J. M. G. CALVERT, Waukegan, Ill.—According to statistics, there are five hundred and sixty-one deaths per million due to bronchial affections in the city, to one hundred and sixty-five per million in the country. Among the Indians there are only ten deaths per thousand attributable to bronchitis, while among the whites there are about 100 deaths per thousand. This I think, goes to show that exposure does not play a very important role in its causation.

DR. I. N. LOVE, St. Louis, Mo.—I believe generally that small doses of antipyretics are sufficient. I think it very important that proper terms for the various lung affections should be used, otherwise it renders all statistics valueless. No doubt there are many cases of masked pneumonia which are never diagnosed as such. I do approve of the use of the bath. The hot bath should never be given for convulsions, nor should the cold bath be used in the treatment of pneumonia.

DR. F. S. PARSONS, Northampton, Mass.—I have never succeeded in getting a second dose of cinchonidia down a child. In croupous pneumonia I have relied more upon the brandy treatment, with very small doses of digitalis. I use acetanilid in very small doses, which I believe acts better upon the skin than large doses.

DR. J. A. LARABEE, Louisville, Ky.—Where we have a full right ventricle I do not believe digitalis should be given. I am in favor of the warm bath. In bronchitis I have had good results from vapor inhalations; they will do more good than all the expectorants put together. Teething, I believe, in a way, predisposes to bronchitis. I certainly believe that hot applications are far more efficacious than cotton jackets.

DR. TOWNSEND, in discussing Dr. Thrasher's paper, was of the opinion that if cleanliness and a proper diet were looked after, little trouble would occur during dentition.

DR. A. FOSTER of Chicago, in discussing the same paper, laid stress upon the importance of discriminating between the effects of teething and the results of improper feeding. He also thought there was a reflex condition existing between the cutting of teeth and the stomach, as well as there is between the uterus and the stomach, and was not of the opinion that all the trouble arising during dentition was due to the stomach alone. The canines are more apt to cause trouble than any of the other teeth. He did not agree with Dr. Thrasher that mothers as a rule do not prefer to nurse their children.

DR. CHRISTOPHER of Chicago, was strongly opposed to attributing the various ills of the child during dentition to cutting of teeth, and believed that most of its affections are due to other causes. It is true that in most bottle-fed babies the nutrition is not up to par and the state of its tissues is not normal, and I believe that such children are affected by slight things, and in such the cutting of the teeth may cause trouble.

In discussing Dr. J. Schneck's paper, Dr. Work approved of the treatment therein stated.

THE CURABILITY OF NASO-MUCOSITIS.¹

BY THOS. F. RUMBOLD, M.D.

SAN FRANCISCO, CAL.

(Continued from page 848).

PART II.

The Number and Intervals of Local Applications will vary with the Grade.—If the Patient of the First Grade, an Infant, is Properly Treated soon after it has taken cold, the disease will be of very short duration, because the reparative processes are very strong at this age. In case the patient is only a few days or weeks old, two or three applications may be required the first day; two on the second day, and one on the third. Frequent treatments are necessary, because the secretion forms rapidly and requires removal as soon as it is formed. Patients from one

¹ The term "nasos mucositis," is formed from the word mucosa, the mucous membrane, with the usual termination, "itis," which indicates inflammation, and the prefix naso-, which limits the inflammation to the nasal passage.

to twelve months of age will require daily treatments at first for from three to ten days, and then two or three weeks' treatment given every other day, making in all from nine to nineteen local applications. Those from one to two years of age will require daily treatments for from three to ten days, and then for from three to six weeks' additional treatment given every other day, making from twelve to twenty-eight local applications altogether. Relief follows the first application, and recovery takes place at the completion of these courses.

Patients of the Second Grade.—*Young Children* will require daily local applications for from five to ten days, every other day for from two to four weeks, twice a week for three weeks, once a week for five weeks, making from twenty-two to thirty-three in all.

This completes their *first course* of treatment, and occupies from eleven to thirteen weeks. All disagreeable symptoms will disappear during the second or third week.

Patients of the Third Grade.—*Youths*, will require daily treatments until the purulent character of the nasal secretion disappears, which is usually from two to three weeks; then local treatments every other day for about four or five weeks, then twice a week for four weeks, and then once a week for five weeks; making in all, from thirty-nine to forty-nine treatments for their *first course*, occupying from fifteen to seventeen weeks. Relief follows the first treatment and all disagreeable symptoms should disappear permanently from the third to the fourth week.

Patients of the Fourth Grade.—*Adults*, will require a *first course* of daily treatments for from three to four weeks, then five or six weeks three times a week, then about five weeks twice a week, and once a week for six weeks; making, in all, from fifty-two to sixty-two treatments. All unfavorable symptoms should be relieved during the first few weeks.

If the naso-mucositis is complicated with any of the following sequelæ: ear, throat, or lung trouble, enlargement of the turbinate processes, deviated septum, pruritic naso-mucositis (hay-fever), asthma, epilepsy, chorea, paralysis agitans of the muscles of the face, neck, or ears (tinnitus aurium), mental disability, commonly called "neurasthenia," "nervous prostration," from mental over-work, these local applications and the constitutional treatment will have to be continued for a longer period of time, the length of which will be governed by the peculiarities of each case.

Patients of this grade will require spring and fall courses of from eight to ten local applications each, for from three to five years. About seven in every ten of those over thirty-five years of age will require these supplementary treatments from but two to five years longer, that is from five to nine years in all.

Patients of the Fifth Grade.—*Those over Forty Years of Age*, will require about the same number of local treatments, for their *first course*, as those given to the fourth grade. Those under fifty-five years of age will require from ten to fifteen treatments every spring and fall for seven to ten years; while those who are older will require from fifteen to twenty treatments every spring and fall during life, to maintain their mucous membrane in such a semi-normal condition that they will not complain. I have known, however, a large number of patients over fifty-five to pass one, two, or more years without requiring local treatments.

Conclusion.—*Summary.*—It has been proved, thousands of times, that the younger the patient the less extensive and less permanent the changes due to inflammation, and at the same time, the stronger and more rapid the recuperative powers. For these reasons, they will require a less number of supplementary treatments. As has been stated, infants rarely require supplementary treatments.

Some children, patients of the second grade, may require from four to six supplementary treatments at the next change of the season, that is, the spring and fall following their first course. Also some patients of the third grade may require from five to eight supplementary treatments during each spring and fall course for two or three years. The dates of the supplementary spring and fall courses are from March 15, to May 15; and from September 15, to November 15.

Why Supplementary Courses are Required.—The patients that I have described as requiring spring and fall local treatments, are those who cannot fully recover from the effects of the chronic inflammation at the completion of their first course of treatment. It should not be expected that the blood vessels of the mucous membrane and of the sub-mucous tissues, which have become enlarged to twenty or forty times their normal diameter, would be reduced the nineteen or thirty-nine diameters with only a few months' local treatment. Even looking at the mucous membrane alone, it is still in an atonic condition at the end of such a period, although the inflammation is greatly reduced; consequently it must be allowed to remain in an uninfamed state for some time, longer or shorter, according to the age of the patient, before complete recovery can take place. It must, at least, so remain long enough to regain its normal resisting power, until its blood vessels and nerves have returned to nearly their normal condition.

Supplementary courses, extending over several years, are required to maintain the still partially inflamed, therefore over-secreting, surfaces in a clean condition. The secretion from the inflamed surfaces, which is always acid, assists in maintaining the disease, and if this is not removed when it forms in the spring and fall, complete recovery can not take place. Until all this reparation has taken place, the membrane is in a weakened condition, consequently, it is liable to be injuriously affected by exposures to excessive variations of temperature, barometric and hygrometric changes, or even a debilitated condition of the stomach. Healthy mucous membrane is not especially affected injuriously by any of these agencies. It should be constantly kept in mind that when a cold is taken by a person whose nasal passages are in a healthy condition, his nasal mucous membrane is *not* particularly affected; it is his whole body that suffers. On the other hand, if the victim of naso-mucositis takes cold, his nasal passages alone seem to be affected. Although this is not strictly true, yet he complains as though these passages alone were affected, and they are chiefly affected only because the mucous membrane is in a weakened condition. If one's arm is fractured, he is, on this account, liable to take a cold in it if he exposes himself. When the injured arm has partially recovered then it is only partially liable to take cold, and the liability to take cold lessens as he progresses toward recovery. So it is with

the nasal mucous membrane. Thus it is seen that *time* is an essential element in the recovery of all cases of naso-mucositis inflammation in patients over twenty years of age.

The older the patient, the greater and more permanent the tissue changes brought about by the chronic inflammation, and at the same time the weaker and slower the reparative processes. For these reasons, in such cases, a far greater number of supplementary treatments must be given. Take two persons of the same age in either of the grades, over twenty years of age; one with a simple nasal inflammation; the other with it of so severe a character as to affect the ears or eyes, or to cause symptoms of neurasthenia, or to produce an epilepsy, or chorea, or such like; it is self-evident that the former case will require a much shorter *first course* of treatments, and shorter *supplementary courses*, than the latter one, where the inflammation is so severe as to affect parts of the head at so great a distance from the nasal passages. The secondary ailment can be relieved only by the reparative processes of nature, after the original nasal trouble is subdued to a great extent. I do not remember to have had a patient who did not say that each of the supplementary courses was as relieving as the first course of treatment. They always gave even greater immunity from colds, because the mucous membrane is more nearly in its normal condition.

If the spring and fall courses are not taken, the inflammation will slowly but surely resume its former severity, and then from that time it will continue to increase just as though no local or constitutional treatment had ever been given. Under these circumstances, it would have been far better if patients omitting such courses had not commenced to take treatment. Their time and money would not have been wasted, nor would the reputation of the physician have been injured by unavailing complaints of not being cured.

No Disease more Amenable to Hygienic and Therapeutic Management than Naso-Mucositis.—In the case of any patient not over fifty-five years of age, who attends to his various daily duties, whose appetite, digestion and sleep are good enough to maintain passable health, it will be the fault of either the physician or of the patient if he is not cured. A cure must follow if the following conditions are fulfilled, viz: 1, obedience to hygienic precepts involving the discontinuance of habits that are the cause of the disease; 2, proper medical treatment, continued for a sufficient length of time, by which the inflamed surfaces are kept free from all irritating secretion, and have applied to them perfectly *non-irritating* medicaments by perfectly *non-irritating* means.

There are Several Very Good Reasons why Persons are not cured of Naso-Mucositis.—In the first place, they are unconscious of living in constant violation of the laws of health; or 2, they do not have the least conception that their disease is solely the result of these violations; or 3, they do not realize that they are so seriously, or are so permanently affected; or 4, they received improper medical treatment; or 5, they cease proper treatment too soon.

Most Cases of Nasal Disease are Attributable to Nervousness.—Let us commence with the youngest sufferers. As the mother unable to properly protect her

babe when she takes it for a healthful out door walk? No. Is she unable to make a cap to protect its tender, hairless head from being injured by even an indoor temperature that is 20 or 30 degrees colder than its body? No. Then why does she not prevent it from becoming a victim of this disease? The only answer that can be given to this question, is, that she is entirely unconscious of any omission in the care of her child, and has not the least conception that the slightest harm will result because its head is not protected by a cap. The heads of all hairless infants that she has seen are allowed to remain uncovered, and for that reason alone her child's head goes uncovered while in the house. In Europe the heads of all infants are covered with caps, day and night; in this country the heads are not covered day or night.

The mother does not know that the "snuffles," to her a very trifling matter, because so exceedingly common, is the result of quite a number of colds, owing to the same number of undue exposures. She has not been informed that colds thus taken prepare her child's mucous membrane to take other colds more easily and more severely on subsequent exposure, and that repetitions of exposure and consequent colds are positively certain to end in serious disease of its nasal passages, ears, lungs, or several of its organs at the same time. This is the *modus operandi* of preparing the patients of the first and second grades. It is seen at once that success in curing such patients will depend, not so much on applications or remedies, as on the successful education of the parents, so that they will know how to prevent the continuous irritations from colds. If successful in this respect, cure is certain to follow. Not only that, but I believe that three-fourths of these cases—of course uncomplicated ones—will recover without medication of any kind, provided proper care is taken of them. I say this to indicate my estimation of the great value of hygienic measures.

We have already seen how the third grade patients are prepared for the rhinologists, through exposure and improper dressing permitted ignorantly, by their parents. In the common matters of every-day life there is not a greater display of woeful ignorance, almost criminal, than is here shown. It is ignorance as well as carelessness and viciousness, that has brought on naso-mucositis disease upon patients of the fourth and fifth grades. If excesses *must* be indulged, evil consequences *will* follow and must be endured; for nature's laws would have to be changed before they could be cured by any method of treatment. Many patients fail of cure through imperfect treatment, either owing to not having the right method applied to their cases, or not fully availing themselves of it.

Partial Treatment.—There are quite a number of persons who received proper treatment for several months, almost long enough to complete their *first course*, but do not entirely discontinue those habits and customs that aggravate the disease, such as the indulgence in tobacco and stimulants, and other forms of dissipation, the improper use of clothing, such as low-necked and short-sleeved dresses, attending operas at night, then eating, wine suppers, etc. Such patients fail to appreciate the importance of hygienic measures, and only observe them while under great anxiety from the debilitating influence of the disease. It is seen that they expect this dis-

1. The patient is not cured of the disease, but the complaint known as "nervousness" is cured, and the patient is left in a state of chronic disease.

case to be cured by medicine alone. Customs, habits and dress are not inured into by them; local symptoms alone attract attention. Their not being cured quickly engenders a fear that they will not be cured at all. Some will be dissatisfied if they are not completely cured in a few months at the farthest, and this result must be effected without entailing any trouble on their part, as well as without interfering in the least with their usual course of life, especially if this course has been for years in gross violation of the laws of health.

Almost all patients experience marked relief on receiving local applications during the first three or four weeks; after this a small percentage of them will say that the treatment seems to be less efficacious than formerly. As quite a number of them have tried remedies that afforded relief at first, they begin to suspect that this also will result in failure. These reports come from patients who have experienced but little pain or discomfort of any kind. Upon questioning them, it will be found that during the first few weeks of treatment all unpleasant symptoms slowly and imperceptibly passed away, and were completely forgotten. Upon this discovery, and relating to them the sensations that they gave when they commenced treatment, they are entirely satisfied; although a great many will hardly believe the physician when he recounts their symptoms upon their first visits. It is remarkable how quickly their disagreeable sensations pass out of mind until shown a record of them.

Advice Regarding the Avoidance of Colds.—Many times patients, especially those of the fourth grade say: "All this advice with regard to being careful not to take cold is well enough to almost any one but myself; I take cold almost constantly, even when I am doing my utmost to prevent it. I do not know how I take cold; I don't think it is any fault of mine. What is the use of advising me to do something I can't do?"

The answer is this: a mucous membrane that is greatly inflamed, as is this patient's, is one that is remarkably sensitive to attacks of cold. A slight draft of air, even walking in a cool hall, going into a cold bed, or a slightly disordered condition of the stomach, will be sufficient to produce manifestations of a cold. But, to repeat, *it is so with those only who have had severe chronic naso-mucositis for many years.* Still the advice is proper to persons thus susceptible. They will find that, as the treatment reduces the inflammation, care will be successful in warding off colds, as it is only the excessively inflamed mucous membrane that takes cold so easily. The more successful they are in preventing colds, the more quickly they will be cured and the more certain they may be that they are making permanent improvement.

Colds Resulting from Debility Occasioned by Indigestion.—There is another apparent cause of colds, and it is one of the very greatest importance; it is in regard to the proper kind of food. Patients who have for years had a stream of mucopurulent secretion passing incessantly from the pharyngo-nasal cavity down through the esophagus into the stomach, have in this way slowly produced indigestion; that is, slowly weakened the mucous membrane of the stomach by the continued presence of the nasal secretion. This secretion is always acid, therefore irritating; not only this, but it is really a substance

that will assist in bringing about fermentation of the food. Thus it is that many persons who have a good appetite have poor digestion and, as a consequence, are not poorly nourished. The reasons for this are twofold; one, as has been stated, the mucous membrane of the stomach is weakened; the other, the whole contents of the stomach and bowels have undergone a peculiar species of fermentation, started by the ferment of nasal secretion. Evidence of the fermented condition of the alvine discharges are the excessive and peculiarly disagreeable odor of the stools, and the uniform high color of the urine, etc., showing that all the organs concerned in digestion and excretion are in seriously affected, and as a consequence, the nutrition of the whole body must necessarily suffer. In the large majority of instances the weakened stomach will not as completely digest animal food as it did in former years; but it will almost always digest vegetable food. If such is the case, and the patient can easily prove this for himself, if he is observant, then he should govern his diet accordingly. It looks a little strange that a hearty repast of roast beef, taken at a night meal, will frequently result in an increase of one's cold the next day, but I am certain, from many observations, that such is the case.

Taking Cold Frequently.—"It seems to me that I take cold more frequently than before treatment." If this is the case, then the patient may be slightly over-treated. Over-treatment, of course, means increase of irritation instead of the decrease, which is essential to recovery. The remedy is easy. In the majority of instances the remark comes from patients who have made but slight observations upon their own condition, until they came under the care of the physician. In a few weeks they will find that they were mistaken as by this time they will observe the reverse to be the case, that is, that they take cold less easily than before they took treatment. Decrease of inflammation and decrease of cold-taking always go together.

Evidence of Improvement.—It is the relief of the acute inflammation, which nearly always occasions marked discomfort, that is plainly observed by the patient; the subsidence of the chronic form is not accompanied by marked relief, unless the patient compares his present condition with that of several weeks or months previous. Many of these patients continue under treatment for three or four weeks, entirely on their confidence on the physician, so little do they observe any change. A very common feature of their condition, which is not usually noticed by these patients until their attention is called to it, is the fact that they do not take cold as frequently and severely as formerly. This they should consider as the very best evidence that they are making permanent improvement. If they are not taking cold as frequently as formerly, it is because the treatment is relieving the diseased surface of its chronic inflammation and the membrane is becoming stronger. This is the opposite of their condition before they took treatment; then, they took cold even without an opportunity, now, they do not take cold until they are unusually exposed—a marked contrast. This contrast should be brought forcibly to the patient's attention.

Regardless of the Laws of Health.—Frequently patients, who live regardless of the laws of health, unconsciously or purposely conceal the truth to

avoid a merited censure for their reprehensible conduct, and wish to make it appear as if it was the physician's fault alone that improvement did not continue until they recovered. The relapse to the former state of ill health is but a consequence of the relapse to their former habits and customs of life.

It is evident that if they had not continued to contract the disease, that is, by being indifferent to taking colds and using tobacco and stimulants, they would have continued to improve until complete recovery had taken place; for if they improved when their health was seriously impaired by the nasal complaint, and the inflammation was in its severest form, it seems natural to suppose that after their systems had markedly recovered from the debilitating influence of the disease, they would have continued to improve if the same hygienic and therapeutic measures had been continued, although the improvement would not have been so rapid as at first, as has been explained.

On partial recovery they return to their usual mode of life without any restraint, and of course their nasal trouble ceases to improve. This arrest of improvement and the annoyance they experience in denying themselves of their disease-producing habits, cause them to discontinue treatment.

If asked by their friends concerning their nasal complaint, they reply that they were conscious of marked improvement at the early part of the treatment, but after a few weeks, while not as ill as at the commencement, the improvement did not continue as rapidly as at first, and for that reason they discontinued their visits to the physician. After a few months they will relapse into their former state of ill health.

(To be Continued.)

HERNIA IN CHILDREN.

Read in the Section on Diseases of Children, at the Forty-fourth Annual Meeting of the American Medical Association.

BY WM. E. WIRT, A.M., M.D., PH.D.

CLEVELAND, OHIO.

PROFESSOR OF ORTHOPEDIC SURGERY IN THE MEDICAL DEPARTMENT UNIVERSITY OF CLEVELAND, OHIO; VISITING SURGEON TO UNIVERSITY HOSPITAL, CLEVELAND; SURGEON TO CLEVELAND HOSPITAL FOR WOMEN AND CHILDREN; LATE ROYAL SURGEON, HOSPITAL FOR RUPTURED AND CRIPPLED CHILDREN, NEW YORK CITY, ETC.

Hernia being a very disabling affection to a relatively large per cent. of the human family, and the frequent cause of death both in adults and children, is sufficient reason for its being considered here to-day.

Frequency and Varieties.—I have mentioned that it affects a comparatively large per cent. of mankind. It has been variously estimated that the affection is found in from one-eighth to one-sixteenth of the entire population. About one death occurring in every six hundred is due to hernia. Almost every aperture leading directly or indirectly to the abdominal cavity is liable more or less frequently to become the point of exit of a hernia. In the order of frequency of occurrence they may be named as follows: inguinal, umbilical, femoral, ventral, obturator, ischiatic, perineal, diaphragmatic, and a few other rare forms.

For every ventral hernia there are about four femoral, five umbilical and sixty-two inguinal hernias.

At the Hospital for Ruptured and Crippled, New York City, there were treated during the five years from September, 1887 to September, 1892, 19,756 cases of hernia, or about 4,000 per year. The relative frequency of the different forms are as follows:

	No. Cases	Male.	Female.	Under 14 yrs.	Right.	Left.	Double
Inguinal	16,861	14,994	1,870	4,348	7,906	4,375	4,686
Umbilical	1,488	569	919	789			
Femoral	1,135	418	717	26	700	379	56*
Ventral	269	95	174	13			
Total	19,756	16,076	3,680	5,176	8,506	4,754	

*These 56 double femoral hernia cases only cover the reports of 471 femoral cases. Report for 1891 and 1892.

Sex, Age, etc.—Hernia in general is found much more commonly in males than in females. Of the above 19,756 cases, 16,076 were males and 3,680 were females, or about four and one-third times as many males as females. Of the inguinal variety of hernia, which includes the great bulk of the cases, there were 16,864 cases; of which number 14,994 were males and 1,870 were females, or about eight times as many males as females.

Umbilical hernia is found more frequently in females than males, nearly in the proportion of two to one, and over half the cases are seen in children. Femoral hernia is also found more frequently in females than males, but is rarely seen in children, only 5 cases a year noted out of 4,000 cases examined. Of the total number of cases of all kinds treated in five years, 19,756, there were 5,176 children under fourteen years of age, or a little over one-fourth of the whole number.

Etiologic Factors.—It has been noted that climate and the condition of the patient are factors bearing on the relative frequency of the affection. Of countries, Spain and Portugal have the highest per cent. of ruptures per population, and the countries of South America the lowest. Of the States of the Union, Minnesota has the highest average and West Virginia the lowest. Physical condition of the patient has a marked bearing on the subject. Children weakened or debilitated by disease are more liable to the affection than the rugged; and having the hernia, it is harder to retain in place when the child's general health is weakened by any cause whatsoever.

The passage of the spermatic cord and vessels through the inguinal canal has always been recognized as the prime causation factor in the production of inguinal hernia and need not be discussed. Umbilical hernia may be congenital or acquired. Of the congenital variety, arrest of development of the abdominal walls is a frequent cause. Dr. James R. Chadwick of Boston, suggests another cause. We know that the intestines are developed outside the abdomen. Should their volume be too great to be readily inclosed by the undersized abdominal walls, at the time when the abdomen should be normally inclosed, the umbilical vesical should it fail to have atrophied, acts by means of its duct to keep part of the intestines without the abdomen and thus to form a hernia. Dr. Chadwick demonstrated his views by several dissections; other cases have been reported which favor this idea. The umbilical aperture is ordinarily patent at birth and is therefore a naturally weak point. Dr. Edward Swasey, in reporting 500 cases of hernia in children observed at the Hospital for Ruptured and Crippled, noting that female chil-

dren are more liable to umbilical hernia than males, suggests that it is probably due to the relatively larger funis in the female child. He further attributes the greater frequency of right inguinal hernia than left, to the weight of the liver pushing the intestines on the right side down into the funicular process. The region at and about the umbilicus being naturally weak, the acquired form in children is brought about by crying, coughing, straining at stool and the like. Femoral hernia is rarely seen in children, and the etiologic factors acting in the comparatively few cases observed, are not marked, or, at least, have not been well made out. Ventral hernia is usually seen in feeble and delicate children, and especially when the muscular system is poorly developed. The usual contents of a hernia in a child is intestine or omentum, though rarely an ovary, uterus, kidney, or a part of the bladder has been found.

Treatment.—The treatment of hernia in children can be classed under these heads: 1, general treatment; 2, mechanical support; 3, operative measures.

1. **General Treatment.**—If possible, the attending physician should obtain knowledge as to the circumstances under which the hernia first appeared and this active causation factor should be removed. Suppose that it first appeared during a fit of vomiting, and from thence, after each meal, the child is sick and the hernia appears. In such a case the feeding of the child is of paramount importance. Should the hernia come down during fits of coughing, treatment for the cough comes first. Violent explosive efforts must be checked before the hernia can be cured.

Recently I was called in consultation to see a child, with a large right inguinal hernia. The child was suffering from whooping cough, so that nothing very effective could be done till the cough was cured. An elongated uvula might be the cause of vomiting or coughing. A rectal polypus or chronic diarrhea may cause a hernia or prevent its permanent cure by compelling the child to strain at stool. Relief of these conditions should be looked after. Should the hernia appear during micturition, see that the preputial and urethral orifices are free. Possibly the child is suffering from a calculus. If the child is emaciated and its muscular system poorly developed, tonics, cod-liver oil, good food, out-door exercise, and sunshine are eminently in order.

2. **Mechanical Treatment.**—At the Hospital for Ruptured and Crippled, New York City, where the writer was formerly House Surgeon, they treat on an average about four thousand patients a year having ruptures. The general plan of treatment, at that institution in all reducible cases, except umbilical and ventral, is support by means of a steel spring truss, using pressure as light as consistent with the effective control of the hernia. This truss which I show you, known as the "Knight" truss, is the support generally employed. It is easy of application and is quite inexpensive. It differs from those usually sold at the shops in that it is an "opposite side" truss, i. e., it passes in front of the pelvis to the rupture, from the opposite side of body. It passes three-fourths around the body and the circumference is completed by means of a strap. The spring is made of imported steel, tempered to a point which permits it to be shaped to the contour of the body. The steel band is covered with rubber tubing, and at the end is a shank at right angles to

the band, to which is attached a steel band of one and one-half to two inches in diameter covered with chamois skin. The spiral spring truss is not so much also the Socky and the Patent equipped, but the latter are not so efficient in the severer forms of hernia. In those cases that are quite difficult to hold, the "Hood" truss is used. This is a very neat and comfortable truss, but is too expensive for clinical purposes. In over three-fourths of the cases the "Knight" truss is found quite efficient, and this combined with its cheapness makes it the truss par excellence. Dr. S. E. Miliken, formerly Assistant Surgeon to the Hospital, devised a truss to hold the comparatively few that could not be held by the above named trusses. It is a combination of the Knight and Hood trusses, and is quite efficient, even in nearly all the worse cases.

Umbilical hernia in children are treated by means of a small pad or wooden button held in place by strips of rubber adhesive plaster. The plaster need not be changed oftener than once in ten days unless excoriations are produced. A large per cent. of the cases of umbilical hernia in children are cured by this method.

Femoral hernia exists so rarely in children and is so easily held that little need be said of this form. The Spiral spring and the Knight truss will usually answer the purpose. Let me here say that it is not sufficient, on making the diagnosis of rupture to send them to an instrument maker, leaving the whole after-treatment to his judgment. The physician should fit the truss or at least see that it is done properly. An ill-fitting truss is worse than none at all. A child I recently saw, where the fitting had been done by one of the quack "truss specialists" had, as the result of a badly fitting truss, an ulcer of quite severe grade at the point of pressure. The pressure should be light as possible, consistent with security, and should be over the internal ring. As it is much more difficult to fit and control a rupture in a child than in an adult, therefore special directions should be given to the parents—the need of always having the pad in place; that the child should never be without the truss; that the parts be kept clean to prevent excoriations; in fact, the more explicit the instructions the more apt they are to be carried out.

RESULTS OF MECHANICAL TREATMENT.

Dr. W. B. DeGarmo of New York, gave the results of mechanical treatment of hernia (*New York Medical Journal*, March 3, 1888, p. 236-7). In one thousand cases in private practice over one-fourth of the entire number were dismissed as cured; i. e., one-fourth having remained so for over six months without support; one-third were improved, i. e., were able to wear a lighter truss than at commencement of treatment and with comfort. About twelve per cent. of Dr. DeGarmo's cases were under five years of age. He believes that a large per cent. of hernia occurring before middle age can be cured by early mechanical support.

Dr. W. T. Bull of New York, takes a moderately conservative view of mechanical treatment. He believes that "a certain number of favorable cases, especially in children and young adults are cured, and permanently so, by wearing a truss for a longer or shorter term;" but what the proportion is that are so cured he is unwilling to estimate. He further states that "a larger number of cases are found in

which the hernia is perfectly controlled by a truss with but slight, if any, inconvenience to the wearer. But there remains another class of cases in which the truss fails to hold completely, on account of adherent or irreducible omentum—298 such cases were observed at the Hospital for Ruptured and Crippled in a single year, of which 93 were in women and children."

3. Operative Measures—The question that first suggests itself to us is, What cases shall be reserved for operative treatment? All agree that operation is required in strangulated and irreducible hernia; further than this there is considerable difference of opinion. It would appear that Mr. Spanton, an Englishman, would have us operate for radical cure in a large per cent. of cases. Marcy of Boston, in his recent work, "Anatomy and Surgical Treatment of Hernia," page 378, quotes Mr. Spanton as saying: "If it is possible to effect the cure of rupture early in life (thereby eliminating at once one-eighth of the whole number of cases) by an operation which is both safe and efficient, we are led to inquire in the words of Sir Spencer Wells, 'Whether it may not be better to operate even on young children than to expose them for several years to the inconvenience of a truss, with the possibility that, after all, a radical cure may not be obtained.'" Dr. Marcy's comments on the above are: "The knowledge and adoption of antiseptic operative measures which have become general since the date of Mr. Spanton's writing, (International Medical Congress, 1881) gives yet more force to his earnest plea in behalf of a large class of helpless sufferers. If by mechanical means we can not effect a cure, it is our duty to operate." Dr. W. T. Bull of New York, classifies those requiring operation as follows: "1, cases of adherent omentum; 2, cases of hernia complicated with reducible hydrocele; 3, cases of irreducible and strangulated hernia."

"With certain surgeons of high authority we may add another class, viz.: all cases which from various reasons are unable to command the large amount of care requisite for successful mechanical treatment."

Leaving the subject of strangulated hernia and taxis to those who are to discuss this paper, I desire to make the following comments on the subject of the operation for radical cure: the operation should be done under the strictest possible antiseptic precautions. Great care should be taken in the dissecting out of the sac, also in the separation and handling of the spermatic cord. It is usually best to open the sac and examine its contents. The sac should be tied off well down in the wound, the external portion removed and the stump returned into the abdominal cavity. The aim should then be to reform the inguinal canal to as nearly its normal length as possible. The deeper parts should then be brought together by buried sutures and the skin wound according to the method described by Marcy. The wound being dressed antiseptically, over all should be applied a plaster-of-paris spica from the ankle to the umbilicus. Dr. Wm. B. Coley of New York, has been using the plaster-of-paris covering during the past year at the Hospital for Ruptured and Crippled, with excellent results, and he attributes the quick healing to the absolute rest which it imposes on the parts. The casting is left on for eight days when the wound is dressed for the first time.

Results of Operative Measures.—Heaton's method of injecting quercus alba is so almost universally a failure to cure permanently, that it is pretty generally given up. I have seen it used in a number of cases with failure in about all.

Of sixteen cutting operations for radical cure performed at Hospital for Ruptured and Crippled in 1889 and 1890, during my service, six relapsed the first year and two others later. Part were by the Socin and part the Czerny methods. Dr. Coley of New York, reports forty cases of operations on children during 1891-92 by the Bassini method. Of these forty cases, but one has relapsed and in this case there was prolonged suppuration. Bassini has reported 262 operations by his method with one death. Of these, 247 operations were traced, 47 were without relapse after two years, and 108 had no recurrence for periods varying from one to four and one-half years after the operation.

Championnière reports 275 cases with 2 deaths; 112 have been kept under observation; 30 have gone 2 years without relapse and 11 have remained solid for 4 years and over.

PHIMOSIS: A PLEA FOR ITS RELIEF BY EARLY OPERATION.

Read in the Section on Diseases of Children, at the Forty-fourth Annual Meeting of the American Medical Association.

BY J. A. HOFHEIMER, M.D.

NEW YORK, N. Y.

The subject of this paper is as old as medicine itself; my attention, however, within the past few years has especially been called to various ailments of infancy and childhood, which may have been directly attributed to phimosis. In many of the cases this condition had been overlooked by physicians previously in attendance. In some of the cases attended by the writer from their birth, phimosis had been the last thing considered, but a relief of this malformation would always bring about an amelioration of the various symptoms, and in most cases an absolute cure.

In advising an operation for phimosis it is not my object to indorse circumcision as done according to the rites of certain oriental religions; but to perform an operation based strictly on anatomic and physiologic data.

The main purpose of the prepuce is to act as a protection to the sensitive glans penis; and to entirely remove this leaves a very delicate organ open to considerable local irritation. This condition, to my mind, is almost as bad as the original one for which the operation was performed—often being the prime cause of masturbation and kindred ills.

A point in operating to be strictly observed, and which is noted in most works on surgery, is always to enlarge the upper border of the preputial orifice by a small "V"-shaped incision (or excision), so that the prepuce may easily be retracted back of the corona of the glans penis. This insures cleanliness and abundant opportunity to prevent accumulation of smegma.

The steps and technique of this operation are laid down amply in works of surgery. Two rules have been followed in my recent operations. Never to use cocaine anesthesia, for whenever it has been used primary union was not obtained; and to always use

the interrupted sutures—binds the parts together by apposition than the continuous does.

The history and symptoms of phimosis vary considerably. It may be acquired or congenital. In the present instances the latter condition is common. It is to call your attention to the variety of symptoms, and to further urge my plan for an early operation, that the following cases are quoted briefly from my notes.

Case 1.—John L., age 2 months. Had suffered from retention of urine almost since birth. The prepuce was under medical treatment with no good result. When the child was first seen the prepuce was over an inch longer than necessary to cover the glans. The glans was swollen, in color, the meatus swollen and irritated, and the interior of the prepuce was moist. Operation was done under chloroform anesthesia. At present writing the patient is 5 years old, and no sign of operative measures can be detected; the foreskin can be easily retracted, and when pushed forward it covers the glans almost to the top, leaving a free opening for the meatus, with no chance of dribbling of urine into the prepuce. Urinary incontinence ceased from day of operation without further treatment.

Case 2.—Harry R., age 1 month. Since birth patient had to strain when urinating. No physician had been consulted about his case until seen by the writer. The end of the penis looked like a toy balloon, and inquiry elicited the statement that it had "toften looked like that, but always got well." The prepuce was elongated and its orifice was so small that it became easily agglutinated together, thus forming a sac into which the child urinated. The infant was suffering intensely, and the penis was much swollen. A puncture at the site of the preputial orifice allowed the accumulated urine to escape, and the following day an operation was performed with favorable results.

Case 3.—John M., age 2½ months. Had been peevish and fretful since birth; he seemed to be wasting away. Every time he urinated there would be a small excretion from the bowels. Occasionally for twenty-four hours there would be retention of urine. Examination showed the meatus to be very much contracted by the adhesions of the preputial membrane to the entire glans, some fibrous bands crossing the meatus. The two parts had become so closely agglutinated that the adhesions could not be separated by traction as in most cases, but it became necessary to do a delicate dissection with a scalpel. After operation the patient gained in flesh, was less peevish, retention of urine ceased and bowels became regular without further treatment.

Case 4.—Milton S., age 2 months. This child also had fecal discharges whenever he urinated. He always strained so forcibly when urinating that the attention of the family physician was called to the matter. Finding the prepuce elongated and contracted, he made a dorsal slit when the infant was about three weeks old. The child improved for a few weeks, when the old trouble again manifested itself. The patient, when first seen by the writer, had the appearance of a case in advanced stages of marasmus. The dorsal incision had caused a cicatricial contraction of the prepuce, and the orifice, instead of being directly opposite the perineal meatus, was above it and over the top of the glans, thus causing the child to urinate into a pouch which was never completely emptied, and which when filled would allow the urine to escape slowly through the dorsal slit. This undoubtedly kept up a constant irritation and caused the patient's fretfulness and sleeplessness. The frenum was ulcerated from prolonged contact with the decomposing urine. Operation was successfully performed, and the child—now 9 months old—is stout and healthy.

Case 5.—Arthur K., age 5 months. He suffered from constipation almost since birth, and occasional retention of urine. Otherwise seems healthy and very fat. I had tried with only temporary benefit to relieve his constipation, by laxative foods and remedies. The father called my attention one day to the child's prepuce, asking me if it was "natural to be so long." Examination showed it about one and one-half inches longer than was necessary, and with several adhesions to the glans. An operation was advised, and to oblige the parent, cocaine anesthesia was used. Thirty minims of a 4 per cent. solution was injected subcutaneously and applied externally. Before more than two or three stitches were passed the effects of the drug wore off, and the child became restless and evidently suffered so much pain that no more stitches were inserted, and the parts were

sewn together with a few sutures. The child was very comfortable, and the operation was successful. The prepuce was reduced to its normal length, and the orifice was directly opposite the perineal meatus. The child was discharged in good health, and the father was very satisfied with the result. The operation was performed under cocaine anesthesia, and the child was very comfortable. The prepuce was reduced to its normal length, and the orifice was directly opposite the perineal meatus. The child was discharged in good health, and the father was very satisfied with the result. The operation was performed under cocaine anesthesia, and the child was very comfortable. The prepuce was reduced to its normal length, and the orifice was directly opposite the perineal meatus. The child was discharged in good health, and the father was very satisfied with the result.

The patient's age at the time of the operation was 5 years. The operation was performed under cocaine anesthesia, and the child was very comfortable. The prepuce was reduced to its normal length, and the orifice was directly opposite the perineal meatus. The child was discharged in good health, and the father was very satisfied with the result.

The patient's age at the time of the operation was 5 years. The operation was performed under cocaine anesthesia, and the child was very comfortable. The prepuce was reduced to its normal length, and the orifice was directly opposite the perineal meatus. The child was discharged in good health, and the father was very satisfied with the result.

The patient's age at the time of the operation was 5 years. The operation was performed under cocaine anesthesia, and the child was very comfortable. The prepuce was reduced to its normal length, and the orifice was directly opposite the perineal meatus. The child was discharged in good health, and the father was very satisfied with the result.

While well aware that the majority of authors have stated that as the child grows to puberty the pendulous enlarges, the prepuce contracts, and as phimosis occurs the adhesions to the glans will be severed; yet experience has taught me differently. For every adult I have operated upon has presented very firm adhesions which in many cases required cutting to loosen, while in infants the adhesions were with one exception easily separated with the fingers, leaving no bleeding surface.

If the elongated prepuce is the source of trouble why should we wait so long before operating? While we are dilly-dallying with the case the child becomes fretful, nervous and sleepless, and cases are recorded where chorea has developed from this cause.

An early operation for the removal of the redundant prepuce—allowing only for proper covering of the glans, yet permitting easy retraction, to obliterate the adhesions—will relieve the child of a great source of irritation, and indirectly improve nutrition, causing a fretful, puny baby to become a thrifty, happy infant.

THE IMPORTANCE OF EARLY EFFECTIVE ELIMINATION IN THE ZYMOTIC DISEASES OF CHILDREN.

BY J. A. WORK, M.D.
OF THE UNIVERSITY OF CHICAGO.

The physician who has had occasion to keep pace with the advance of research in progress in connection with diarrhoea and enteritis has not approved of and modern remedy for the special diseases, diarrhoea, with its therapeutic application in detail—all in a great measure, of the desired end, if he has sight of the very important fact that the alimentary system—a body of many members—to treat as well as a disease to combat. A system already in a patho-

logic condition, and was so, as, in a majority of cases, even prior to the inception of the specific zymotic poison.

When we are interrogated, why all children equally exposed to a certain contagion, do not contract the same? we answer that those who are not affected are in good habit of system; their blood is pure; they are in a healthy condition; by which expressions we mean to say, that the system is in a normal physiologic condition, and thus the poison finds no nidus of effete matter; in fact there is no soil for its propagation.

I recently had a case of scarlatina that illustrates the point in question.

A mother, 23 years of age, nursing her child, 20 months of age; the disease had manifested itself thirty-six hours prior to my first visit; tonsillitis severe, with much ulceration; eruption complete and fever high. Active elimination at once instituted through all the excretories; commencing with a dose of castor oil, followed within one and one-half hours by a water enema, and as soon as a thorough evacuation was secured, a complete general scrubbing with soap and water, in a very warm room, was given. After patient was put to bed, her room and adjacent rooms were thoroughly aired, and throughout the course of the disease the air of the rooms was changed once an hour. We secured an evacuation of the bowels, and had surface of body sponged every twelve hours, as long as fever continued. The disease ran a normal course. Patient recovered. The attendant was instructed to allow the child to continue to nurse the mother, and supply the deficiency by easily digested food. It was to have an evacuation of the bowels twice a day at least, and be sponged once a day. The child did not manifest *any* symptom of disease. Prompt action as to elimination in case of the mother, was not only a large factor as means of cure to her, but in connection with the care given to child, secured immunity for it.

As it is true, that a system thoroughly cleansed of all effete and residual matter, foreign to a normal physiologic condition, is thus rendered less susceptible to, if not entirely exempt from, the disease in question; is it not the most rational procedure in treating the little patient, as early as possible, to eliminate through all the channels and maintain a normal action of the eliminative organs throughout the entire course of the disease, whatever else by way of medication is necessary to meet all the indications in the case?

I believe that early effective elimination is the most important treatment of all zymotic diseases, and if employed early is, in many cases an abortive means.

It is true that, in a large majority of cases we do not see our patient until the stage of incubation is past, and the disease has manifested itself by the signs peculiar to the specific pathogenic microbes. The genetic soil has been carefully, or rather, carelessly prepared on the part of the attendants; for certainly careless peridious habits and especially as to ingesta, play an important rôle in preparing the fostering soil necessary to a rapid and copious generation of bacilli. This preparatory pathologic work, favoring the disease, but decidedly detrimental to the physician's success in curing his patient, this far, has been accomplished without any knowledge on the part of the doctor; and thus he is not responsible; but from thenceforward his responsibility is very apparent. And now the question which engages our careful attention is, Can I not, even at this stage of development, as it were, root up and destroy the growths and remove even their soil, by early effective elimination to the extent of modification and thus

secure, at least, an unaggravated case of the specific disease, which will run within its normal limits to a happy termination?

There are degrees of severity in all so-called zymotic diseases, and why is *this* a severe, and *that* a mild case of scarlatina, if you please? Were not both patients equally exposed to the disease germs? We are sure that the difference in severity is not due to a difference in quality of the infectious matter. Is it then due to quantity? Not necessarily so. Both patients were exposed at the same time, and the same length of time. Then the difference in degrees of severity is not in the quality, neither in the quantity of the infectious virus; but is due to the peculiar susceptibility of the patient.

Idiosyncrasy has some bearing as a factor in the matter, but a vitiated, depraved system, due to poor elimination, does more toward the production of *severe* cases in all zymotic diseases, than any other cause. Now if it be true that poor elimination prior to inception, and thus a retention of effete matter, is the most potent cause of the severity in any disease of the class in question, then we rationally conclude, that if the system is clean, aseptic at incubation, and this condition maintained through entire course of disease, we will have a mild form and a very satisfactory result.

By early elimination, we mean, that there should be no delay in arousing the eliminatory organs, not to depletion, but to a full, free, normal activity. And if prophylaxis comes within the scope of this subject I would suggest that, during an epidemic, the physician and his patron advise with each other, so that the earliest indication of the disease be met, and this important preliminary treatment, as it were, commenced before the system reaches a high degree of fermentation.

I am aware that much more could be written on this subject with profit, and it is not within the province of this short fragmentary paper to discuss the therapy of this class of diseases; but brief as this is, if it will elicit a discussion more worthy of the subject, I am content.

300 Division Street.

MENINGOCELE, WITH CASE.

Read in the Section on Diseases of Children, at the Forty-fourth Annual Meeting of the American Medical Association.

BY M. G. SLOAN, M.D.

DENTON, IOWA.

The occurrence of pure meningocele is doubted by the most of our authorities. Conner says, (Keating's *Cyclopedia of Diseases of Children*): "If it occur at all, (and this is much doubted) it does so very rarely." Irving C. Rosse, (Reference Handbook of the Medical Sciences), says: "The lesion is not yet sufficiently demonstrated to enable one to trace the symptoms, or even the diagnosis; on all sides it is admitted to be very rare, and some even doubt whether it exists."

I think it quite probable that the lesion is not quite so rare as the above quotations would indicate, because it is not an easy matter to certainly diagnose the condition even when present, and I have no doubt that in some instances, where no operation has been performed and no postmortem held, a diagnosis of hydronephalocele has been made when meningocele really existed. In the case about to be narrated, the

ally the tubercular changes commence in the lungs and, later, tuberculosis of the larynx is associated therewith. Often a laryngeal tuberculosis is the last act in the drama of general tuberculosis, and we are correct in saying, as a general rule, that the laryngeal is secondary to the pulmonary tuberculosis.

In like manner we must look upon those cases of laryngeal tuberculosis as secondary, in which tubercular change in the lymphatic glands, or tubercular caries of the joints, precedes the outbreak of laryngeal tuberculosis. Every experienced laryngologist has seen marked tubercular changes in the larynx in patients in whom not the slightest trace of pulmonary disease could be found. This experience, however, demonstrates nothing for the existence of a primary laryngeal tuberculosis, since, by the physical methods of examination, small central cavities are not easily overlooked. Much more importance is ascribed to the results of postmortem examinations, in which marked tubercular changes in the larynx were found without any discoverable lesion in other organs.

The assumption of primary infection of the larynx, from an etiologic standpoint, is very probable, since it is possible that dust laden with tubercle bacilli may be inspired, penetrate a spot deprived of epithelium, and produce tubercular changes in the depths. It is a question which has not been solved, whether this infection occurs in the manner related above, and if so, if it often occurs in that way.

Respecting secondary tuberculosis of the larynx, we know only this with certainty, that pulmonary tuberculosis very frequently leads to a similar process in the larynx.

The majority of observers at the present day seem to assent to the opinion first announced by Louis, that the secretion coming from the lungs infects excoriated spots in the larynx. This view assumed a more conclusive form with the discovery of the tubercle bacillus. Since we may say that the tubercle bacilli contained in the pulmonary secretion gain entrance through the eroded epithelium of the laryngeal mucous membrane, that the retention of the secretion by the pouches of Morgagni favors the development of the infection upon the prominent vocal bands, can not be denied.

In addition to the explanation given above of the migration of the tubercle bacillus from the surface, there is another view which assumes that the transporting of the bacillus from the lungs to the larynx takes place through the blood vessels and lymphatics.

E. Frankel, in a work which appeared recently, has defended in a very different way, the first of these theories, viz.: the immigration of tubercle bacilli from the surface of the mucous membrane. He believes the origin of tubercular ulcers in the larynx can be traced wholly to the penetration of the surface by tubercle bacilli. Without denying the possibility of this occurrence in isolated cases, we will mention the following reasons for the acceptance of the theory that tubercle bacilli are propagated by the channel of the blood and lymph vessels:

1. We often meet with cases, in the early stage of pulmonary tuberculosis, where the sputum can scarcely be said to contain bacilli, yet there is already an extensive tubercular infiltration of the larynx. In such cases the sputum could scarcely have infected the laryngeal mucous membrane.

2. We often have the opportunity of seeing cases of extensive and rapid pulmonary necrosis where there is not the least tubercular infiltration of the larynx. There can be no question that, in these cases, the larynx is almost always the seat of catarrhal processes with loss of epithelium; nevertheless tuberculous infection does not occur.

3. The correspondence of the diseased side of the lung with that of the larynx has been observed frequently, and was first announced by Frobenius, Türk and Schnitzler. This observation has been so often made that it is difficult to attribute it to accident; it also demonstrates a direct communication through lymph and blood vessels.

4. It was announced first by Heintze, then by Korkumoff, and later was confirmed by Hasek and proved by microscopic preparations, that very frequently a stratum of changed tissue, found between the tubercular layer and the epithelium of the larynx, and this circumstance leads to the conclusion that tuberculosis is wont to commence in the deeper tissues and extend toward the surface.

5. We cannot deny the primary transportation of tubercle bacilli through inhalation of dust, and the infection of the depths, can through the pulmonary secretions, and, therefore, we must look upon the majority of cases of laryngeal tuberculosis as the result of pulmonary infection

transported to the larynx by means of lymph and blood vessels.

Whether this view furnishes an anatomical basis for the anemia and paresis often present at the beginning, and in the course of laryngeal phthisis, is questionable. Investigations on this point can not be made, for the reason, that, after death, all such symptoms are lost. Likewise, it is improbable that the catarrhal changes, accompanying tubercular processes in the larynx, depend upon a specific tubercle-producing cause, since these catarrhal appearances may persist, as already mentioned, without tubercular changes in the tissues becoming manifest. That this catarrh sometimes disappears entirely is a further proof that it is not the expression of a tubercular infection.

So far as anatomico-pathologic investigations and observations with the laryngoscope show, every known tubercular change in the larynx begins with an infiltration, which, histologically as well as bacteriologically, is to be regarded as a specific neoplasm dependent upon the immigration of tubercle bacilli. The theory, which is still defended by many, that the destructive changes in the larynx occurring in the course of phthisis originate in a purulent follicular catarrh of non-specific origin, can no longer be regarded as correct, in view of our present knowledge. It can not be denied, however, that many superficial losses of substance may result from the corroding action of purulent secretions. Surely, these never lead to extensive destruction. It is probable that superficial laryngeal ulcers, which rapidly heal under antiseptic treatment, belong in this category.

The tubercular infiltration of the larynx, which we must assume to represent the earliest visible sign of tubercular infection, is to be considered the first stage of laryngeal tuberculosis. The amount of infiltration does not depend solely upon the extent of the process, but rather upon the abundance of submucous cellular tissue in some parts of the larynx, and its paucity in others. In the ary-epiglottic folds and mucous covering of the arytenoids, as well as on the lingual surface of the epiglottis and the sub-glottic tissues, the infiltration may reach a considerable size; much less extensive is the infiltration of the false vocal bands, although there is considerable infiltration in this spot. On the posterior extremities of the true vocal bands, on the inner surface of the arytenoids, as well as on the lingual surface of the epiglottis, the infiltration is never of great extent.

Macroscopically, the tubercular infiltrate presents itself as a uniformly smooth, rarely irregular, swelling of some part of the larynx, whose surface, when not accidentally complicated with an acute catarrh or edema, shows a whitish or pale-red color; what is always particularly noticeable is the dull, lusterless tone of the surface, which is found in so pronounced a form in no other infiltration. Not rarely do we see on the surface of the infiltrate a peculiar opaque discoloration and scaling of the epithelium, frequently situated on the inter-arytenoid mucous membrane and on the posterior ends of the vocal bands, where the surface of the infiltrate is most exposed to mechanical injury. This change is to be regarded as a pachydermia. We have observed similar pachydermoid changes in infiltration of the inter-arytenoid mucous membrane lasting for many years before an irruption of tubercular products appeared.

In the beginning, tubercular infiltration involves, in most cases, only a circumscribed part of the larynx; and it is only in the rarest instances that the entire larynx is the seat of infiltration from the beginning. Usually those parts which are supplied by the same division of sub-mucous cellular tissue are involved simultaneously.

If the infiltration of the cellular tissue reaches a high degree in a circumscribed spot, a true tumor may be formed with tubercular contents. These tubercular tumors were first observed and described by Schnitzler. The tumors look as if the mucous membrane were drawn over them, and this appears either smooth or granular from the tubercles lying in clusters. The tumor is generally single, rarely do they appear in several spots at the same time. Its favorite location is in the pockets of Morgagni, the space between the vocal bands; the size may equal that of a hazel nut.

In order to receive a correct idea of the nature of tubercular infiltration, and to know the extent and manner of development of ulceration following infiltration, it will be necessary to study the microscopic nature of tubercular infiltration. A microscopic section through the infiltrated tissue shows the presence, under a comparatively normal epithelium, of a thick cellular infiltration, which very frequently is diffuse; sometimes, however, shows in certain spots an accumulation which mainly consists of epithelioid

cells and often contains giant cells, as well as genuine tubercles. Nevertheless, it not rarely happens, as Heinze has observed, that, between the epithelium and the upper surface of the tubercular mass, there exists a layer of normal tissue which is free from cellular infiltration and shows but few leucocytes. We heartily agree with Heinze that such microscopic sections go to prove that the tubercular process extends from within outwards, and not vice versa. This being true, we can not understand why the tubercle bacillus, when it finds its way through the thin epithelial coat into the tissues beneath, should produce tubercular infiltration in the deeper parts first, instead of in and beneath the epithelial coat.

When a section is properly stained, bacilli are visible in the tubercles. The number of bacilli is very variable, and often bears no relation to the extent of the infiltration. So long as the infiltrate does not ulcerate, no other kinds of bacteria are present; it is in an ulcerated infiltrate that we first observe staphylococci and streptococci.

B. Fränkel has found tubercle bacilli in the substance of the epithelium covering the mucous membrane, although as a rule, in the first stage of infiltration, bacilli are to be found only in the tubercular infiltrate lying under the epithelium.

While, in the beginning of tubercular infiltration, the superficial epithelium still presents a normal appearance, degenerative changes occur in it, just in proportion as the tubercular infiltrate reaches the epithelial coat in a diffuse or a circumscribed spot; at first we notice a loosening and discoloration of the epithelium; next there is a complete separation of epithelium in one spot, and the tubercular infiltrate begins to grow luxuriantly in the direction of the surface. From this stage we can date the commencement of ulceration. It is here necessary to call attention to a point of great importance to beginners in laryngoscopy. They often do not understand that we mean an ulcer when we speak of an infiltrated spot of laryngeal mucous membrane where granulations project. The current definition of an ulcer, anatomically and pathologically speaking, is identical with a loss of substance, and hence it is somewhat unusual to speak of a plainly visible thickening of tissue as an ulcer. We must remember, however, that the origin of most tubercular ulcers bears a similarity to a neoplasm, where first there is a considerable increase of tissue, then rupture of the overlying layers, followed in the last stage by a pushing out of masses of new tissue.

After the irruption of the tubercular infiltrate, the surface of the previously infiltrated, but smooth spots, assumes an irregular, knob-like appearance. These granular formations resting on a tubercular base may become so abundant, in circumscribed spots, that they form tumors of considerable size, which, when present in large numbers, may almost close the glottis. This excessive formation of tubercular granulations most often occurs on the inter-arytenoid mucous membrane, on the true and false vocal bands, and more rarely on the petiolus of the epiglottis. We may designate such an infiltrate as tubercular granulation tumors; they differ from the early-formed neoplasms in this, that unlike the latter they are not covered with mucous membrane and epithelium.

With the breaking forth of tubercular granulation tumors the stage of necrosis commences. The granulations have only a low vitality and rapidly succumb to regressive metamorphosis, by which some of them are absorbed, and others are newly developed. During the time that the generation of new cells does not keep pace with the necrosis, peculiarly cleft excrecences, with irregular projecting points, result therefrom and bear the greatest similarity to a necrotic neoplasm. The rapidity with which destruction of granulation tumors takes place is very different in different cases, and is generally dependent upon the course of the case; while in many cases we may observe this ulcerating granular condition of the mucous membrane, lasting for several weeks, in others we find, almost from day to day, a change in the form and distributions of the elevations and depressions, while necrosis and regeneration take place with great rapidity.

While there is an extension of sub-mucous infiltration with deposits toward the surface, there is at the same time an advance of the infiltrate in the deeper layers; so, little by little, the entire sub-mucous layer is infiltrated, the glandular layer is changed into a stratum of granulations, and in places, where the mucous membrane covers the cartilage, the perichondrium also is involved.

The question whether a tubercular infiltrate may begin primarily in the perichondrium, can not be answered at present. In favor of such a condition is the fact that many

infiltrates are met with in the vicinity of the arytenoid cartilages, and lead early to immobility of the crico-arytenoid joint.

The question, however, has no practical interest, since it makes no difference whether the perichondrium, which is almost always involved in a later stage, should become primarily involved by the sub-mucous deposit. In either case we find the perichondrium eroded and covered with granulations, and that the cartilages are always the seat of necrosis. Very often the perichondritis occurring in the course of tubercular assumes an acute character, whereby suppuration, with partial or even complete necrosis of cartilage results.

In our experience, the most frequent form of perichondritis is the purulent, which results from secondary infection of an ulcer with some sort of bacteria (streptococcus or staphylococcus). The comparatively short time in which suppuration of the crico-arytenoid joint takes place is in favor of that theory.

While almost all authors refer the origin of tubercular ulcers to infiltration, there are others which are designated as "aphthous" ulcers. Exactly what one should understand by such ulcers, has not been clearly defined by anybody. There can be no doubt that under this name different conditions were confounded. The broad flat ulcers which are found upon the false vocal bands, and which show numerous elevations and depressions, by which they were likened to a sieve, and were named aphthous ulcers, are regarded as arising from infiltration. The peculiar appearance arises from this: that upon the false vocal band the infiltration often extends diffusely, and all at once the whole surface is ulcerated and appears granulated. That this ulcer on the false cord is due to direct infection of the epithelium, which is generally conceded to be the case, is proved neither anatomically nor laryngoscopically.

In the course of laryngeal tuberculosis, particularly in cases which are of a high grade, shallow ulcerations often occur with a dirty-grayish covering. These ulcers are to be attributed to direct infection by the pulmonary secretions. However, as previously stated, it is questionable in many cases whether these ulcers are really tubercular or are nothing more than corrosion ulcers produced by the eroding action of the sputum. The fact that this kind of an ulcer often heals with great rapidity causes us to doubt its tubercular origin.

Ulcers similar to those just mentioned often occur upon the processus vocales of both vocal bands in the course of a genuine tuberculosis.

On the whole, we must admit that the pathogenesis of tubercular ulceration of the larynx is not entirely understood.

Regarding the presence of bacilli in tissues the seat of tuberculosis, it is to be noticed that the copiousness of bacilli is very variable. Whilst in a case of granulation masses, bundles or nests of bacilli are visible, in other cases bacilli are present only sparingly. Likewise, the histologic structure is not the same, since, in some cases, we find only granulation tissue; in others we find on microscopic section an abundance of tubercles with round cells undergoing regressive metamorphosis.

Mercurial Treatment of Tabes Dorsalis.—"DUNKLER." Reviewed by V. NOEDER, Munich. This interesting report details seventy-one cases of tabes collected from Erb's clinic and from private practice, all of which received mercurial treatment. In fifty-eight cases there was improvement of one or more of the symptoms while eleven seemed to be aggravated rather than benefited thereby, especially two cases in which the symptoms became decidedly worse. In these last two, there were indications of brain lesions, involving the arteries and meninges.

The results emphasize the importance of the Fournier-Erb's anti-syphilitic, mercurial treatment in tabes dorsalis: at all events it disproves the objections made, as to its bad results.

In the fifty eight improved cases mentioned above, the following favorable changes were noted, viz.: the sensory disturbances were improved, as manifested by the entire disappearance of the feeling of constriction or girdling pains, sense of cold, and of the tingling and creeping

sensations, etc., or by lessening of their intensity or lengthening of the intervals. The lancinating pains became milder or entirely disappeared.

Improvement was often noticeable in many of the other sensory disturbances. (Zones of hyperesthesia and of diminished sensibility, became smaller or disappeared entirely.) Improvement of sensibility was quite rapid. As regards coördination and motor disturbances, there was apparent diminution and complete disappearance of the ataxy, which seemed to run a course quite independent of the sensory symptoms.

More favorable still were the effects on the motor disturbances, from that of slight fatigue to a high grade of paresis.

In regard to the tendon reflexes, the symptoms were either temporary, or permanent improvement followed.

The atrophy of the optic nerves was favorably affected, as were also the functions of bowels, bladder and sexual organs.

Finally, it should be emphasized that the mercurial treatment of tabs, as well as in cases of secondary syphilis, seems to lessen the destructive metabolism and benefits and increases nutrition.—From the *Centralblatt für Chirurgie*, November, 1893.

Pleurisy with Pneumonia Para-pneumonic Pleurisies.—II. SCHLESINGER, Vienna.—G. Lemoine has during a year's observation, encountered seven cases in which pneumonia and pleurisy developed simultaneously. As such pleurisies presented peculiar characteristics and seemed to be of clinical importance, the author has named them "para-pneumonic pleurisies." The name is to indicate that the pleurisy does not follow the pneumonia, but appears simultaneously with it. The difference according to Lemoine from "meta-pneumonic pleurisies" is that when the pleuritic inflammation appears at the same time with the lung affection, we have to do only with the local manifestations of a general infection. The pleurisy which sets in at or near the close of the pneumonia is caused (or may be caused) by a kind of re-infection with the pneumococcus.

The most important differential point lies in the fact that whereas a "para-pneumonic" exudate frequently becomes purulent, the meta-pneumonic exudate seldom does.

From among 120 cases selected by Lemoine from literature, he finds only thirteen accounts of development of pneumonia and pleurisy, in which the exudate was purulent. In the cases there existed serious complications such as variola, influenza and puerperal diseases.

The disease attacks mostly young adults, both sexes being about equally affected. Complications are frequent. In twenty-six cases of pneumonia treated by Lemoine, seven were affected. (From *Centralblatt für Klinische Medizin*, November, 1893.)

Cetrarin. Cetrarin has been employed in chloro-anemia and gastric troubles of hysteria.

There is an increase in the number of globules, and coloring matter which can not be carried beyond a certain point, but which perhaps can be continued by the aid of iron. General improvement is still more notable; the acidity of the stomach contents is augmented. It is well tolerated, but it often produces constipation.

BOOK NOTICES.

The Principles and Practice of Surgery. By JOHN ASHURST, JR., M.D., Barton Professor of Surgery and Professor of Clinical Surgery in the University of Pennsylvania; Surgeon to the Pennsylvania Hospital; Senior Surgeon to the University Hospital and to the Children's Hospital; Consulting Surgeon to the Woman's Hospital, to St. Christopher's Hospital, etc. Sixth edition enlarged and thoroughly revised with a colored plate, and 656 illustrations in the text. 8vo, cloth pp. 1,166. Philadelphia: Lea Brothers & Co., 1894.

One can not help picking up a new edition of this old work without a feeling of pleasure, like that of unexpectedly meeting an old friend. In this edition there is an excel-

lent chapter on surgical bacteriology by Dr. C. B. Nancrede, which is about the only feature of the work that will strike the reader as materially differing from former editions. The pathology in general does not bring the text to the accepted standard, and in modern practice the recent procedures are not mentioned. The author knows what tuberculosis is, for he correctly describes it on page 471, but one looks in vain for the application of that knowledge in the chapter on diseases of the joints. Iodoformization is not mentioned as a means of treatment. In excision of the hip, temporary resection of the trochanter is not mentioned, and indeed the only case where osteoplastic resection is mentioned is in the operation for removal of rectum. The uses of osteoplastic resection in trephining, in caries of the external table; of the acromion; or the tubercle of the tibia; are not mentioned, but a foot note on page 682 says that "Bruns, Trendelenburg and Volker recommend temporary resection of the olecranon."

The author advises no interference in cases of sacro-iliac disease, neither iodoformization, nor through drainage, the latter long ago introduced by Sayre, is not mentioned as a therapeutic resource in this affection. In treatment of club-foot, the method by brisement forcée, is not mentioned, nor is that of any of the mechanical appliances for stretching, such as are figured in Bradford and other works on orthopedic surgery. In skin grafting, the method of Reverdin is mentioned and also that of Thiersch, but the latter method now generally used by advanced surgeons is not described. In partial occlusion of the anus the author does not speak of the modern operation of bringing the divided rectum to the incision and there fastening it.

The truth seems to be that our author has failed to revise the book so as to include the really recent methods as practiced in most college clinics, and if one wishes to keep pace with modern surgery he must seek information elsewhere.

A Practical Treatise on Materia Medica and Therapeutics. By ROBERTS BARTHOLOW, A.M., M.D., LL.D., Professor of Materia Medica, General Therapeutics and Hygiene in Jefferson Medical College, etc., etc. Eighth edition, revised and enlarged. CL, 8vo, pp. 820. New York: D. Appleton & Co. Chicago: A. C. McClurg & Co. 1893. Price, \$5.00.

When a book passes to its eighth edition, it would seem that critics should be silent and recognize that the public had already passed judgment upon the book. The author was a member of the Revision Committee which revised the last Pharmacopœia, and he has therefore made this work to correspond with the changes. He has, however, admitted the new synthetical products. In regard to the decimal system the author says:

"As the new Pharmacopœia has employed the metric system in its weights and measures, it becomes necessary for all systematic works treating of materia medica to follow its example. That my readers, unacquainted with the metric system, may have no difficulty, I have added in a brief appendix a tabular statement of the equivalents of weights and measures from one Troy ounce down."

A more striking way of making the decimal system unpopular could not have been chosen. What is needed to insure that readers "unfamiliar with the metric system shall have no difficulty," is to print the dose of each drug in metric terms; no complicated "rule for conversion" or comparative tables will then be necessary. A metric posologic table is worth a volume of tables for conversion.

Inebriety: Its Causes, its Results, its Remedy. By FRANKLIN D. CLEM, M.D. Third revised edition, pp. 248. Philadelphia: J. P. Lippincott & Co. 1892.

This little book discusses in a popular way the cause and treatment of inebriety, and the whole book is practically devoted to the question, "Shall we give the drunkard our sympathy or our condemnation?" The author writes scientifically, entertainingly and sympathetically about the unfortunate inebriate, and the book will be found of much value in the study of the question, especially the popular side of it.

Journal of the American Medical Association

PUBLISHED WEEKLY.

SUBSCRIPTIONS, ADVERTISING, AND CIRCULATION.

PER ANNUM, IN ADVANCE, \$5.00; SINGLE COPIES, 15 CENTS.

Subscriptions may begin at any time, and terminate at the end of the year.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

505 N. WABASH AVENUE, CHICAGO, ILLINOIS.

F. J. REBMAN, LONDON, AGENT, 10, ADAM STREET, STRAITS, SINGAPORE.

W. H. LOWDERMILK, A. C. CO., WASHINGTON, AGENTS.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or County Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Executive Committee of the Association, Dr. Richard J. Dunglison, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is a good standing member of his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues and subscription for THE JOURNAL. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

All members of the Association should send their Annual Dues to the Treasurer, RICHARD J. DUNGLISON, M.D., Lock Box 1274, Philadelphia, Pa.

SATURDAY, DECEMBER 9, 1893.

TREATMENT OF UTERINE FIBROIDS.

Until recently it has been taught that fibroid tumors of the uterus were comparatively harmless to their bearers, a source of inconvenience for a few years on account of hemorrhage and possible pressure, but the menopause was a haven of rest toward which the sufferer might look for relief from the bleeding and weight of her burden. With the increased knowledge of pelvic disease came the unpleasant fact that not all fibromata are harmless after the change of life, that shrinkage does not always occur, but that on the contrary the tumor in some cases continues to grow, at times with an added impulse. Hemorrhage, too, does not invariably cease and, worse than all, retrograde changes are often at work transforming a benign growth into a menace to life.

So long as the tumor was regarded as harmless it was considered sufficient to lull the patient along with palliative measures, ergot, muriate of ammonia and kindred drugs, trusting that nature would do what the doctor could not do—bring relief. With the advance of abdominal surgery half-hearted measures could no longer be tolerated, and patients demanded that the surgeon bring them speedy relief in words that could not be misunderstood.

At the present time, three methods of cure are presented to the profession, each with strong advocates—the application of electricity to the growth, the induction of premature menopause by removal of the ovaries and tubes, and the removal of the tumor, either with or without the removal of the uterus and its appendages.

While each method may be said to possess certain advantages, yet that one alone which removes the tumor can be called curative in the true sense of the term. Electricity has to a great extent fallen short of the claims advanced for it and is conceded now,

by many who formerly only acted as spectators, to be simply and positively palliative. The shrinkage of the size of the tumor which was said to follow its application, is very rare, and has to be shown to be actually accomplished. Electrocautery is proved to be relatively harmless, one author going so far as to state that it is attended by more risk to the patient than is hysterectomy in skilled hands. The cure is only symptomatic; without doubt the pain and hemorrhage are relieved, but electricity accomplishes little more than the older treatment by ergot, and muriate of ammonia—the tumor is still present to harass by its weight and to menace the future health of the patient by retrograde changes.

The removal of the ovaries, with the intention of causing a cessation of the hemorrhage and a diminution in the size of the growth by bringing about the menopause, is open to the objection that it fails to accomplish the desired end in a few cases, just as the change of life itself, when occurring in the course of nature, fails. Then too the ovaries and tubes may be (and often are) so situated in relation to the fibroid as to change the operation from a simple procedure to one so difficult that total hysterectomy gives the patient much the better chance of recovery.

There remain, therefore, only the removal of the growth without the uterus, myomectomy, and the extirpation of the tumor together with the uterus. Myomectomy possesses an advantage which none of the other operations have, that of leaving the uterus, however crippled, in such condition that the patient may bear children; but, in view of the fact that in most instances the appendages are so diseased as to make the hope of offspring futile, the operation loses much of its superiority over other methods of treatment. It has, however, been performed with success, and is particularly applicable to sub-peritoneal growths and such tumors as can be enucleated without opening the uterine cavity, particularly in young women.

Hysterectomy is without doubt the operation with the widest range of usefulness, and to the perfecting of this, the attention of abdominal surgeons is at present directed. Their ranks are, as it were, divided into two great companies—the one advocating the extra-peritoneal operation by means of the nouet, and the other the intra-peritoneal method, dropping the stump as in ovariectomy. At present the advantage of statistics is in favor of the nouet, but perfection of technique may cause a change in this respect. At first glance, the nouet seems to be a relapse into older and cruder notions, while the intra-peritoneal method certainly is more scientific and approaches more nearly ideal surgery. With the nouet the operation is less bloody and requires less time for its performance than the intra-peritoneal procedure, which factors alone may be suffi-

cient to turn the scale in favor of recovery in a patient exhausted already by hemorrhage.

The operation by means of the *nœud* is not always a simple procedure. A pedicle must be made if one does not exist, and to do this may severely tax the surgeon's resources. To leave a pedicle as the size of the surgeon's arm and inveigh against the operation is simply for the operator to confess that he is not equal to the demands upon his skill. A pedicle can be made and should be, or the operator must turn to some other means of relieving his patient. It is claimed by its opponents that the *nœud* is responsible for more post-operative hernia than the other method. On this point there is great need of honest, straightforward experience with less theorizing.

Be the method what it may—and each operator will cling to that which in his hands is followed by the greater number of recoveries—the great element in the surgical treatment is time. It is a self-evident proposition that the smaller the tumor the greater the prospect of recovery. The practitioner of to-day would hardly be satisfied to allow an ovarian tumor to enlarge to the size of those formerly seen, and the arguments in favor of the removal of ovarian growths while small are equally forcible when applied to uterine fibromata. Let the general practitioner fully understand the dangers of delay and the statistics of hysterectomy will become better even than they are now. A great advance in the saving of life has been made, but a still greater is possible if the general practitioner will recognize his responsibility in this as he has in other pelvic diseases.

SOME OLD STORIES.

During the past two weeks the editor of this JOURNAL has been confined to his room on account of a severe attack of bronchitis. While sitting by the fire one day and looking at his book shelf, his eye fell on some old and worm-eaten volumes from which the title was nearly effaced, but which on close inspection proved to be the "*Histoire de L'Anatomie et de la Chirurgie*," Par M. PORTAL, Paris, 1770. During a temporary lull in the rasping cough, the editor read from old ANTOINE PORTAL, a part of the first book, a running translation of selections of which he thought might interest others besides surgeons:

"MELAMPUS is the first to whom is attributed medical writing. He lived about the year of the world 2705 (1380 years before JESUS CHRIST); was born at Argos, of AMITHON and AGAMIDE or THOMENA, the daughter of AŒAS. MELAMPUS was a shepherd, and the two daughters of the king of the country falling insane, he was called and caused them to be purged with hellebore, and frequently bathed in a certain *axol* which cured them."

There was apparently nothing slow about MELAMPUS in the matter of getting his fee, for PORTAL says

"He asked for and obtained a slice of the kingdom for himself and one for his brother BIAS, and they espoused the two daughters," and lived happily ever afterwards, we presume.

PORTAL attributes two books to MELAMPUS, but no less an authority than DR. WM. SMITH places them to the credit of another MELAMPUS.

"The Druids," says PORTAL, "existed in Gaul at the same time as MELAMPUS. They were at once priests, judges and physicians, and inhabited the forests for which they had a superstitious veneration." They thought well of oak mistletoe as a medicine, "regarding it as a remedy against sterility and poisons."

EMPEDOCLES, who was a pupil of PYTHAGORAS, attained such perfection in anatomy and physiology, that he desired to be enrolled among the gods, and when about seventy-seven years old, to make posterity sure that he had been carried to the skies bodily, he threw himself into a volcano.

DEMOCRITUS was born at Milet, the third year of the seventy-seventh Olympiad. He was a great traveler and vivisector, and made himself obnoxious to the neighbors by his dissections. Some young men in ghostly apparel tried in vain to frighten him, and they then concluded him to be insane. HIPPOCRATES was sent for; he remained all night and was charmed with DEMOCRITUS' knowledge of anatomy and scientific attainments generally, and in the morning rebuked the mocking neighbors. PORTAL here tells a story about a young woman who was with the followers of HIPPOCRATES on that occasion, which it would be highly improper to translate.

DIAGORAS was a servant of DEMOCRITUS by whom he was taught medicine, and on the death of DEMOCRITUS, he became famous as a physician and as an atheist:

"Going one day to a hotel, while waiting for his dinner, he took a wooden statue of HERCULES, and threw it in the fire with the words, 'HERCULES will to-day boil our pot.'"

The hair of the innkeeper probably stood on end at the sacrilegious act, but we have no account showing that the dinner was any worse.

EURIPHOX was a physician of Cnidos, quoted by HIPPOCRATES, who was represented by PLATO's character of CINESIAS, son of EVAGORAS as

"Thin as a skeleton, with a chest full of pus, the thighs like a reed, and all the body covered with scars, which EURIPHOX had made in burning and in a word, by phthisis and empyema consumed."

It shows that the actual canterly was used for opening empyema before HIPPOCRATES.

OF PLATO, who like all the older Greek philosophers taught medicine as a branch of philosophy, he repeats the story, that his name was originally ANISTOCLES, "which he quitted, to take that of PLATO, either on account of the breadth of his shoulders, or the breadth of his forehead, or the ample and diffuse style of his writings."

CRITOBUlus who lived a little after, was the surgeon of KING PHILIP of Macedonia.

"He was very fortunate in extracting from the eye of that Prince a piece of an arrow, which had wounded it, and the cure was completed in such manner, that PHILIP had no disfigurement."

"ARISTOTLE," says PORTAL, "when asked by KING PHILIP to take charge of the education of his son ALEXANDER, 'sent him a letter too flattering to be omitted.'"

"PHILIP to ARISTOTLE, salute: 'I thank God not less for having given me a son, than that he was born in a time, when he can be taken to receive your instructions. I hope that, raised by you, he will render himself worthy of the blood of which he sprung and of the monarchy to which he is destined.'"

ARISTOTLE was an excellent anatomist, and although borrowing much from HIPPOCRATES, he added a great many names to anatomic nomenclature. "He spoke of the intestine jejunum; he distinguished the colon, the cecum and the rectum. He was the first to give the name *aorta* to that great vessel," and was the first to divide the body into arbitrary regions, for descriptive purposes, *i. e.*, head, neck, body, arms and legs. He gave the name *ventricles* to the cavities of the heart; the diaphragm he called the "diazoma." The testicles he thought were well placed, but not absolutely necessary.

"It is to be remarked," says PORTAL, "that not any physician before ARISTOTLE has written touching the names of parts of the body."

"DIOCLEs, the first physician who enjoyed great reputation after HIPPOCRATES;" the Athenians called the second HIPPOCRATES. GALEN spoke of him as a man who had made great progress in the art of cure. He flourished one hundred and thirty years after HIPPOCRATES. He invented an arrow extractor, which in the time of CELSUS, bore his name, and also a head bandage which was used for several centuries.

PRAXAGORAS was the next distinguished surgeon. He also was born on the Island of Cos, and was the last of the race of the Aesclepiades.

"According to GALEN he was one of the greatest anatomists of his times, but his writings have been lost, and we know little of his anatomic sentiments. * * * he was the first who distinguished between veins and arteries, properly so-called. He also practiced surgery. In the disease called *ileus*, after having the patient swallow a lead ball as practiced by HIPPOCRATES, and the disease still continuing, he made very boldly an incision into the belly, to extract the excrement, and afterward restore the intestine."

Having thus unexpectedly come upon an advanced abdominal surgeon in the fourth century, B. C., the editor, fearing that a discussion of appendicitis might follow next, laid old PORTAL tenderly on the shelf.

IS THERE AN AMBLYOPIA EXANOPSIA?

It is a common observation that the deviated eye in ordinary (non-alternating) strabismus presents often a very low degree of sight, without structural changes to account for it. Two explanations of this condition have been suggested, but it has not yet

been possible to decide which is the correct one. On the one hand it is claimed that the deviating eye loses its visual acuity by non-use. Whenever double sight occurs in consequence of want of agreement in the direction of the two visual axes, there is a tendency to the suppression of one or the other of the retinal images. If one of the images is less sharp than the other, on account of a less correct state of refraction of that eye, it is the weaker image which is more easily suppressed. Indeed, in strabismus it is mostly (though not always), the more ametropic eye which deviates. But even when the two eyes are alike, a mental suppression of an image can be maintained by practice, as in the habit of using the microscope with both eyes open. The theory of amblyopia exanopsia presupposes that the persistent suppression of the images of the one eye leads ultimately to reduced sensitiveness of the corresponding optic centers. The proof of the correctness of this explanation is claimed to be the improvement in the sight of the squinting eye after an operation has straightened it so as to permit normal binocular vision.

The opponents of this theory state, however, that such an improvement in sight is not common, and that when it does occur it is but rarely very marked, even after the most perfect squint operation. On the other hand, they say, that in hypermetropia the sight of one eye is frequently much weaker than the other, even when there is no squint. It seems hence probable that the amblyopia of an hypermetropic squinting eye is not the result, but the cause of the strabismus, since with the one eye amblyopic there is no diplopia caused by the deviation, and hence there is no tendency to oppose the deviation in case of imperfect muscular balance. They further point out that monocular weak sight which is not congenital, but due to other causes, such as opacity of the cornea, may also lead to squint.

A striking and unique observation, which throws much light on this question, has been brought before the American Ophthalmological Society by Dr. W. B. JOHNSON (detailed in the last number of the *Ophthalmic Record*):

A young man of 19 years applied for the treatment of convergent squint of the left eye. Both eyes were slightly far-sighted, but while the right one had perfect vision, the left one could only count fingers at six feet distance. Ten days after the examination the good eye was destroyed by an accident and had to be removed. Six days later the left eye was again treated and found to be able to count fingers only at three feet distance. Dr. JOHNSON then began training the deficient eye in reading test letters. His sight thereupon improved daily. At first his field of vision seemed to be limited to the object at which he was looking directly, but in about one week's time his

range of sight became normal. In less than two weeks the deficient eye had gained perfect vision and kept it permanently.

This valuable observation teaches in the most positive manner that the monocular amblyopia associated with strabismus may be due to a functional condition of the optic center which can pass off after the loss of the better eye. But we must not attempt to deduce false conclusions from this case. We can neither infer whether the poor sight is always of functional origin and hence of unstable character, nor can we say with certainty whether in this case the strabismus preceded the amblyopia or vice versa. Even the question at issue, whether amblyopia can result from non-use of the eye, is hence not definitely decided by this case. But it opens to us the prospect of unexpected therapeutic possibilities in the management of the amblyopia of squint, and therefore should prove a strong stimulus to further studies in this direction.

LIABILITY OF A PHYSICIAN FOR SELLING INTOXICATING LIQUORS IN IOWA.

The Iowa statute which prohibits the sale of intoxicating liquors, makes an exception in favor of licensed physicians, permitting them to dispense, in good faith, such liquors as medicine to patients actually sick and under their treatment at the time of such dispensing. The defendant in the case of State v. Field, decided by the Supreme Court of Iowa, Oct. 5, 1893, was a physician and kept a drug store. The evidence showed that people would go to his store and ask for "red medicine" which meant whisky, or "white medicine," which meant alcohol, and obtain it. A theory of the defense was that whatever was obtained was prescribed by the dispenser as medicine. The trial court instructed the jury that if it found that the liquor was sold and dispensed, as by a physician to patients actually sick and under his treatment, to acquit. This the Supreme Court said was a correct statement of the law, as applicable to such a case, and that it would not be correct to add to the charge the clause, "for whom the doctor believed to be actually sick."

STATE BOARD OF HEALTH FOR GEORGIA.

The AMERICAN MEDICAL ASSOCIATION long ago in distinct terms, commended the establishment of State Boards of Health, and so far as the voice of the Association can be heard, it is thrown in advance to the support of our brethren in Georgia, who urge upon their Legislature the formation of a State Board of Health.

The welfare of the people; the relief of the weak; the prevention of epidemics; the limitation of disease; the increase of longevity, and the happiness of the public, are each to an appreciable extent affected by the establishment of a State Board of Health, with ample powers. Let Georgia fall into line with her sister States.

SOCIETY NEWS.

Southern Surgical and Gynecological Association.

Abstract of the Proceedings of the Sixth Annual Meeting, held in New Orleans, Louisiana, Nov. 14, 15 and 16, 1893.
(Continued from page 865.)

SECOND DAY—AFTERNOON SESSION.

DR. KOLLOCK, First Vice-President, took the chair, and PRESIDENT BROWN delivered his Annual Address. He selected for his subject,

THE SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION—ITS ORIGIN, OBJECTS AND AIMS.

He said six years ago a small band of earnest, brave and determined Southern surgeons assembled in the city of Birmingham, Ala., with Dr. Haggard as President, amidst doubts, anxieties and misgivings for the future, to found and organize this Association, and in this effort to build up an organization that would meet the advanced requirements of the times, and that should rank in point of talent, efficiency and high-toned character with the other great institutions of the kind, in this and other countries. But notwithstanding the stupendous difficulties encountered, the vast labor expended and the many obstacles in our path, the Association stands to-day a monument of energy, enterprise and indomitable will power. Dr. Brown then traced the growth of the Association and referred to its work. This excellent paper was printed in full in this JOURNAL November 18.

DR. B. E. HADRA of Galveston, Texas, read a paper entitled

SOME REMARKS ON THE SURGICAL TREATMENT OF EPILEPSY.

He thinks that modern researches promise to divest even the so-called genuine epilepsy of its mysterious functional character, and to make it consequently more accessible to surgical interference. Among the points he would mention as having to be cleared up, is the deficiency in the knowledge of the great number of brain centers that must exist. As an instance he mentions the unquestionable fact that very often the stomach or the intestines give the initial symptoms, but because we do not yet know these centers, and because the signals are very abstruse, it may easily happen that another group of muscles, which only secondarily become excited, is charged with giving the signal. The next point is to find the real seat of the primary morbid changes in the brain, which is not necessarily the focus belonging to the initial signal. Topographical and electrical localization map out only the latter. He insists that the induced current used in a different way will be all we may desire for such a purpose. It must be applied over a large area of the exposed cortex, until a spot is met from where a certain group of muscles not only can be made to contract, but from where a regular epileptic fit can be elicited. This spot must be the locality of the morbid substratum, whether it coincides with the physiologic focus of the muscles giving the signal or not; consequently this spot must be removed.

He concluded his paper with the proposition to have uniform blanks for operations on the brain, and to have the questions filled by a critical friend during the operation in order to avoid neglect and to prevent post-operative imagination from playing its obliging part in the adjustment of the historic data.

DR. JOHN D. S. DAVIS of Birmingham, Ala., read a paper entitled,

THE MANAGEMENT OF THE EPICYSTIC FISTULA.

He said the epicystic surgical fistula is the title given to a supra-pubic fistula into the bladder, created by the surgeon for exploration, intra-vesical treatment and drainage. A fistula which, acting as an artificial urethra, is capable of giving free access to the inside of the bladder for cystoscopic exploration, provides a ready, convenient and comfortable means of emptying the bladder at will, and gives the surgeon a competent opening into the viscus for intra-vesical applications. It constitutes an essential element in the speedy and complete evacuation of the contents of the

bladder in all epistyletic operations, and imitates nature in the restoration of its cavity, continuity as the pathological changes within the bladder subside.

Permanent after-drainage of all intra-vesical operations can not be necessary, but is largely essential to secure good and sufficient drainage until the paravascular tissues are disengorged, the cystitis is relieved and the urine becomes normal and passes per urethra unobstructed. And until this end is attained, complete artificial arrangement for the escape of the contents of the vesicles must be made. In an escape of prostatic hypertrophy or malignant growths, when removal of the obstruction is impossible or contra-indicated, the epistyletic surgical fistula is clearly indicated and essentially necessary.

Dr. HUNTER McGUIRE of Richmond, reported a series of cases of "Tuberculosis of the Bladder."

Dr. WILLIAM T. BRIGGS of Nashville, followed with a paper entitled,

PERSONAL EXPERIENCE IN THE OPERATIVE TREATMENT OF STONE IN THE BLADDER.

He said living in the midst of the stone region and in a city whose celebrity as a surgical center has been long established, it has been his fortune to have met with an unusually large number of cases of vesical calculi. He had had 284 cases of stone under observation during the past 42 years. The Southern States had furnished the greatest number of the cases; a few had come from Western States, Tennessee, Kentucky, and Alabama have supplied the largest number; but Georgia, Florida, Texas, Arkansas, North Carolina, Virginia, Missouri and Illinois have contributed cases. Two hundred and seventy-two of the number were males, twelve females. One hundred and fifty-three were children, or youths under twenty years of age; one hundred and thirty-one were adults varying in age from twenty-one to eighty.

In operations for stone he had not restricted himself to any single method. He had done all of the operations, both cutting and crushing, and he considers it very fortunate that surgery has so many resources for the relief of this distressing and painful malady. The success of every method of operating largely depends on the preparatory treatment of the patient. The preëminent success of Lindley, Mott and others was doubtless due to the judicious treatment employed in the preparation of subjects for the operation; and Dr. Briggs is sure that his own success has been greatly enhanced by a strict observance of the preparatory treatment.

In conclusion, Dr. Briggs said his experience in the surgical treatment of stone in the bladder would sustain the following propositions:

1. No method of operation is adapted to all cases;
2. Thorough preparatory treatment is essential to success;
3. Lithotomy is the operation when the patient is an adult, with a capacious and tolerant urethra, with a bladder free from severe chronic cystitis, and with a small or medium-sized stone or, if large, of soft consistence;
4. The supra-pubic is the best operation for large and hard calculi;
5. The medio-bilateral should be chosen in all other conditions, because it is the easiest, safest and best.

HYPERTROPHY OF THE OMENTUM IN HERNIA, WITH SPECIMEN.

Dr. GEO. A. BAXTER of Chattanooga, read a paper with this caption, and presented a specimen (congenital) from a negro, 34 years of age, which had existed until early manhood, about the size of a goose-egg. It was directly increased somewhat by working in a rolling mill thirteen years ago, but has had a constant growth since that time until it reached one-half or two-thirds the way to his knees, and became an unendurable nuisance. It was therefore removed, closure being made at the same time.

Dr. WILLIS F. WESTMORELAND of Atlanta, read a paper on the

TREATMENT OF GUNSHOT WOUNDS.

The first of this class of injuries that he was called upon to treat was shortly after he had graduated, and it thoroughly convinced him of the fallacy of probing. He never uses a probe in a gunshot wound, except as it may become necessary in the progress of a formal antiseptic operation. The probing rarely does any good beyond satisfying a morbid curiosity. Even if the wound is not infected by the probe itself, it allows the entrance of air. It destroys nature's occlusive blood clot, and in this way prevents prompt union.

Dr. F. W. PYRIAN of New Orleans, read a paper, which will appear in the JOURNAL on

WYETH'S MODIFICATION OF CLARK'S METHOD OF AMPUTATION.

Dr. PARHAM prefaced his own paper by reading some extracts from a paper by Dr. F. C. WYETH, read before the last meeting of the New York State Medical Association. He made use also, of the statistics kindly furnished to him by Dr. WYETH. These statistics were as follows: (a) In 17 cases, 2 deaths, 11.76 per cent. (b) Inflammatory hemorrhage, 18 cases, 3 deaths, 16.67 per cent. (c) Anomalous vessels, 16 cases, 10 per cent. (d) Nervous injury, 1 case, 0 death. (e) Total for disease, 36 cases, 10 deaths, 27.78 per cent. (f) For injury, 16 cases, 10 deaths, 62.5 per cent. (g) For both diseased and injury, 52 cases, 20 deaths, or a total of 38.46 per cent. In this list is one case now published for the first time. A boy aged 23, suffering of thigh recurrent, amputated by Wyeth's method by Dr. PARHAM Oct. 5, 1894, discharged cured Oct. 24, 1894. These statistics show a mortality reduction for civil practice, at least one-half. Ashurst's statistics gave 40 per cent. for disease, 24 per cent. for injury, or a total of 44 per cent. Laming gives gunshot wounds, 38 per cent., disease, 42 per cent.

Dr. PARHAM referred to the various methods proposed for controlling hemorrhage at the hip, and spoke of the various modifications of the Wyeth method. He specially urged that the outer pin should be placed higher, so that the disarticulation might be done before the tube was removed. He favored the suggestion of Thomas that in pinning the pins, the tube should be put around first at the proper place, and that then the pins should be put in at the lower border of the tube. He believed that the bone should be disarticulated entirely without sawing. In conclusion, the reader remarked: "I am inclined to agree with Murchison that the method of Wyeth is the best yet devised."

Dr. W. B. ROBERTS of Memphis, Tenn., read a paper entitled,

LITHOTOMY IN GENERAL SURGERY—REPORT OF TWENTY CASES.

Dr. J. McFADDEN GASTON of Atlanta, Ga., read a paper entitled,

OPERATIVE PROCEDURES FOR CARCINOMATOUS TUMORS OF THE BREAST.

He said a point of great moment, as to the extent of operative procedure, pertains to the leaving of any portion of the mammary gland, when only partially implicated in the carcinomatous growth. The esthetic element should never enter into the decision of such a vital question, as the arrest of carcinoma, and whenever a breast is the seat of a malignant tumor, whether wholly or partially involved, there should be no hesitation about removing the entire glandular structure. If a part of the mammary gland only seems to be involved, and it is evident the knife can be carried outside of the neoplasm into the apparently sound tissues of the breast, there is every reason to believe that if any portion of the gland is left it may become the seat of disease, and that recurrence will most likely follow the operation. On the other hand, an entire ablation offers better prospects of success.

The relative advantages of the knife and cauteries in the management of carcinoma depend very much upon the progress of the disease. In the incipency of the local trouble, there can be no doubt in regard to the excision being preferable to cauterization, but after full development of a tumor with a tendency to degeneration and breaking down of its structure, the resort to escharotics has its advantages in extending to the remote ramifications of the disease. It is a prevalent impression that certain caustic applications attack diseased structure without affecting the sound tissues, and that the so-called roots of a cancer are thus destroyed. There seems to be some just foundation for this belief in regard to applications of arsenic, but the destructive effect of caustic potash in the form of Vienna paste, extends to every vital structure with which it comes in contact, and the same holds in reference to the plaster of sulphuric acid and charcoal as an escharotic. Dr. Gaston said the treatment of carcinomatous tumors of the breast with caustics had been tested fully by Bougard of Belgium. His paste contains chlorid of zinc, arsenic, cinabar and corrosive sublimate. Of 100 cases, 92, or nearly 40 per cent, were free from recurrences three years after treatment.

Dr. JAMES A. GOGGANS of Alexander City, Ala., read a paper on

THE DIAGNOSIS OF SOME ABDOMINAL TUMORS SUPPOSED TO BE OVARIAN.

Dr. Goggans said the first requisite of the abdominal or pelvic surgeon is to acquire the ability to make a diagnosis.

Text-books led one to believe that this was quite an easy thing to do, but his experience had convinced him to the contrary. He then reported a few cases which had come under his observation which served to illustrate the fact that the diagnosis of many cases is often difficult, and in some cases quite impossible.

Dr. JOHN T. WILSON of Sherman, Texas, read a paper entitled,

DOES GONORRHEA IN THE FEMALE INVARIABLY PREVENT CONCEPTION?

He said it has long been known that gonorrhea in the female was sometimes attended with complications that proved troublesome and of serious import. Authors had for many years been describing endometritis, metritis, inflammations of the tubes, ovaries and peritoneum produced by an ascending specific vaginitis, these structures being invaded by the poison slowly creeping up through the cervix, involving first the mucous membranes in its tract, and extending by continuity of structure to the deeper tissues. The more serious results, however, were not appreciated, nor so well understood until within recent years, when laparotomy became so common an operation, and the pathology of the more important sequelae were studied from the specimens themselves. According to the experience of our best authorities, it is so difficult to positively differentiate between gonorrheal and severe simple vaginitis without a clear and authentic history, it being attended with the same symptoms and the properties of also infecting the male, that it is not altogether an easy task to say when ovarian, tubal and uterine troubles, even with the presence of the Neisser gonococcus, have a specific origin, especially as simple vaginitis will sometimes produce them all. Dr. Wilson had observed quite a number of women who were the victims of gonorrheal infection, many of them innocently so, having contracted it from their husbands, and believed it to be an ordinary leucorrhoea; many of those whose history he was enabled to follow afterwards bore children, for many years were apparently healthy, and gave no evidence of the usual complications.

Dr. Wilson then reported cases illustrative of some of these conditions and results. That gonorrhea does frequently prevent conception is probably well established; but he does not think it is by any means the universal rule; clinical illustrations are too many to the contrary. If Nœggerath's statements are literally true, sterile women and fruitless marriages would be far more common and the increase in the race would be greatly lessened, for there are a surprisingly large percentage of men judging from his experience, who, if they confessed the truth, have suffered at some time in their lives with gonorrhea.

Dr. JAMES E. THOMPSON of Galveston, Tex., read

SOME REMARKS ON THE PRACTICAL TREATMENT OF HEPATIC ABSCESS.

The author confined himself to a few practical remarks on the diagnosis and treatment of hepatic abscess, and reported two interesting cases. He mentioned a few points on the treatment of the cavity after the contents had been successfully removed. It is often exceedingly difficult to obtain free drainage, even when large tubes are employed. In some cases, even swabbing the walls of the cavity is ineffectual, and these cases are practically hopeless, owing perhaps to inherent tissue weakness. The author tried enucleating in one of his cases, and although he removed as he thought all necrotic tissue, still in a few days the cavity was as bad as before. Continuous irrigation often affords a means of efficient removal, but the tubes have an aggravating habit of becoming blocked, necessitating frequent changing and cleaning. Irrigation with a solution of sulphate of quinin, 1-1000, was in one of his cases remarkably successful, and although the improvement may have been a coincidence and not a *post hoc ergo propter hoc*, he thinks that in cases of amebic dysentery, at least, it deserves a fair trial.

The following officers were elected for the ensuing year: President—Dr. Cornelius Kollock of Cheraw, S. C.
First Vice-President—Dr. A. B. Miles of New Orleans, La.
Second Vice-President—Dr. J. B. S. Holmes of Rome, Georgia.

Secretary—Dr. W. E. B. Davis of Birmingham, Ala.
Treasurer—Dr. H. P. Cochrane of Franklin, Tenn.

After introducing and adopting resolutions of thanks, the convention adjourned to meet in the city of Charleston, S. C. on Tuesday in November, 1894.

Vermont State Medical Society.

Eightieth Annual Meeting—Held in Rutland, Oct. 12 and 13, 1893.

Reported by DR. D. C. HAWLEY, Secretary.

FIRST DAY—MORNING SESSION.

The session was opened at 10 o'clock with prayer by the Rev. Dr. HAINES of Rutland.

Delegates were present from New York, Connecticut, Massachusetts and New Hampshire.

An obituary of Walter Carpenter, M. D., late of Burlington, was presented by Dr. HENRY D. HOLTON of Brattleboro. Dr. M. R. CRAIN of Rutland, presented a paper on the

LOCATION OF THE LESION IN PARALYSIS.

He stated that there are two general divisions, atrophic and non-atrophic paralysis.

In the first, there is rapid wasting of the muscles affected, because the lesion is situated at the trophic center, or at some point between the trophic center and the muscles that are paralyzed. These being cut off from the center that controls their nutrition, waste rapidly. The lesion may be in the brain, the cord, the peripheral nerves or their nerve roots.

The non-atrophic form of paralysis is caused by a lesion of the primitive motor center, or at some point between the motor center and the trophic center, causing paralysis without wasting of the muscles, except that caused by disease.

In all cases of paralysis, there occurs secondary degeneration of the nervous tract affected, and the degeneration occurs in the direction the impulses travel. That is to say, if we have a transverse lesion of the cord, the motor fibers will degenerate towards the periphery, while the sensory fibers will degenerate towards the brain.

He uses both the galvanic and faradic currents in electro-diagnosis, but recommended the use of the faradic current, as better for physicians, who had had no special training in electro-diagnosis.

The paper then dealt exhaustively with the localization of the lesion in the brain and cord, in various diseases and in cases of traumatism.

Prof. J. HENRY JACKSON of Barre, presented a paper entitled

SOME THOUGHTS CONCERNING THE LIVER IN HEALTH.

He said that one office of the liver, not usually assigned to it, was to confine the digestive ferments to their own proper domain, where they are eminently useful, and to prevent their emergence into the general circulation, where they would be decidedly harmful. Prof. Albertoni has found that peptones injected into the jugular vein depress the circulation, arrest the secretion of the kidneys and cause convulsions and death.

We recognize the action of the liver in the destruction of waste and surplus albuminoids, and we are learning that urea is formed, to some extent, by the liver, and not by the kidneys, and that lithiasis or lithemia is primarily a derangement of the liver.

The amount of glycogen in the liver varies from 3 to 10 per cent.

Glucose when taken as food and absorbed from the alimentary canal, is deposited in the liver as glycogen, the change which takes place being a dehydration, i. e., glucose minus water equals glycogen. While in this condition the glycogen forms part of the substance of the liver, and is probably reserve material, to be afterwards consumed in some other part of the body. It is converted into glucose by the addition of one equivalent of water, and carried away from the storehouse as the wants of the system require. A variety of circumstances may so increase the percentage of glucose in the blood as to cause a saccharin condition of the urine.

Adjourned.

FIRST DAY AFTERNOON SESSION.

Dr. J. D. BREWSTER of Windsor, presented the Vice-President's Annual Address, entitled,

A REVIEW OF TREATMENTS OF PHTHISIS PULMONALIS,

In which he said: I shall deal with the subject in a retrogressive manner beginning with a review of modern ther-

any and then compare our advanced ideas with those of our forefathers.

I shall make three divisions of the subject: 1, prophylactic; 2, medicinal; 3, climatic.

1. *Prophylactic*.—It should date from birth. A baby should not nurse either a mother or wet-nurse who is consumptive. The much-advertised baby foods are to be tabooed, for *not one* of them contains, in sufficient quantity, that most necessary ingredient, fat. Great care should be taken that no impure cow's milk is used. Over-feeding, under-feeding—in short, anything that interferes with nutrition, should be guarded against. The two things most likely to correct a consumptive tendency in childhood are, first, systematic physical exercise in the open air, and, second, change of climate. Finally, knowledge of hygienic laws must be diffused among all classes.

2. *Medicinal*.—Is there a medicinal antidote to tuberculosis? No. Nevertheless, medicines are important and used for three main purposes, viz.: improvement of nutrition; to combat complications; and to lessen suffering by meeting the various symptoms which arise. Cod liver oil serves as a food, and under its use many cases show remarkable improvement in appetite, digestion and tissue nutrition. It is more valuable in the young than the old. As regards the use of alcohol, if it produces a sense of comfort without any excitation of the circulation, or of the nervous system, well and good, but if it occasions "flushing, weariness, or discomfort of any kind," it does harm.

Cough, expectoration and the rapidity of emaciation are progressive with the fever. Its reduction is a necessity, and the most reliable agents are sulphate of quinin and rest. An expectorant cough should be aided in every way. A superficial cough is best relieved by cod-liver oil. For night sweats, I recommend picrotoxin, and for diarrhea, especially if dependent on ulceration, the hypophosphites of lime and soda, bismuth, resorcin, etc., are sometimes markedly beneficial.

3. *Climatic*.—The whole subject will allow of no fixed rules. 1, a good climate must be one of a different nature than that in which the disease originated; 2, a moist air, with a sandy, porous soil, is preferable to a dry air with a clayey, non-porous soil; 3, pure air is absolutely best, and pure air means *absence of dust*; hence, 4, altitude is beneficial simply because of freedom of rarified air from dust; not that altitude itself has any curative effect; 5, an unhabited region is best; 6, the question of a hot or a cold climate is to be determined by the circumstances of the case; 7, the good effects of a change are in a vast measure due to the attention paid to sanitary laws.

Diet is of great importance. The Anick treatment and "gaseous enemata" were referred to and summarily condemned.

The older treatments, as far back as the days of Galen, were gone over, and the paper closed with the statement that our predecessors made about as much progress in treatment as have we with our boasted advantages and increased facilities for pathologic investigation.

Dr. O. W. SHERRIN of Woodstock, presented a paper (prize paper) entitled

SEPTICEMIA.

He said the most common causes of septicemic infection are the microbes and ptomaines of putrefaction and fermentation, and septicemia must be considered to be a warfare between these microorganisms and the body cells.

He said septicemia shows four forms or degrees, namely, fermentation fever, suppurative, progressive sepsis and pyemia, detailing at length the etiology and symptoms. He placed special stress on prophylaxis, and urged the necessity of precision in the use of the terms sepsis, antisepsis and disinfection. He considered treatment in pyemia as of no avail.

Dr. E. M. POPE of Rutland, read a paper, prize paper, on

PERITONITIS.

He classified the causes of peritonitis as: 1, traumatic; 2, infective. Under the first head we have intestinal obstruction, ectopic gestation, perforation of stomach or intestines and appendicitis.

Infective cases may follow labor or abortion, and many are caused by gonorrheal infection.

Intubercular peritonitis, laparotomy is the only treatment. In nearly all traumatic cases early operative measures are necessary.

In appendicitis, operation is indicated: 1, when symptoms of diffuse general peritonitis are rapidly developing; 2, when the onset of symptoms are violent and signs of septicemia are present; 3, when there is a well-defined tumor

that is increasing even if pulse and temperature are improving; 4, when the symptoms are increasing beyond a time when they should be improving; 5, in chronic relapsing appendicitis—in most of these cases a tumor is present which does not disappear between these crises, in which abscesses develop.

At no time should the use of opium be persisted in, as to mask the symptoms.

Dr. HENRY THOMAS HAYES of New York, read a paper entitled

THE CAUSATION AND RATIONAL TREATMENT OF FIBROID TUMORS OF THE UTERUS.

After giving a description of the different varieties of fibroid tumors, he said that for the submucous variety, he used ergot or electricity to produce uterine contraction, so as to force a pediculated tumor through the external os, or to destroy its growth in the uterus if it is sessile.

In case of an interstitial tumor which is approaching the endometrium, there will get early be excessive hemorrhage. Slight dilatation of the cervix should be resorted to, for complete diagnosis, and to allow the curette to pass easily, and it should be thoroughly used and followed by careful irrigation.

The galvanic current should then be employed. This will generally check the growth and prevent excessive hemorrhage.

In the sub-peritoneal variety, ergot and galvanism could be given a thorough trial, and a major operation, most certainly an hysterectomy is not demanded, unless the patient is a great sufferer from the discomfort produced from the size of the tumor, or from excessive hemorrhages which can not be controlled.

Dr. Hanks then described at length the operation of supra-pubic hysterectomy, in which he urged the necessity of thorough asepsis.

FIRST DAY—EVENING SESSION.

Dr. H. R. WILDER of Swanton, delivered the President's Annual Address. Dr. Wilder dwelt upon the value of society organization to the profession in this and every State, and urged the thorough enforcement of the license law, as it stands on our statute books, recommending the examination of all candidates, without reference to former credentials.

He advised the amending of our Code so as to permit physicians to consult with members of other schools, provided they be men of rectitude and of abundant intellectual worth to make it practicable.

He urged young physicians to remember the trials in medicine, nature, and to be not over free in the use of drugs.

The address closed with an urgent appeal to all members of the profession to stand in unity.

Dr. J. H. LINSLEY of Burlington, read a paper entitled,

TUBERCULOSIS WITH INTERNAL DEMONSTRATIONS OF THE TUBERCLE BACILLUS.

He said: Fifteen per cent of all deaths in the civilized world are due to pulmonary tuberculosis. This fact should be a sufficient stimulus for unflagging efforts on the part of every medical man, to contribute his mite to the effort to advance the prophylaxis and therapeutics of this formidable enemy of mankind.

The bacillus (tubercle bacillus) of Koch is the sole and identifiable cause of this disease. With out this microorganism, there is no tuberculosis.

The continued presence of the bacillus in the body is changes is usually the first and best of defenses, and these microorganisms soon may thus be detected before the existence of the disease is suspected, or at least evidenced by other symptoms. They may be detected by any physician who has an opportunity and of course with the microscope.

There is as yet no successful method of treating this infection. The most successful methods, such as, full rest, as a rule, which tend to free the patient from the stages of the system, improve nutrition and efface that essential principle which is so prominent an element of "responsibility." A prolonged residence in an airy, rather elevated, open air life, (solarium and defecation forced food and liver pills, etc., etc.) and all more strenuous measures are grouped under this head. The paper was illustrated by a series of pictures from lantern slides, made from photomicrographs, shown on a screen.

After adjournment the annual banquet was held at the Bates House, at which 125 covers were laid.

American Electro-Therapeutic Association.

The Third Annual Meeting Held in Chicago, Sept. 12, 13 and 14, 1893.

AUGUSTIN H. GOELET, M.D., President.

(Continued from page 283.)

ELECTROLYSIS IN THE TREATMENT OF TUMORS OF THE BLADDER.

Read at the Third Annual Meeting of the American Electro-Therapeutic Association, in Chicago, Sept. 12, 1893.

BY ROBERT NEWMAN, M.D.

NEW YORK.

Fellow and Member, Executive Council, American Electro-Therapeutic Association; Consulting Genito-Urinary Surgeon to German Dispensary, West Side and Hackensack Hospital; Consulting Surgeon Bayonne Hospital; Consulting Physician to Home for Aged and Infirm, Yonkers; Honorary Member Elster County Medical Society, Danbury Medical Society, etc.

Electricity has done much to make the treatment of tumors of the bladder more successful than the means formerly employed. It can be used in three different forms: 1, electric light to make the diagnosis positive; 2, galvanocautery to remove the tumor wholly or in part; and 3, electrolysis for the removal or absorption of the tumor by degrees, while the patient is perambulant.

Radical operations have been made by supra-pubic cystotomy and removal of the tumor, either by exsection or by galvano-cautery.

The present paper will illustrate only methods the author has employed with electrolysis, in such a manner that the patients were not detained from business or pleasure, came to the office for treatment and went home after the séance, sometimes necessitating travel by rail. Most patients were females, but the principles employed can also be used in males. The only difference in treating males consists in having the instruments made a little longer to comply with the anatomic differences. Only non-malignant tumors are treated in the manner described.

Non-Malignant Tumors of the Bladder—have been described by many authorities, which to cite here would be out of place. Recently an excellent paper on this subject has been written by Dr. John B. Hamilton,¹ which is a concise essay, almost exhausting the subject, and giving much information. The authors cited there are Stein, Thompson, Tullier, Ricard and Bonsquet, Watson, Southan, Dittel, Wallace, Perregaux, Jewett, Norton, Guyon, Barling, Spanton and Kelly. We find in this paper the very good classification of non-malignant tumors by Barling, the history, etiology, pathology, symptoms, diagnosis, treatment and statistics. The treatment described is surgical, but not a word is said about the use of electricity. Hence all which can be found in the literature on the subject is omitted here, and only the methods of electricity employed by the author, and his instruments used, will be described and considered now.

The tumors which appear in the bladder are of a different character, as enumerated by Barling, Goulson and others. Tumors which came under the author's observation were mostly papilionata, myomata and vascular (angiectasia venosa).

Diagnosis—The maiajdy is suspected by certain symptoms, as pain, irritability, frequent micturition, chills, insomnia, general malaise, hematuria in intervals, sudden retention and the abnormal state of the urine.

1.—OCULAR INSPECTION.

A diagnosis of tumor can only be made with a certainty by ocular inspection of the bladder by the cystoscope and endoscope. The cystoscope of Leifer is illuminated by a storage battery, and if successful the experienced operator will see the tumor, rather a little magnified, as plainly as in a good bright daylight. The cystoscope will not be always successful, but when it reveals the tumor, the diagnosis is a certainty. To verify such a diagnosis made, the author uses also the old Desormeaux endoscope immediately after the cystoscopic examination. If the same condition is seen as found before by the cystoscope, the location of the tumor is verified by an exact measure; how far the tumor is situated from the meatus, and how far it is situated either right or left of the median line. If such a measure is taken carefully and embodied in the notes of the case, the tumor can be found again with any instrument to be employed hereafter. The writer has used the endoscope of Desormeaux since 1866 in diseases of the urethra and

bladder. In examination it shows the parts as they really exist at the end of the endoscopic tube, and thus can be reached in loco with instruments and solutions, but only to the extent of the focus in sight; other places may be reached by changing the tube to another focus. The diagrams shown here will explain best the endoscope, which has been used very little by the profession. The advantages of the cystoscope are, that it gives a better light, magnifies the parts, and the whole bladder can be explored, giving at once a large field in focus; but it serves only as a means for diagnosis.

For direct ocular inspection, Dr. R. T. Morris has invented an excellent endoscopic tube, which is very simple; the light is thrown into it through a head mirror. The management of either appliance needs some practice. So far, the author has had the best results, and was enabled to make a positive diagnosis by employing both the cystoscope and endoscope in succession, as also before and after using electrolysis. Other examinations for diagnostic purposes are made by exploring the bladder with a bougie à boule or a sound, by injection or irrigations of the bladder, in order to find the capacity of the viscus, the state of the walls, its mucous linings, abnormal contractions, and the sensibility of the patient.

Benign Tumors in the bladder may be of different varieties, as mentioned in text-books.



FIG. 1.—Electrode for local and general electrolysis.



FIG. 2.—Platinum needle.

A, platinum point; B, for connection with battery; C, parts insulated.



FIG. 3.—Glass speculum, urethral.

The tumors have been cured by electrolysis per urethram, and therefore pathologic and microscopic specimens could not be procured.

Treatment. Concomitant with the electrolysis, or as a preparatory treatment, measures are employed to make the patient comfortable. To allay pain anodynes are given, best in the form of rectal suppositories and external galvanization. The tone of the bladder must be restored and the troublesome spasm conquered. Medicated injections, washing out and irrigating the bladder are important. Systematic and very gradual dilations of the bladder succeed so well, that the viscus will soon tolerate twelve ounces to a pint, when formerly it could hold scarcely four ounces.

II.—GALVANO-CAUTERY

Will do good service in removing the tumor by degrees. After the tumor is well located the galvano-cautery instrument is marked by a ring in such a manner that after introduction the platinum wire will cover the tumor in the bladder when that part of the instrument marked by a rubber ring appears at the meatus. Then the fenestrum containing the platinum wire is pressed downwards against the tumor, and by pressing the current breaker a few times on a screw, the platinum wire is instantaneously heated from a storage battery. The instrument is almost identical with the author's galvano-cautery sound, and only differs in being shorter and almost straight at the end. The two poles run inside a tube insulated, so that nothing will be heated but the platinum wire situated in the fenestrum. The author has never failed to galvano-cauterize the exact place wanted, which fact was verified by an ocular inspection with the cystoscope. However, if there should be any doubt about the exact situation, the operation can be done with the place to be operated upon fixated, while the bladder is illuminated with the cystoscope. In the same manner a galvano-cautery sling may be used to remove a tumor at the pedicle.

III.—TUMOR, TESTIS.

May be used in different ways, but always, under all circumstances, a galvanic battery is necessary; no other will do, for in other words, the constant current of a galvanic battery is imperative. As a rule the negative pole is applied to the affected part. The positive pole, in the shape of a pad or a covered carbon, is held in the palm of the hand, or pressed externally over the supra-pubic region.

Each séance may last from five to fifteen minutes, as indicated by method and circumstances. The strength of the current is from 5 to 20 milliamperes, an average of 10 milliamperes. The intervals of séances are governed by the result of each operation and by the condition of the patient. The first step in the modus operandi is to draw off the urine, which can be done with the urethral glass speculum, Fig. 3, which is a very useful auxiliary, as will be shown later. If necessary, the bladder is washed out through the same glass speculum, and at last four to six ounces clear water are left in the bladder. This water may contain a little table salt or bicarbonate of soda, which facilitates the electrolytic action. In most electrolytic operations in the bladder it is of great importance to have the bladder filled with water, and when the cystoscope is introduced the water is a necessity to keep the electric lamp cool. Without the water, the lamp would burn the mucous lining. After these preliminaries, the electrodes are applied, each in its place, and the electrolytic action begins, the current being gradually increased from zero to the desired strength.

DIFFERENT METHODS OF ELECTROLYSIS.

There are principally two methods, general and localized:

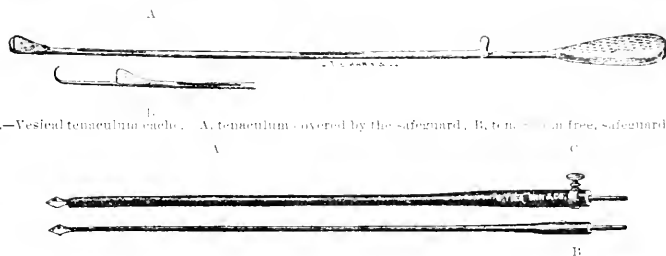


FIG. 4.—Vesical tenaculum catheter. A, tenaculum covered by the safeguard; B, tenaculum free, safeguard open.



FIG. 5.—Cannulated needle electrode. A, needle in cannula complete; B, needle removed from cannula; C, screw-fastening needle.

1, general electrolysis is accomplished by holding the electrode bulb in the water which fills the bladder, without touching the tumor. The electrode, Fig. 1, is insulated, except at its extremities. One extremity has an olive metal bulb which is introduced as the negative pole per urethra into the bladder, and held beneath the water without touching the tumor. The positive pole, in the shape of a pad, is held in the hand or on any cutaneous surface which completes the circuit. Then the current from a galvanic battery is slowly and gradually increased to the desired strength, and the electrolytic work begins—from the water to the tumor. It is surprising what good effect this general electrolysis has on the tumor and on the general condition of the patient; it allays pain at once, makes the patient more comfortable, and has a specific, absorbing and healing effect on the tumor. The latter effect is slow but steady.

Other advantages of this method are, that it can be done often; in fact almost daily, or in the intervals between other localized operations, which saves time and encourages the patient, who never complains of any pain during such a séance. When tumors were almost removed, but a vestige left, which scarcely could be reached locally without encroaching on sound tissue, this method of general electrolysis has done such good service, that the case was finally cured; 2, local electrolysis, negative pole against the tumor or penetrating the same. *a*, electrode in tal bulb in contact with tumor; *b*, platinum needle in tumor; *c*, fixation of tumor and platinum needle in tumor; *d*, cannulated platinum needle direct in tumor, with or without fixation.

There we have four methods, from which one can be selected according to indications and the work to be done. *a*, Electrode metal bulb in contact with the tumor. The same electrode, Fig. 1, as described in general electrolysis, is also used for this method. The only difference from the former is that the metal bulb is firmly held against some part of the tumor, and in contact with it. After a certain

time, when the electrode is acted on, it is moved along the point of the electrode may be moved to any part of the tumor and charged successively to different parts.

b, Platinum needle in tumor. This and the next two following methods, are made on the same principle as the electrolytic treatment of nodes. The negative pole is introduced into the tumor, and then the electrolytic action absorbs, or destroys, the tumor; the electrolyzed portion shrinks up, contracts, coagulates by degrees till a healthy surface appears.

The urethral glass speculum, Fig. 3, is introduced so far into the urethra that its end is near the entrance of the bladder. Into the speculum the platinum needle, Fig. 5, is so far advanced that its end is near the opening of the speculum. Then, with a quick movement, speculum and needle are pushed into the bladder, and at the same moment the needle is pushed forward to be left in the bladder, while the speculum is removed without discharging the water left in the bladder. Then the needle is pierced into a part of the tumor and electrolysis used as before. Sometimes it is a little uncertain where and how deep the needle passes, and in such doubt another method may be practiced. However, an operator who has sufficient experience will overcome such uncertainties, and if necessary he can see the needle's action and location by using at the same time the cystoscope, which has been done.

Fixation of tumor and platinum needle in tumor. This and the next method are nearly the same in principle as the last described. The difference is only a greater certainty in the location of the needle, by a new instrument devised by the writer, the Vesical Tenaculum Catheter, Fig. 4. The ten-

aculum is protected at the end by a safeguard which can be moved and thereby leaves the tenaculum free. This tenaculum runs in a very slender stem, which when in the urethra occupies little space and permits other instruments to pass alongside at the same time. The tenaculum is introduced; when in the bladder the safeguard is withdrawn and the tumor fixated and held firmly by the tenaculum. Then if the safeguard is pushed forward, the tenaculum can not disengage itself from the tumor and has a steady hold on it. If there is any doubt about the location of the tumor, the cystoscope can be introduced alongside of the tenaculum and the latter can be seen and guided into the exact location desired. Then the cystoscope is removed and the needle introduced, the stem of the tenaculum acting as a guide. Electrolysis is applied, the instruments removed, and if desired the parts may be inspected again with the cystoscope.

Cannulated platinum needle direct in tumor. For this method another new instrument is used, the Cannulated Needle Electrode, Fig. 5. The needle inside the cannula is fastened by the screw, at such a place that the sharp point is covered by the cannula. Then the cannula is introduced in the bladder, and at the same time the needle is pushed forward as far as it can go, Fig. 5, the screw fastened again. In this position the needle fills out the cannula so firmly that no water can escape from the bladder. The point of the needle projects out of the cannula scarcely more than one-eighth of an inch. If the needle is now forcibly pushed into the tumor it can not penetrate further than the one-eighth of an inch, and therefore can not do any harm. If it is desirable, either the tenaculum or the cystoscope may be used at the same time. However, there is scarcely a necessity for doing so, as the writer always found the exact spot he wanted to penetrate, which was verified by a subsequent inspection with the cystoscope. This instrument proved to be invaluable in these cases for

diagnosis and treatment. It is hoped that it will be still more improved, so that it will be easier to inspect and operate at the same time.

The new instruments here demonstrated have contributed greatly to the success of operation. These instruments have been devised by the author as necessity required.

In most cases it will be necessary to use both local and general electrolysis, the method to be selected according to indications.

CONCLUSIONS.

1. Tumor of the bladder in the male can be treated by electrolysis; but in most cases it will be preferable to perform supra-pubic cystotomy and remove tumor by galvanocautery, electrolysis or the knife for a radical cure.

2. The methods here described for tumors of the bladder have been used in females in non-malignant tumors. A galvanic-battery only must be used.

3. All operations have been made per urethra, without any assistant, without any anesthetic, without any pain, without any detention, patients being perambulant, coming and going as they pleased.

4. The result having been very satisfactory, patients acknowledging a cure, and in some cases reliable physicians having made examinations and pronounced patient cured.

5. While the result has been favorable, it is not asserted that electrolysis will cure all benign tumors of the bladder.

DR. HOLFORD WALKER of Toronto, asked if the author had any experience in the treatment of enlarged prostates by this method.

DR. NEWMAN replied that his experience had been confined to treating females by this method. In males, supra-pubic cystotomy is ordinarily better than electrolysis for bladder tumors.

DR. GREEN said he had made applications to enlarged prostates, and in the majority of his cases he had been pleased with the result.

DR. MARTIN had had no experience with this class of cases, but was prepared to believe thoroughly in anything advocated by Dr. Newman.

DR. ENGLEMAN said that the author was to be complimented on using the true surgical principle of seeing the spot before attacking it. He was astonished to learn that the treatment could be carried out with such facility, and with almost no restrictions imposed on the patient.

DR. NEWMAN, in closing the discussion, said that patients with such bladder tumors suffer excruciating pain. One case came to him the first time in a carriage, and walked into his office very slowly and with much difficulty, but was soon decidedly relieved. He did not wish to convey the impression that the treatment was so very easy, for it is often difficult to manipulate the tenaculum and other instruments properly. He always felt that he needed the patient's consciousness to guide him.

ON INVESTIGATION OF DR. NEWMAN'S STATISTICS.

We have examined the records of Dr. Newman's cases of urethral stricture submitted to us, and regard his conclusions as well sustained by the statistics he has presented, and as far as our experience in this line of work adds further testimony, it is confirmatory of the value of the continuous current in resolving a large class of urethral strictures.

The Committee made diligent efforts during the year to comply with the directions given them, to enlist the co-operation of surgeons of large experience in other methods of treatment of urethral stricture in examining both the patients and statistics, but failed to receive such assistance from them.

A. H. GOELLE,
WILLIAM J. MORGAN,
W. J. HERMAN.

Chicago, Sept. 11, 1893.

AGENDA TO REPORT OF COMMITTEE ON ELECTRODES.

DR. WM. J. MORGAN of New York, exhibited some new electrodes which he had found especially useful. First, an ordinary large circular dispersion electrode was shown, to which was adapted a circular cap of soft rubber. This cap could be fitted to electrodes of any size, and its rim, which flared over upon itself, served to collect the fluid which escaped from the electrode, and which would otherwise soil

the patient's clothes. He then showed the way in which he wrapped his carbon electrode with "punk," by wrapping the disc in the punk, tying it securely by a wire wound in a groove, encircling the rim of the electrode, and finally trimming off the superfluous punk. He found this material most agreeable to the patient, and it had the very valuable property of retaining moisture for a long time. The third piece of apparatus was a cataphoric electrode, consisting of a hollow box of ebonite, the bottom of which was formed by a disc of block tin. This was covered, as in other electrodes of this class, with a thin disc of blotting paper. The hollow ebonite portion is filled with the solution to be employed, and this is gradually fed through perforations in the tin plate on to the blotting paper. The object of this special construction is to enable the operator to use a larger quantity of the solution than could be placed directly on the blotting paper, and at the same time to reduce to a minimum the space between metallic and electrolytic conduction. This latter point is of extreme importance in practice. Lastly, the speaker showed an intra-uterine electrode which he had been compelled to have made to order, as nothing of the kind could be found at the instrument-makers. He did not claim originality in its construction, but exhibited it simply on account of its utility in the Apostoli method of intra-uterine treatment. The essential points in construction were, increasing the length of the intra-uterine portion of the sound, and providing an interval or insulated area corresponding to the cervical portion of the sound. By this device a large portion of the current was prevented from being absorbed by the cervix. It also possessed a ring of ivory to act as a guide to the depth to which it was to be inserted; and lastly, its tip was insulated by hard rubber. Though in no sense novel in any one feature, the combination seemed to offer a practical working electrode.

The report was accepted and the Committee continued.

(To be continued.)

New York County Medical Association.—At a meeting of the New York County Medical Association held Nov. 20, 1893, Dr. Samuel E. Milliken presented three patients on whom he had operated for the radical cure of varicocele by the excision of all the diseased veins. These three, he said, belonged to a series of seven successful cases in which he had performed the operation. He expressed the opinion that in this procedure there was no occasion for excising the lower end of the scrotum, as advocated by many surgeons of repute. Dr. Milliken then exhibited an apparatus for the application of the plaster-of-paris jacket in Potts' disease, while the patient was in a recumbent position, and in connection with the demonstration made some remarks on "Immobilization *versus* Extension." The principal paper of the evening was by Dr. Augustin H. Goelet, on the "Treatment of Uterine Fibroids." At the conclusion of the discussion on the paper, the following resolutions in regard to the death of Dr. William T. White, late Vice-President of the Association, were adopted:

The New York County Medical Association, in recognition of the services of Dr. William Thomas White, a deceased member, desires to dedicate to his memory upon its minute book the following tribute:

Resolved, That this Association acknowledges in all his labors, so unstintingly offered, the spirit of exact justice and honest purpose of the best interests of the profession.

Resolved, That his unimpeachable candor, fortified by a rare courage and a strict construction of the right, was not allowed by him to degenerate into a mere love of conflict, or to obscure his underlying amiability.

Resolved, That, accompanying the above, a brief biographical sketch be likewise added to the archives as a reference for the preparation of a future memoir.

Society of Surgery of Paris.—The Société de Chirurgie of Paris, recently celebrated the fiftieth anniversary of its foundation. All the members were present and a great many associates and foreign associate members. The Chair of Honorary President was occupied by M. Marjolin, one of the founders of the Society. M. Verneuil was active Pres-

bury in January, 1894, and removed to New Haven in 1846. He was a graduate of Yale Medical School. He wrote a history, and was assisted by MM. Perier, Monod, Kirmisson, Schwartz, Larrey, Brouardel, Boeckel, Strasbourg, Reverdin (Genève) and Sir Spencer Wells of London. The session was opened by M. Marjolin who was made the object of a most sympathetic ovation. He was also presented a medal commemorative of the ceremony—*Yves et Roubier*, Nov. 8, 1893.

At the last meeting of the Section on General Medicine of the New York Academy of Medicine, there was a discussion of unusual practical interest, participated in by some of the most prominent teachers and practitioners of the city, on "Therapeutic Instability," illustrated by pneumonia and typhoid fever, with special reference to dietetics and specifics, cardiac and general stimulants, and antipyretics. It was opened by a paper on the statements made in leading works on medicine of the past twenty-five years, by Dr. Wm. L. Stowell, who gave a carefully prepared résumé of the teachings of American, English, and Continental authorities from Chambers, in 1806, down to Hare's "System of Therapeutics" and Osler's "Practice," and wound up by quoting Horatio C. Wood's observation that the modern practice of medicine is a mixture of science and empiricism. The other speakers were Drs. Wm. H. Draper, A. A. Smith, George L. Peabody, Simon Baruch and Charles E. Quimby, the Chairman of the Section. Dr. Alfred L. Loomis, who was to have discussed the subject of "Antipyretics," was prevented by illness from being present, but some of the others referred to the question in the course of their remarks. Thus Dr. Peabody, whose topic was "Accepted Teachings of To-day," expressed the opinion that the use of antipyretic drugs, in doses sufficient to reduce the temperature, is absolutely unjustifiable in pneumonia. When there is hyperpyrexia, it is his practice to resort to the Brandt method of cold baths in this disease. In typhoid fever, he stated that this method was rapidly superseding all others, and that he believed it was worth more than all the other means of treatment employed in the last twenty years. Drs. Smith and Baruch also expressed themselves as enthusiastically in favor of the cold baths; the latter stating that the only remedies commended during the discussion of the evening which he found mentioned in Hippocrates were the hygienic ones, dietetics and baths. This, he thought, was good evidence of the stability of these remedies. All the speakers conceded the first place to alcohol, as a cardiac and general stimulant, although agreeing that it should not be used so indiscriminately, or in such large quantities, as it was twenty or twenty-five years ago. Quinin, which was formerly given in such enormous doses, is still regarded as a useful agent if not prescribed in larger quantity than six or eight grains a day. Digitalis, which declined in favor for some time, is now gaining again, and the same is true of oxygen. In speaking of the use of the latter in pneumonia, Dr. Peabody said that he thought it was of service when there was dyspnea due to an involvement of a large amount of lung tissue, but not otherwise. Strychnia, which was scarcely at all used a few years ago, has been rapidly growing in favor as a tonic and stimulant, and now holds a deservedly high place. Caffein is also looked upon at the present time as a very valuable agent. Opium still holds its own, not only as an alleviator of pain, but as a tonic and stimulant if given in proper quantity and not continued for too long a time, and Dr. Smith placed it next after alcohol in this capacity. The preparations of ammonia, which were formerly so generally employed, have now been pretty nearly abandoned, with the exception of the aromatic spirits, which does not produce the same digestive disturbance as the others. The ethers and camphor have also been found lacking. As to intestinal antiseptics in typhoid, the results thus far have been disappointing, but the hope was expressed that in the future some means would be discovered, not for destroying the germs of the disease, but for antagonizing the septic alkaloids to which they give rise in the system. In short, as Dr. Peabody remarked, we have at the present day, in pneumonia and typhoid, entirely a matter of intelligent, expectant and symptomatic treatment.

CORRESPONDENCE.

The McDowell Biography.

MY DEAR FRIEND:—Members of the medical profession and others, who have kindly subscribed to my work, "The Biography of Ephraim McDowell, M.D.," and who have not yet received their copy, are hereby notified that the delay has been unavoidable, owing to the magnitude of the undertaking, the necessity of my securing a certain number of the subscribers before I could publish the second edition, and my desire to thoroughly revise the work and incorporate new articles of interest gathered since the issue of my first edition, which was exhausted before the second edition could be published. I have now nearly completed this revision, and come to have the new edition printed and delivered in the early part of the new year.

As I wish to make my deliveries in the chronological order in which the subscriptions were taken, I must ask the indulgence of subscribers until they receive their copy.

Very respectfully,

MRS. M. T. VANCE, JR.

Formerly Mrs. Mary Young Robertson,
Granddaughter of Ephraim McDowell, M.D.,
P. O. Box 92, Philadelphia, Pa., Nov. 27, 1893.

NECROLOGY.

- Dr. O. M. Ballard, Hancock, N. Y., died November 17.
- Dr. J. J. Krebs, Clearspring, Md., died November 24.
- Dr. Leland A. Babcock died at Chicago, November 29.
- Dr. I. H. Wright, Neenah, Wis., aged 80, November 29.
- Dr. P. F. Collins, Cumberland Co., Ind., December 1.
- Dr. Theodore Luebckemann, Eau Claire, Wis., November 28.
- Dr. Leander Smith of Lexington, Ky., died November 18.
- Dr. W. H. Pollard of Fort Worth, Texas, died, aged 82, November 28.
- Dr. J. S. Wright, for eighteen years a practitioner of Newton, Iowa, died November 24, of apoplexy.
- Dr. G. R. Parsous, who had been confined to his bed several weeks, died at Kerrville, Tex., on November 27.
- Dr. John P. Crichton, an old resident of Atlanta, Ga., died November 17, after having been in feeble health for a year or more.
- Dr. Isaiah Josiah Willis Rowe, an old resident, died at Gorham, N. H., at the advanced age of 79 years. He was a son of Ephraim and Lavina Rowe of Bethel, and was born in that town Oct. 19, 1814, and moved to Gorham in 1857.
- Dr. James Calder died at his home in Harrisburg, aged 67, November 24. He was once a missionary to China, and served at different periods as President of the State College at Bellefonte, the Hilldale, Mich. College and the Shipensburg Collegiate Institute.
- Dr. Herbert J. Pomroy, a physician in Providence, and a son of Collector of Fort Gorham Pomroy, died suddenly November 27. He was 35 years of age, and a graduate of Harvard. He was a member of the State Board of Charities, Providence Press Club, Rhode Island Yacht Club and other associations in that city.
- Dr. Henry Bronson, New Haven, Conn., died November 26. He was an invalid for many years, and was born in Water-

tory of Waterbury and a number of articles on political economy topics. It is said that he leaves an estate valued at \$1,000,000.

George B. Boyd, M.D., aged 64 years, graduate of Jefferson Medical College, Philadelphia, and surgeon in Military Hospital during the war, was found dead in bed at his home, Scranton, Pa., November 27, having passed away suddenly from cerebral hemorrhage. He was one of the founders of Laekawanna Hospital and a prominent member of the Laekawanna Medical Society.

Dr. Robert McNutt, a veteran surgeon of the Union Army and a man of superior literary and scientific acquirements, died at Des Moines, Iowa, December 2, aged 67 years. He was practicing his profession in Alabama at the outbreak of the Rebellion, and, being a loyal Union man, he was subjected to great persecution, but succeeded in escaping to the Federal lines, and was appointed surgeon of an Iowa regiment.

Dr. J. H. L. St. Germain, a practitioner of Ste. Hyacinthe, Canada, died rather suddenly in that town on November 23. He was sixty years of age and had suffered for some time from heart disease. Born in 1833, at Repentigny, he was educated at Ste. Hyacinthe, and after his university course graduated in 1854. For thirteen years he practiced at Stanfold, and in 1890 settled down at Ste. Hyacinthe. For several years he occupied a seat in the City Council. He was the author of several works in medicine, and was a member of the College of Surgeons and Physicians of the Province of Quebec, and had been the founder and first president of the Medico-Chirurgical Association of the District of Ste. Hyacinthe.

Dr. William Gray Palmer, one of the best known physicians in Washington, died Nov. 23, 1893, at his residence, 1700 13th Street, in the seventieth year of his age. He leaves a wife and five children; two sons in Chicago, and three daughters in Washington.

Dr. Palmer was one of the oldest practitioners in the District and came of a family of medical men, all of whom attained prominence in the profession. He was born in Montgomery County, Md., and graduated from the medical school of the University of Pennsylvania, in 1844, at the age of twenty, settled in Bladensburg, Md., and in 1850 began practice in Washington. He was a member of the American Medical Association.

William Henry Jackson, M.D., who died suddenly November 25, at his home, 556 Madison Avenue, was born in New York in 1810. He was the son of the late Rev. John Frothinghuyson Jackson. After graduation from the College of Physicians and Surgeons in 1835, he traveled abroad in company with Dr. Valentine Mott. While abroad he visited the different hospitals in the large cities and went as far as Egypt, where he made the medical institutions of that country objects of special study. On return to this country he was made Head Surgeon of the New York Hospital. His close application to study and the duties of his important place so injured his health that he was obliged to give up active practice of medicine and devote himself almost entirely to the lighter care of managing his large estate.

Dr. Jackson was the oldest member of the College of Physicians and Surgeons, the Historical Society and the St. Nicholas Society. The last he joined in 1845. He also belonged to the County Medical Society, the Academy of Medicine, the Patria Club and the American Museum of Natural History.

Prof John Tyndall died at Haslemere, County of Surrey, Eng., December 1. John Tyndall was born in Ireland in

1820, was appointed to a position in the Ordinance Survey and afterward Teacher of Natural Philosophy at Queenswood College, Stockbridge, and in 1853 Professor of Natural Philosophy in the Royal Institution, succeeding Faraday. His first great paper was to the Royal Society on "Molecular Influences—Transmission of Heat through Organic Structures." His next papers published in Philosophical Transactions, "On the Vibrations and Tones produced by the Contact of Bodies having Different Temperatures," 1854; "On the Physical Phenomena of Glaciers," 1857; "On Some Physical Properties of Ice," 1858; "On Transmission of Heat through Gaseous Bodies," 1859; Six papers on radiation, 1861-1865; "On Calorescence," 1865; "On the Invisible Radiation of Electric Light," 1865; in 1867 he lectured on "Sounding and Sensitive Flames."

He gave a lecture on "Dust and Disease," January, 1870, and has written many books, too well known to enumerate here.

MISCELLANY.

Is a Postmaster.—Dr. Merton W. Brown has been appointed postmaster of Cedarville, N. Y.

La Grippe is expected again this winter. London is reported to have many cases at this time.

M. Brissaud has been appointed for one year to the charge of the service of the late M. Chareot at the Salpêtrière.

Mid-winter Doctors.—Fourteen young gentlemen were graduated at the California Medical College, November 27.

Prof. Da Costa.—It is a current rumor that Prof. J. M. Da Costa will deliver a course of lectures at the University of Pennsylvania this winter.

Dr. Gibney's Fire.—Dr. V. P. Gibney's house 16 Park Avenue, New York, was damaged by fire, on Thanksgiving day. Dr. Gibney and family were absent in Kentucky at the time.

Quarantine Raised. Surgeon Murray, M.H.S., gave Brunswick double reason for celebrating Thanksgiving by removing the Government quarantine around the city November 30.

New Hospitals.—Dallas, Texas, is to have a Cottage Hospital.

The new Mercy Hospital at Des Moines, Iowa, was opened November 28.

A Maternity Hospital is to be established at Duluth, Minn.

Dr. Carlos Montezuma, in charge of the Indian school at Carlisle, who is himself a full-blooded Apache Indian, brought thirty Indian children to the eye department of the Medico-Chirurgical Hospital, Eighteenth and Cherry Streets, to be placed under the care of Professor L. Webster Fox for bad vision.

They Played Foot-Ball.—The medical students of the College of Physicians and Surgeons of New York, and of Bellevue Hospital Medical College, played a game of foot-ball at the polo grounds. The game was won by the College of Physicians and Surgeons, by a score of 8 to 4. The game is said to have been a good one, although nobody was hurt.

Women Physicians in the East.—The Presbyterian Board of Foreign Missions have succeeded in obtaining permission for women physicians to practice in Turkey, in connection with their missionary work. Dr. Mary P. Eddy, the daughter of Rev. W. W. Eddy, is the first to whom the permission has been accorded.

A Wise Braufrau.—The only woman in the United States who has won the bubble reputation, as a successful operator of a brewery, has built and given to the German Hospital

of Newark, N. J., a two-story addition to the Hospital to be used as a training school for nurses. The building was dedicated on Thanksgiving day with appropriate ceremonies. The donor, Mrs. Christina Fretz, was present.

A New Episcopal Hospital. An estate valued at a million dollars nearly, has been bequeathed to Grace Church, New York, under the will of the late Mrs. Mary March, for the establishment of an institution for the relief of the sick, aged and indigent persons belonging to the parish of that church. This charity will be known as the John Payne March Memorial Hospital. Under the same will a donation will accrue to Bellevue Hospital, New York.

Discontinuance of Sanitary Inspectors.—In accordance with orders from the Surgeon-General, Marine Hospital Service, the services of the sanitary inspectors who have been on duty on the Canadian and Mexican frontiers during the past summer were discontinued on Nov. 1, 1893. The officers of the Marine Hospital Service at Quebec will, however, be kept on duty there until the cessation of immigration at that port.

Weight Should Govern the Class.—Dr. Wm. T. Porter recently lectured in St. Louis on "Reform in Education." He advised the grading of all classes in schools by physical weights and measurements instead of by mental capacity. He asserted that children who are physically weak are crowded beyond their strength, and that eventually their minds become weaker by this intellectual overcrowding. What the French call *surmenage intellectuel*.

Mrs. Elma A. Travis of Mount Vernon, New York, was admitted to practice as a physician at a meeting of the Westchester County Medical Society held at Yonkers, November 21. She has since filed her certificate as a medical practitioner with the county clerk at White Plains, and it is stated that she is the first female physician in Westchester County. It certainly seems remarkable that she should be the first representative of the fair sex in the ranks of the profession in Westchester, when one recalls the fact that the county is immediately adjoining that of New York.

Medical Training Institute at Agra, India.—Dr. Colin Valentine, a Scottish medical missionary, is the principal of this school for native young men. It is eleven years old and now has a curriculum extending over a period of four years. Eighteen students have been in attendance during the past year. The students live in the Institute and receive tutorial training from Dr. Valentine and an assistant. The students attend lectures at the Government Medical College of Agra, and receive a degree therefrom when ready for graduation. The annual cost for the sustentation of a student is \$80.

The Czar of Russia recently issued a ukase on medical fees which divides the population into three separate classes; the first one composed of the nobles, the capitalists, the landowners, the manufacturers, the bankers, the principal merchants, and members of the first six classes of the civil, military and naval service. The second class comprises lawyers, parsons, and professional men of one kind and another, as well as government employees of the seventh and eighth grades; while class number three is of the remainder of the population. For patients of first class the fee is limited under severe penalties to \$2.75 for each consultation; for those of the second class to \$1.65; while the cost of medical advice to the masses is limited to 12 cents.

Ophthalmologists.—The Grand Duke Karl Theodore, heir presumptive to the Palatinate of Bavaria, is the director of two eye-hospitals, one at Munich and one at Meran, in the mountains, to the south of the capital. He does a goodly amount of eye work among the poor. He takes no fees, but a box at the door of the consultation room has been arranged to receive voluntary contributions. He has now the help of his eldest daughter, the Duchess Sophia, as his chief assistant. They both begin the day's work at 7 o'clock in the morning. The Hospital in the mountains has the preference with the Surgeon, for there he gets the better results after operations; he spends the larger half of his time at Meran.

Drunken Wasps. Mr. H. A. Tait, the English English surgeon, says that he has seen certain of the bees changed into alcohol during the process of coming to the wasps sometimes he says, "you will see them get very drunk, crawl away in a semi-comatose condition, and repose on the grass for some time; they get over the shock, and then they will go at it again." Moreover, Mr. Tait declares that they do not "go in" for strong, but for the violent nature of the stroke and the utterly unprovoked assaults of which they are guilty. "I was stung last year by a drunken wasp, and suffered severely from symptoms of nerve poison for several days." In such drunken peculiarities they resemble their human contemporaries."—*Nature*, 1893.

The Fatalities from Foot-ball seem to be increasing. On November 21, James O'Brien, a student at Manhattan College, New York, died of peritonitis resulting from injuries received in the game. In his case it was ascertained that the diaphragm had been ruptured. During the month of November not less than six young Americans have been killed in playing foot-ball, and a seventh, John White of Farmington, Conn., received injuries which will probably prove fatal. In his case there was a fracture of the spine, and should he recover he will be a cripple for life. From the records kept by an English gentleman, recently published in the *New York Herald*, it appears that during the last foot-ball season in England there were twenty-six fatalities, in the previous season twenty-two, and in the season before that twenty-three.

Fever at Tarrytown, New York.—Dr. Hermann Biggs of the New York City Board of Health, has recently reported on a case of fecal contamination of the water supply at Tarrytown. He was invited to make a survey of the sources of that supply in consequence of the prevalence of typhoid fever in the town. The water is largely drawn from three wells sunk in a marsh, into which several brooks empty from the adjoining hills. One brook enters the marsh at a point less than a quarter of a mile distant from the pumping station. On this stream there was found a house in which one or two cases of fever had occurred in September. The privy belonging to this house discharged directly over the brook. Water taken from the brook and from the supply wells gave unmistakable evidences of contamination.

Result of Operations at New Orleans.—A correspondent in New Orleans writes for the information of members of the Southern Surgical and Gynecological Association who attended the recent session there, that all the operations performed by members at the Charity Hospital resulted in recovery. The operations were done through the courteous invitation of Dr. Ernest S. Lewis and Dr. A. B. Miles, and were as follows: abdominal section for obclusive salpingitis and peritonitis, with adhesions, by Dr. Joseph Price of Philadelphia; abdominal hysterectomy for uterine myoma, by Dr. Howard Kelly of Baltimore; abdominal section for suppurative salpingitis, by Dr. L. S. McMurtry of Louisville; supra-pubic cystotomy for chronic cystitis, by Dr. Hunter McGuire of Richmond; trephining for traumatic epilepsy, by Dr. W. T. Briggs of Nashville. All these operations were performed in the operating theater of the Hospital, in the presence of the medical class of Tulane University and members of the Association. All the cases passed into easy convalescence without unfavorable symptoms.

St. Mark's Hospital Will Sell "Patrons" Bonds to Complete Its Edifice.—The corporation of St. Mark's Hospital has built a hospital at 177 Second Avenue, which accommodates seventy-five patients. So far about \$500,000 has been raised and expended, and more is needed to carry the charitable undertaking to success. In order to raise this money it has been decided to offer patrons' bonds of the value of \$10 each, redeemable without interest within twenty years, at the pleasure of the corporation.

Attached to each of these bonds are ten hospital coupons, each transferable and each good for free treatment in the outdoor department until the discharge of the patient, or good for one day of free hospital treatment, including medical attendance, medicine and board. Ten patrons' bonds

will entitle the holder to dispose of a free hospital bed for a period of four months on presentation of all the coupons. The holder of fifteen bonds can dispose of a bed for six months, and thirty bonds places a bed at the disposal of the holder for a year.—*New York World*.

Abuse of Medical Charity.—Dr. Seneca P. Powell, who was recently elected President of the Medical Society of the County of New York, delivered his inaugural address on November 27. A portion of it was devoted to expert medical testimony in criminal cases, and he made the suggestion that a medical commission should be created to regulate the selection of experts. In another part of the address he asked that the Society should take some action in regard to the increasing abuse of free treatment in the hospitals, dispensaries and other institutions of those who were able to pay for medical attendance. In relation to this he remarked: "A flagrant instance is furnished by the course of the Board of Health in its recent crusades of wholesale vaccinations. There is little to be said of the work in Cherry Street and the like, but when employes of prosperous business houses and rich corporations, and even of the moneyed men of the Produce, Stock, and the Consolidated Exchanges and the Board of Trade, the preposterous extent of the abuse, and the consequent professional injury, are seen at a glance."

In reply to the criticism of Dr. Powell, the Health authorities state informally that the Board of Health has power to take such measures as it deems best for the suppression and prevention of disease. In order to prevent the spread of smallpox it was determined to vaccinate as many persons as possible, and this year the vaccinations performed will amount to over two hundred thousand.

Tribute to Dr. Abraham Jacobi.—American scholarship has received a flattering recognition from the savants of the Old World in the invitation recently extended Dr. Abraham Jacobi of New York, to take the Chair of Pediatrics in the University of Berlin. This professorship has been ably filled for a period of twelve years by Dr. Hanroch. The offer was received by Dr. Jacobi in the latter part of October and his answer declining to accept the place was sent the same day by telegraph.

Dr. Jacobi, who was seen at his home, 110 West Thirty-Fourth Street, by a *Tribune* reporter, said in speaking of the proposition:

"I received a letter about five weeks ago informing me that, out of a number of scientific men, I was chosen to take Dr. Hanroch's place as Professor of Pediatrics in the University of Berlin. Associated with this function is the Children's Clinic at the Charité Hospital, which is the great charitable hospital of Berlin. I immediately sent a message of declination by cable. It was without doubt a great honor, but I was inspired to refuse the offer because I am an American citizen, and do not care to change my citizenship. Besides that, I have my work to do here, and although the offer was a flattering one, still I could not leave a country where I have been so kindly welcomed and so cordially received, as I have been here.

"I am bound by every tie of gratitude and affection to remain where I am. You will understand what I mean when I tell you that forty years ago I came to this country a poor boy, for I was not much more than a mere boy then. I had been imprisoned in Prussia for the part I took in the political revolution which swept nearly over the whole of Europe in 1848. I had nothing but myself and my profession. I became a naturalized citizen five years after my arrival here. From the first I was kindly received by the members of my profession. Almost every position of honor and esteem within the power of the profession to bestow has been given me and I am grateful. I have been very happy here in the land of my adoption, and nothing which could be offered me abroad could be a greater source of delight or honor than I have received from my profession here. Since my reply declining the place has been received at Berlin, I have received a number of letters urging me to

reconsider my refusal. But I am contented and happy here in New York. I would have nothing especially to gain by accepting, and much to lose.

"I look upon this offer as significant of two things: first, it proves the universality of the scientific brotherhood; it shows that among men of science there is no question of nationality. Second, it shows that there is something in American scholarship worthy of the recognition of the best scientific minds of the world. If it were some other American besides myself I would feel disposed to glory over the honor."

Dr. Jacobi was born in Hartum, Westphalia, in 1830. He studied at the Universities of Griefswald, Göttingen and Bonn. From the latter University he received his degree. For taking part in the revolutionary uprising he was convicted of treason and confined in the prisons of Minden and Bielefeld till the summer of 1853. After his discharge Dr. Jacobi went to England, and in the following autumn sailed for New York, where he has since practiced his profession.

In 1861, Dr. Jacobi became Professor of Diseases of Children in the New York Medical College, and later, had the same chair in the medical department of the University of the City of New York. In 1870 he was made Clinical Professor of the Diseases of Children in the College of Physicians and Surgeons, which chair he still holds.—*New York Tribune*.

THE PUBLIC SERVICES

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from November 23, 1893, to December 1, 1893.

First Lieut. ALYANDER N. STARK, Asst. Surgeon U. S. A., is relieved from duty at Ft. Clark, Texas, and will report in person to the commanding officer, Ft. San Houston, Texas, for duty at that post.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending November 23, 1893.

Asst. Surgeon G. W. BARNUM, from the "Richmond," and to the "Kearsarge."

Surgeon J. W. ROSS, from Pensacola Hospital, proceed home and wait orders.

Surgeon L. R. BALDWIN, from the "Michigan," and to the Pensacola Hospital.

P. A. Surgeon J. S. SAYRE, to the "Michigan."

P. A. Surgeon A. C. CABELL, from the "Kearsarge," and leave for three months.

P. A. Surgeon G. P. LUNDEN, from the ironclads, Richmond, Va., and to the "Kearsarge."

P. A. Surgeon F. A. HUSLER, from the "Vermont," and to the ironclads, Richmond, Va.

Asst. Surgeon JAMES F. LEYS, from the Laboratory, Brooklyn, N. Y., and to the "Vermont."

Asst. Surgeon M. R. POORT, from the "Kearsarge," and to the "Richmond."

New York National Guard Hospital Corps.

Details of its organization prescribed by Adjutant General Porter. Adjutant General Porter's order from headquarters regarding the establishment of a Hospital Corps is of interest to the National Guard. The Corps is to consist of the hospital stewards of regiments and battalions, and privates to be detailed for this duty.

It is specified that commanding officers of regiments shall detail eight privates, commanding officers of battalions not part of a regiment shall detail four privates, and commanding officers of companies, troops, and batteries shall detail each one private, but no private shall be so detailed except with his own consent and on the recommendation of the senior medical officer of the organization. Men may also be specially enlisted for the purpose of such detail, but they will be required to drill with their organizations until they are instructed in the school of the soldier. To qualify them for their Hospital Corps duties, they must follow a course of instruction prescribed by the Surgeon General.

At the close of the course of instruction the detailed men of the Corps shall be examined as to their proficiency by a Board to be appointed for that purpose.

The uniform of the Corps is to be that prescribed by law and regulations for their respective grades and organizations, with the addition that a private of the Corps shall wear on his left arm above the elbow a lozenge of white cloth containing in the center a Geneva cross of red cloth. During an engagement, or in an emergency, the company litter bearers may wear, as a distinguishing mark, a brassard of red cloth around the left arm above the elbow.

Commanding officers are now carrying out these orders.

LETTERS RECEIVED.

(A) Ayers, Dr. Simeon, N. Y.; Allen, E. P., Athens, Pa.; (B) Battey, Dr. Robert, Rome, Ga.; Brown, Dr. Bedford, Alexandria, Va.; Brown, Moreau R., Chicago, Ill.; Brown, E. J., Minneapolis, Minn.; Bacon, Dr. C. O., Philadelphia, Pa.; Brown, E. J., Minneapolis, Minn.; Bacon, Dr. C. O., Philadelphia, Pa.; (C) Cline, F. D., New York City; Cleaves, Dr. M. A., New York City; (D) Dunelson, R. L., Philadelphia; (E) Elliston J. Morris, Philadelphia, Pa.; (F) Farman, F. H., Detroit, Mich.; (G) Keeley, C. C., St. Louis, Mo.; Kump, C. P., Wyoming, Pa.; (H) Lansing, H. C., Union, Ky.; Lord A. Thomas, Chicago, Ill.; (I) Mullen, C. J., Reno, Nev.; (J) Murdoch, J. B., Pittsburg, Pa.; (K) Parsons, Dr. T. S., Lansdowne, Pa.; (L) Rodnick, Jos., Chicago; (M) Strong, H. R., St. Louis, Mo.; (N) St. M. C., D. M., Iowa; (O) Walker, James C., New York City; Whitford, Wm., Chicago.

The Journal of the American Medical Association

VOL. XXI.

CHICAGO, DECEMBER 16, 1892.

No. 25.

ORIGINAL ARTICLES.

THE SURGERY OF THE URETERS: A CLINICAL, LITERARY AND EXPERIMENTAL RESEARCH.

Read in the Section on Surgery and Anatomy at the Forty-fourth Annual Meeting of the American Medical Association, June 5, 1892.

BY WELLER VAN HOOK, A.B., M.D.

PROFESSOR OF SURGICAL PATHOLOGY AND BACTERIOLOGY, COLLEGE OF PHYSICIANS AND SURGEONS, CHICAGO. PROFESSOR OF SURGERY IN THE CHICAGO POST-GRADUATE MEDICAL SCHOOL.

SYNOPSIS.

1. Introductory remarks.
2. Anatomical considerations.
3. Wounds of the ureter.
 - A. Drainage.
 - B. Bacterial conditions, asepsis, sepsis, putrefaction.
 - C. Location: pelvis, continuity, outer (male and female).
 - D. Relation to injury of other structures.
 - E. Direction of the wound.
 1. Longitudinal.
 - a. Drainage and its relation to the peritoneum.
 - b. Suture, utility and advisability.
 2. Transverse wounds.
 - a. Incomplete, drainage, suture.
 - b. Complete transverse injury without loss of substance.
 1. In the continuity of the ureter. Suture. Special devices. The writer's method.
 2. At renal extremity.
 3. At vesical extremity.
 - c. Complete transverse injury with loss of substance.
 1. Ureter still made to meet the bladder by.
 - a. Using foreign bodies to produce a connective tissue channel into the bladder.
 - b. By double implantation of the ureter into an isolated knuckle of the bowel.
 2. The writer's plastic methods of extending the bladder to meet the ureter.
 - a. Extra-peritoneal method.
 - b. After preliminary transplantation of the peritoneum.
 3. Rydygier's method of cutaneous ureteroplasty.
 4. Vaginal plastic methods.
 2. Ureter discharged extra-vesically.
 - A. Implantation into the skin.
 - B. Implantation into the vagina.
 - C. Implantation into the small intestine.
 - D. Implantation into the rectum.
 - a. Historical remarks.
 - b. Criticism of previous experimental successes.
 - c. A priori arguments.
 1. From comparative anatomy.
 2. Bacterial condition of rectum.
 3. Primary risk of infection.
 4. Certainty of secondary disaster.
 5. Liability of sepsis occurring.
 - d. Writer's experiments.
 1. Procedure from cutaneous.
 2. Stoppage of secretion of urine.
 3. A. By ligation of ureter.
 - B. By extirpation of kidney. Is it ever justifiable?
4. Conclusions.
5. Literature.

Introduction.—The desirability of more readily applicable and more complete methods of dealing with the surgical conditions met with in connection with the excretory ducts of the kidneys is patent to every one who has given even the most cursory attention to the subject. The variety of "surgical" conditions brought about by accidents and diseases of the ureters is sufficiently large, and the number of cases met with is great enough to make the subject one of practical interest to every surgeon. The most obvious of these conditions, injury to the ureter by the penetration of a foreign body, as noted in the remarkable and historic case of the Archbishop of Paris in 1848 is nevertheless least frequent of occurrence.¹ The practical surgeon is daily confronted with the horror of obstructing, rupturing, crushing or cutting a ureter in the course of some abdominal or pelvic operation.

Much has already been done in this field of ureteral surgery; and it would be farthest from the present desire to detract from the illustrious efforts of those who like Tutler,

Pozzi, Rydygier, and Knæster following the attending footsteps of Simon, have disclosed by clinical and experimental research many important facts in this department of surgery.

The blunt necessity of closing a ureteral fistula and compelling the urine to traverse its natural channel, in the case of a boy who by congenital defect possessed but one kidney, forced Knæster to devise a means of routing the ureter to the pelvis of the kidney after preliminary resection. The consequent thought is irresistible, that kidneys are not to be sacrificed for fistula, partial obstruction by valvular folds causing intermittent hydronephrosis and strictures of the ureter that interfere to greater or less extent with the functional activity of the ducts, without exhausting every effort to correct the morbid condition. The work of Simon in establishing the practicability of nephrectomy for fistula, involving as it did the comforting demonstration of the great and sufficient vicarious activity of the kidney after removal of its fellow, has been followed all too literally by modern operators. But the time has now come when experimental research, coupled with clinical ingenuity, by demonstrating methods of restoring normal conditions, will render much more difficult the task of justifying the sacrifice of so important an organ as the kidney.

The work of those experimenters, Tutler, Novaro, Gluck and Zeller, Harvey Reed,² and others, who have tried to prove the feasibility of rectal implantation of the ureters, has met with only a limited and qualified success, and a shall show you by incontestable argument and experimental proof, that the implantation of the ureter into the rectum is in all cases unjustifiable.

Under these circumstances,—on the one hand, compelled by necessity to remove disgusting or perilous conditions, and on the other hand censured by conscience and a growing conservatism in respect to the important urinary glands, if we sacrifice the kidney,—surgery demands new and better methods of dealing with ureteral wounds and diseases. To these demands the writer has devoted the present work.

Outline. The anatomical relations of the ureters have been especially studied by those who have considered means of diagnosis in ureteral and renal diseases. The names of Pawlik, H. A. Kelly, Schultz,³ Piquet, Pantaloni,⁴ Pourier,⁵ Perez,⁶ Halle,⁷ Fenwick,⁸ and G. Simon,⁹ are especially worthy of mention in this connection. These men have added much to our knowledge of the topographical anatomy of the ureters, so that, following the leadership of Pawlik, the ureters are now catheterized, especially in the female, to determine the character of the secretion of the kidneys individually; and operations are performed upon these ducts which would have been impossible a few years ago, if for no other reason, because of insufficient anatomic and diagnostic information.

The gross and microscopic anatomy of the tubes themselves has been well elucidated in the text-books accessible to all. An especially interesting account of the microscopic anatomy of the ureters is that of Roehard. My friend, Dr. W. M. Tappan, Professor of Anatomy in the College of Physicians and Surgeons, has kindly communicated to me several points which are not correctly or fully stated in the handbook.

Thus he states, that upon examining the ureters of over twenty bodies he never found one over fifteen inches long, the average being between ten and twelve inches in length. The ureter when stripped from the peritoneum may be drawn out from two to four inches.

The curvature of the abdominal ureter has its convexity directed inward; while the convexity of the pelvic portion is turned outward. The pelvic portion of the ureter describes a very strong curve, almost the arc of a circle, since the duct hugs the bony wall of the pelvis very closely. Hence the portion of the ureter opposite the uterus is at some distance from that organ, and as the ureter approaches the base of the bladder—which it enters at a point near the

middle of the distance between the urinary meatus and the cervix, it curves rather sharply forward and inward, so that the point in the duct nearest the cervix is below and behind the posterior lip.

It must not be forgotten that the ureter has three points of diminution of caliber which may give rise to mistakes in the search for pathologic stenoses. The first is between one and a half and two and a half inches from the pelvis of the kidney, according to Dr. Tanquary's measurements. The second is at the junction of the pelvic and vesical portions. The third when present, found in three out of five subjects, is just where the ureter crosses the iliac artery.

Nature has protected the ureters in an exceedingly generous way. Scarcely another structure in the body is so little likely to be the subject of external violence. Poirier¹¹ has especially noted the disensibility and great resisting power of the ureters. Nevertheless such applications of force, as powerful compression of the trunk between two large bodies may rupture the duct. Cases of this kind are cited by numerous writers, among whom are Le Dentu,¹² H. W. Allingham, and Stanley.

Wounds of the Ureter.—From a study of the anatomy of the ureter, one may see that all the pre-requisites to rapid, active regeneration after injury are present. The cells of which the ureters are composed are supplied with large easily stainable nuclei; their functional activity being great, their metabolism must be vigorous; and we know that as a rule, cells that have very active metabolism proliferate very freely. Moreover, the blood supply of the ureters is everywhere most excellent, so that the growing cells are fully nourished.

An excellent demonstration of this vitality and vascularity of the ureter is furnished in a report by Chrobak¹³ of a case in which the ureter, although laid bare for an extent of eight cm. in the removal of a sub-serous myoma, retained its function without an adverse symptom.

The function of the ureter, however, is productive of certain conditions which mechanically interfere with the rapid union of wounds. The contractions of the muscular layers of the ureter tend to displace the opposite wound surfaces, while the escape of the urine through the wound, if it be an open one, or the passage of the urine down the duct, if the wound has been sutured or is incomplete, conduces to the same result. Since the demonstration by Billroth of the innocuousness of the aseptic urine about twenty-five years ago, less importance has been attached to local chemical irritation by that fluid.

As a temporary abrogation of function is usually impossible for the ureter, free exit for the urine either down the natural channel, or outward by way of the new opening, and usually through the posterior abdominal wall, must be of great advantage in healing. Drainage of the ureter and of the peri-ureteral space must be of special importance when micro-parasitic complications exist, whether this be simple putrefaction of the urine or active suppuration more or less generalized.

This condition of wound healing, drainage, can be perhaps most easily satisfied when the wound involves the pelvis of the kidney, since the lumen of the duct is there the greatest. When the injury to the pelvis is a perforative one, permitting the escape of urine into the surrounding connective tissue, external drainage is wellnigh imperative. This necessity, moreover, is absolute as soon as we have to do with a condition of suppuration or of putrefaction.

A study of anatomic conditions in the continuity of the ureteral duct and its outlet serves only to emphasize the importance of drainage, since in these parts of the ureter the lumen of the tube is smaller, and the topographic relations are more complicated.

Longitudinal Wounds.—Longitudinal rectilinear wounds of the ureter heal, as a rule, very readily, even when no sutures are applied, if they are uncomplicated and drained. The constant escape of urine from the wound, as is the case with the urethra, insures union of the lips of the wound by granulation. The mucous membrane acts as a barrier to prevent the growth of granulations at points within the lumen of the tube. And the proliferation of the epithelia over the granulations tends to increase the lumen of the tube. Subsequent contraction can not, therefore, result in injurious interference with the walls of the duct. A scar running lengthwise of the ureter could only under rare circumstances do injury by shortening.

Le Dentu has made elaborate experiments to justify the application of sutures in longitudinal wounds of the ureter. He has succeeded in applying a row of delicate transverse interrupted sutures through the outer fibers of the tube after the analogy of Lembert's intestinal sutures, and

has had good results, both as regards union of the wound and the subsequent function of the duct. But we can easily see that any suture of the ureter placed transversely and including even a minimum amount of connective tissue, must result in immediate though not necessarily dangerous stenosis, by diminishing the circumference of the tiny cylinder.

The practical inference is that longitudinal wounds of the ureter are best treated, *ceteris paribus*, by the method of open aseptic drainage.

The absolute clinical demonstration that this is a correct conclusion is furnished by the cases to be referred to hereafter in which Kuester and Fenger, in operations upon the upper part of the ureter, left open longitudinal wounds of the duct and with good posterior drainage obtained ultimate complete closure by granulation, with obliteration of the fistula.

This rule can not be followed, however, when the wound involves not only the ureter but the neighboring overlying peritoneum, as, e. g., in accidental injuries occurring in laparotomy. Here, from ample experience in operating (transperitoneally upon dogs' ureters, I would recommend the interrupted transverse suture advised by Tuffier, through the outer connective tissue layer of the ureter, including if necessary a minute quantity of the muscular coat of the duct. It is important that these sutures be made with very fine silk and very delicate needles. The writer uses the ordinary straight seamstress' needles, called No. 9, with silk twist selected to easily pass the eye of the needle.

The simple technique is as follows: Keep intestines and other viscera out of the way with suitable compresses. Trendelenburg's position is indispensable in work within the pelvis. Expose the injured ureter and, if desirable and feasible, have an assistant support or elevate the tube. Apply the sutures as already suggested. Remove from the ureter the pressure and tension of the assistant's forefingers. If, after several waves of contraction have passed down the ureter, indicating the passage of the same number of drops of urine, there is observed to be no leakage, the peritoneum must be carefully adjusted about the ureter, with accurate sutures. This must be done for three reasons: First, the peritoneal coat immediately reinforces the line of sutures, steadies the ureter and assists in preventing leakage. Second, the peritoneal membrane very quickly unites to surrounding structures, so that in a few hours the ureteral wound is provisionally healed. Third, the rapid regeneration of the histologic elements of the peritoneum insures the speedy definitive healing of the peri-ureteral wound, so that the production of granulation tissue is limited to the utmost, and scar contraction is less likely, in the sequel, to interfere with the lumen of the tube. The envelopment of the ureter in peritoneum may be accomplished by either of two methods. The first and best is by lifting the tube gently into the cavity of the peritoneum, drawing the serous membrane carefully behind the ureter and, after pulling the peritoneum around the ureter, stitching it in a position to permanently enclose and protect the vessel. Secondly, the ureter may also be involved in a completely detached fold of omentum which is loosely attached by a stitch to the connective tissue about the ureter. This method is obviously less secure than the first, since the omentum is deprived of its blood supply. Tuffier complicates his technique, which does not include my suggestion of a peritoneal covering, by the temporary ligation of the ureter on the renal side of the wound, to prevent the escape of urine until the row of sutures is complete. Since the normal urine is not capable of setting up peritonitis or of causing suppuration, this precaution is unnecessary and undesirable. It must be carefully observed, however, in the rare abdominal operations upon the ureter, in which the urine is known to be septic.

Numerous pathologic conditions demand exploration of the ureter by longitudinal incision or treatment by drainage through such a wound. The scope of the present work does not permit a detailed study of the pathology of the ureters. The writer commends for study in this department, the works of Assmuth, Neilson,¹⁴ Biard de Bordeaux,¹⁵ Schmitt,¹⁶ Le Dentu,¹² Sutton,¹⁷ Eve,¹⁸ Kobsko¹⁹ and Tourneur.²⁰

Pozzi²¹ recommends suture of the ureter in cases of accidental longitudinal injury.

The importance of these easily practicable methods can especially be realized when we consider the frequency with which calculi occur in the ureter. These bodies give rise to numerous grave symptoms of diagnostic significance which can not be discussed here. When their presence is recognized, they are removable by longitudinal ureterotomy as

has been practiced successfully in many cases. Numerous writers have reported cases and written papers on the subject. Of these Charles Paul Galland, Gargam, Poisson, Byford, Hall, Lane, Collingsworth, Terry, Berg, Klein, Godlee, Godlee, Pickel, Kalle and Godlee, and Tsynnam are to be named.

It must be remarked, in passing, that ureterotomy has been practiced by H. A. Kelly for stenosis of the ureter, the ureter being reached through a vaginal incision. This mode of reaching the ureter is of great value in treating such cases as those of Coe, in which the ducts were obstructed in the pelvis by inflammatory matter.

Transverse Wounds of the Ureter.—It requires no argument to prove that every incomplete transverse wound of the ureter, when closed by a cicatrix resulting from granulations or from primary union after direct suture, must have a tendency to result in a diminution of the circumference of the tube and consequently also of the lumen. This tendency may be resisted by retraction of the lips of the wound, which always occurs on account of muscular action, permitting proliferation of epithelial cells and allowing them to wander out over the granulations to temporarily and perhaps permanently prevent injurious stenosis. I believe, however, that until we have clinical observations to prove the limits which we can depend upon, we should treat every transverse wound of the ureter involving one-third or more of its circumference as immediately threatening stenosis. The treatment I propose is a modification of the procedure suggested and successfully practiced by Fenger in cases where stenosis had already occurred. The technique is the following: Make two longitudinal incisions, with small scissors, in the ureter beginning at the middle of the wound to be closed. These incisions should be equal in combined length to twice the transverse diameter of the tube. Round off the sharp angles of tissue with the scissors and suture longitudinally with the object of producing a very wide instead of a very contracted lumen. Scar contraction can not now reduce the caliber of the tube sufficiently to interfere with the passage of urine. If this operation has to be performed within the peritoneal cavity the ureter should be protected after the manner described for longitudinal wounds, by drawing about it a fold of peritoneal membrane.

Complete Transverse Wounds.—Many attempts have been made to unite the ureter, when transversely severed, by the ordinary methods of suture. Tuffier of France, has published an elaborate account of his experiments upon dogs to determine the feasibility of the project. He claimed to have succeeded in getting union, but the amount and disposition of the cicatrix were such that when contraction of the scar occurred the tube was rendered useless as a duct.

Experimenters have hitherto been so much discouraged with the results of their trials that their recommendation has been to resort to such make-shifts as implantation into the rectum, the vagina or the skin.

In the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION for March 4, 1893, the writer published a method of uniting the ureter after transverse division which answers all the requirements of the conditions. It consists, briefly, in the implantation of the upper cut end of the tube into an opening in the side of the lower end. The technique is as follows:

1. Ligate the lower portion of the tube one-eighth or one-fourth of an inch from the free end. Silk or catgut may be used. Make with fine sharp pointed scissors, a longitudinal incision twice as long as the diameter of the ureter, in the wall of the lower end, one-fourth of an inch below the ligature.

2. Make an incision, with the scissors, in the upper portion of the ureter, beginning at the open end of the duct and carrying it up one-fourth of an inch. This incision insures the patency of the tube.

3. Pass two very small canebrie sewing needles armed with one thread of sterilized catgut through the wall of the upper end of the ureter, one-eighth of an inch from the extremity, from within outward, the needles being from one-sixteenth to one-eighth of an inch apart, and equidistant from the end of the duct. It will be seen that the loop of catgut between the needles firmly grasps the upper end of the ureter.

4. These needles are now carried through the slit in the side of the lower end of the ureter into and down the tube for one-half an inch where they are pushed through the wall of the duct, side by side.

5. It will now be seen that the traction upon this catgut loop passing through the wall of the ureter will draw the upper fragment of the duct into the lower portion. This

being done the ends of the loop are tied tight or securely and, as the catgut will be absorbed in a few days, will not form to obstruct the passage of the urine.

6. The ureter is now of unimpeded capacity with peritonium as already described in other operations, provided an intraperitoneal operation has been done.

This method has many advantages, some of which are as follows:

1. The urine is made to pass through its normal channel.
2. Healing takes place at once without even temporary loss of function or a temporary fistula.
3. No stenosis occurs, even after a long interval of time.
4. The ureter can always be united if accidentally injured, at any operation, with materials always at hand.
5. Leakage can not occur, because the upper extremity of the ureter acts as an obstructor to the lower portion of the tube.
6. Scar contraction can never injuriously diminish the lumen of the tube, because the scar which encircles the ureter after union by this method is equal in length to twice the extent of the incision in the side of the lower urethral stump.

Some months after the writer had thought out the above method theoretically and several weeks after the publication of the preliminary communication, references were found to a method experimentally tried by Joggi of Italy.

This method consists, briefly, in the end-to-end invagination of the upper into the lower portion of the ureter. I believe my lateral method is better for two reasons:

1. Because the invaginated end of the ureter is less likely to be compressed by muscular action of the invaginating portion in the lateral method, since the constricting force can not act so directly at the immediate point of union.
2. In the lateral method the line of permanent and firm union is not a circle, as in Pozzi's method, but an ellipse, so that senescence of the new connective tissue can not result in injurious contracture.

It is not necessary to detail the many experiments made to demonstrate the practicability of this procedure. The following will suffice:

Case No. 1.—Jan. 17, 1891, (Bitch, medium sized, in good condition.) Aseptic operation. First ad. opened the abdominal cavity through an extent of two and one-half inches beginning at a point one inch above the pubes. Gentle traction upon the bladder caused the ureters to stand out prominently beneath the posterior layer of peritonium. Operating the posterior peritoneal wall with a pair of scissors, the right ureter was drawn gently out and cut in two with the scissors at a point about one inch above the entrance into the bladder. The open end of the lower fragment was next closed with a ligature and a slit about seven millimeters long made in the side of the tube just below the ligature. Two needles armed with a single thread of catgut, were then passed through the wall of the upper portion of the duct from within outward, opposite the slit in its wall which had been made to invaginate the lower end. These needles were then passed through the slit in the side of the lower portion of the ureter and their points carried down the tube about one cm., where they were pushed through the wall of the ureter and brought out side by side. By gentle manipulation the upper extremity was drawn into the lower tube and the suture being tightened and tied, the slit was seen to be entirely occluded. Dogs have a very abundant omentum and to simplify the technique the omentum was gently drawn about the ureter and tucked down with two fine silk sutures. The abdomen was closed. Three weeks later the dog which had not been ill after recovering from the anæsthetic, was killed. The abdominal cavity was completely healed. Upon opening the abdominal cavity, much fat was found in the usual places, showing good nutrition. The kidneys were perfectly normal and exactly equal in size and similar in appearance. There was no excess of urine in either pelvis. There was also only no evidence of inflammation at any point. The union of the ureter was found to be perfect, as can be seen by examining the specimen, which I present and the accompanying cuts from photographs. The omentum surrounded the point of union. (See Figs. 1 and 2.)

It is evident upon reflection, that this method of reuniting the ureter after transverse division can be utilized for restoring the continuity of the duct, not only after accidental division, but after division deliberately undertaken for the purpose of removing retro-ureteral morbid tissue in abdominal operations; and after removing a portion of the ureter by resection in continuity for strictures, and for ulcerations about calculi involving annular destruction of the mucous membrane which would eventually terminate in stenosis if untreated.

That the ureter can sustain a resection involving a considerable amount of tissue is evident, since ureters measuring ten inches while in situ will easily measure twelve to fourteen inches when removed. The operator should remember that the longitudinal muscular fibers tend constantly to shorten the distance between the ends of the duct, so that when the ureter is cut transversely the ends retract considerably. Traction upon these ends is admissible to a very considerable extent, which can not be accurately determined until a larger amount of clinical experience in this direction has accumulated. Meanwhile we may

easily determine in individual cases the amount of material which we may remove from the longitudinal extent of the ureter, in deliberate resections. The force exercised should be moderate in amount but steadily applied for a considerable time, the surgeon remembering that he is overcoming muscular resistance. As the blood vessels ramify tortuously over the ureter, they are in no danger of it being injuriously stretched or lacerated. From these statements it must be seen that for the excision of a constricting band the ureter need not by any means be longer than normal.

That my operation is equally as applicable to human ureters as to those of lower animals has been proved by Dr. Howard Kelly of Johns Hopkins University, Baltimore. Dr. Kelly has informed me verbally that having seen my preliminary description of the method in the *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*, he had an opportunity of applying it in a few days upon a patient suffering from a

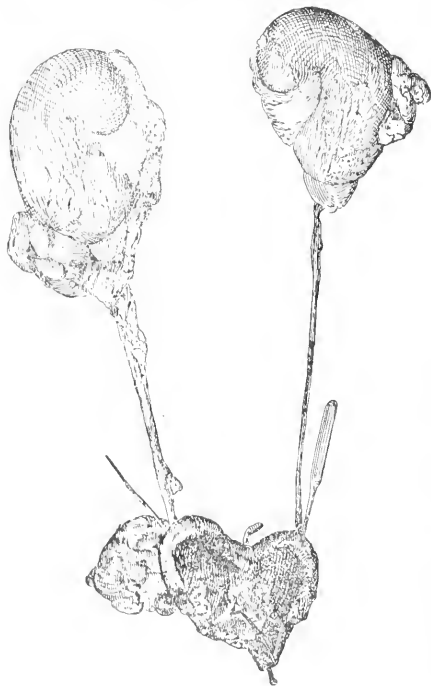


FIGURE 1.

large myoma of the uterus. One of the ureters having been injured during the operation, it was held by forceps until the myoma was removed when it was reunited by my method. The patient made an uneventful recovery. Dr. Kelly will shortly publish a detailed account of the case.

Complete transverse division of the ureter at the infundibulum offers conditions essentially different in many respects from those presented in the continuity of the duct. There the tube is much wider than at the lower part, a fact of which we can take advantage because of the greater mechanical ease with which we can insert sutures; but more especially because scar contraction, as a result of union after suture, is not so likely to prove destructive to the lumen of the tube.

Two pathfinding papers have recently appeared dealing with this subject.

The first of these, by Knester, described an operation upon a boy who had been operated upon previously for a hydronephrosis in, leaving a solitary kidney. An abdominal fistula was left, through which all the urine was discharged. Knester exposed the kidney and ureter by posterior incision, opened the ureter below the sacculated gland

and found two cm. below the kidney, a stricture. This condition he treated successfully by resecting the strictured portion of the tube and implanting it into the hydronephrotic sac. A lumbar fistula remained for several months but was finally cured by a secondary operation.

This instructive operation was borne in mind in the following case, which I briefly report in order to testify to the applicability of the method:

Boy aged 19, suffered from an attack of typical typhoid fever. Following this attack some weeks later he developed a pyonephrosis. Dr. A. E. Halstead, in whose practice the case occurred, invited me to see the case with him. We established a fistula upon the abdominal wall, the sac discharging a large amount of urine. As the fistula remained "permanent" I operated, upon the invitation of Dr. Halstead, for the purpose of restoring the normal channel for the discharge of the urine. The incision was practically that used by Knester and others, beginning a point two inches to the left of the posterior median line, carried down for an inch and a half almost straight and then curved forward toward the anterior superior iliac spine. As soon as the anterior lumbar fascia was opened the ureter was discovered without difficulty. It was smaller than normal and seemed to be atrophied. The kidney dilated on account of partial closure of the abdominal fistula, could easily be felt in its normal position. Upon opening the renal sac and allowing part of the fluid to escape, the finger could be easily passed into the pelvis of the kidney, but no stone was felt. I then made a uretrotomy and passed a probe up the ureter to meet the finger, but between the finger and the probe I could distinctly feel a valvular fold of mucous membrane. Concluding that this was the obstruction which had prevented the normal discharge of urine, I proceeded to resect after Knester's method and succeeded in implanting the ureter into the sac much as he had done. It was now thought best to expose the ureter in the direction of the bladder. Upon passing a probe downward a short distance, the ureter was found completely closed, and on careful investigation its lumen was found to be entirely obliterated for several inches. There was nothing left to do but to extirpate the kidney. The patient recovered.

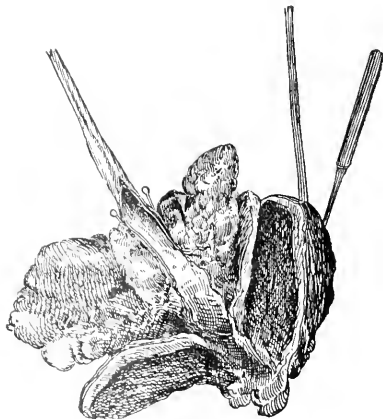


FIGURE 2.

This case, together with Knester's, fully demonstrated the feasibility of this operation in this condition, and from it I concluded that kidneys should not be extirpated for simple obstruction at the infundibulum.

The second of these papers, that of Dr. Christian Fenger of Chicago, was read before the Chicago Medical Society, Feb. 6, 1893, and was published in the *Chicago Medical Recorder* of March, 1893. Dr. Fenger's first work on stenosis of the ureter was performed May 31, 1892.

In a case of intermittent pyonephrosis, the kidney was opened upon its convex surface and digital exploration made without the discovery of a stone. Catheterization of the ureter was impossible. The pelvis was now opened from its posterior surface. This revealed a valvular opening from the pelvis into the ureter. The valve was then divided transversely and the edges of the wound were united by a suture. A bougie was inserted through the wound in the kidney, brought down into the ureter and retained there for two days. The wound in the pelvis was united by sutures. The floating kidney was secured by nephropexy, the wound in the ducty drained and the usual dressings applied. The patient recovered without a fistula and had no return of the pyonephrosis.

This remarkable case, so ingeniously treated, is the first of its kind. The method is indeed worthy of commendation and study. It will be found applicable in many kidneys which heretofore would have been ruthlessly extirpated.

The second of Fenger's cases is briefly as follows:

Traumatic stricture of the ureter close to its entrance into the pelvis of the kidney, intermittent hydronephrosis. The patient, 47 years of age, had sustained an injury thirty-four years previously. After ten years the hydronephrosis developed. Operation—lumbar nephrotomy—discharge of pus about . . . The ureteral entrance could not be found through

plying it, and making a ureteral fistula above the loop of isolated bowel. The bowel may now be embedded beneath the skin with adequate drainage. The secondary operation some time afterward will aim to direct the flow of urine into the now shrunken and far less septic intestine and thence into the bladder. The bladder must be temporarily drained.

This method by the use of intestinal loops can never be of practical consequence, except possibly in those very rare cases in which the ureteral fistula opens upon the abdomen at a point remote from the bladder, requiring on that account a large amount of tissue to fill in the space.

Where the ureteral injury occurs low down, near the bladder, the loss of substance must be considerable, indeed, if the ureter can not be implanted directly into the bladder. This can be accomplished, if the ureter can be drawn down and the bladder drawn up sufficiently, with great ease, as has been described under the head of complete transverse injuries without loss of substance.

(To be continued.)

THE ETIOLOGY, MORBID ANATOMY, DIAGNOSIS AND TREATMENT OF INFANTILE HERNIA; OF THE INGUINAL TYPE IN THE MALE.

Read in the Section on Diseases of Children at the Forty-fourth Annual Meeting of the American Medical Association.

BY THOS. H. MANLEY, A.M., M.D.
NEW YORK, N. Y.

A fully developed hernia is rarely met with at birth; though the conditions favorable to the evolution of it always exist at this time in the male.

When infantile-hernia is met with, it may appear in divers situations; in the simple or complicated forms, single or double; with or without pain.

Inguinal hernia in the male child is commonly associated with ectopia of the testis.

Dr. Wm. T. Bull has said that when a male child is sent to him with hernia, one of the first things he does is to look for the testicle.

When hernia appears under the first year, a common impression prevails that it comes from excessive crying, and when, later one takes his feet, the evolution of the infirmity is charged to injury.

As soon as a hernia is discovered the parent, filled with alarm and knowing that a mass is outside the abdominal-cavity, which belongs within, at once hurries off for a truss and applies it.

The vast majority of such hernie are recovered from for the time, but in later years generally return. There is a considerable number of cases in which the hernia is never fully developed. The patient may go through life, never conscious of the infirmity. He has a greater fullness in one groin than another perhaps; but as it never occasions any annoyance, he gives it no thought. This is the type in which, when strangulation occurs, the patient will deny with emphasis, that he ever had a hernia; though, on close questioning, will often admit of always having had a fullness high up in the groin.

It has been said that with our advances in civilization and the widespread growth of democracy, that hernia has become much more common than when the social lines were more clearly drawn; when it was a condition peculiarly common among the aristocratic classes. There can be no question, but it is a confirmation of much greater prevalence among the lower classes than among those who toil with their hands for a living. For it has been long noticed that it is common to be seen in the families of those in whom the transition from poverty to

affluence has been sudden; and in which neither parent or ancestry was afflicted. There can be no doubt either, but all cases of so-called "rupture" are of infantile origin; or rather are attributable to defects of development which antedate birth.

Of late years, radical operations have been recommended for this infirmity early in life. Hernial operations have been revived on an enormous scale, for every type of hernia in the infant and adult. But it does not appear from the ancient literature of hernia, that the *infantile* type was ever treated by direct surgical intervention in past ages.

It would be a great gain, if we could cure all the cases of this malady as soon as we discovered them after birth. But this has proved a disappointment, for but few and uncommon phases of it can be radically treated and permanently cured by surgical methods.

With a view of determining what the chief factors are in the causation of infantile hernia; its morbid anatomy, pathology and treatment, rather than for the purpose of attempting to present anything original, this short essay is offered. It may be added that inasmuch as the technique of surgical operations for it was considered by me in a brochure, presented at the Nashville meeting three years ago, this will not be considered in detail at the present time.

ETIOLOGY OF INFANTILE HERNIA.

The chief predominating elements in infantile hernia are anatomical; though it is well to remember that this, in common with all other physical imperfections is commonly hereditary. The maldescent of the testis is responsible for more hernie than all other known causes combined. As this organ leaves its abode from just below the kidney, at about the sixth month of intra-uterine life, it may become arrested in any part of its journey by adhesions and not engage in the abdominal walls at all. This may occur on one side or both. The testis may be wholly absent at birth, and make its descent safely later. As it advances and presses before it the process-vaginalis, it may besides, carry with it a coil of intestine, a fringe of the omentum, or the wall of the bladder. Many times in dissections and operations on the hernie of infants, I have found the sac of a recent hernia very thick, dense and adherent to the spermatic cord through its whole length, which pathologic condition clearly indicated that the parts were favorable to the advent of a hernial protrusion, which had no doubt existed not only since birth, but before it, and that it only required the application of a certain force to make the hernia complete.

The funicular-process at birth is very often patent, or imperfectly closed. Later, it becomes completely obliterated when nothing interposes with physiologic processes. But it may remain widely open; and hence permit the intestine to descend into the tunica-vaginalis and lie in immediate contact with the testicle or firmly adherent to it. What is the most common, it remains enclosed in different segments of the cord, from the internal ring out to the gubernaculum testis. Among the lesser elements in causation and aggravation are hygienic conditions, as was some years ago pointed out by Dr. Frank Parsons of Massachusetts, in the wearing of the tight abdominal binder; besides excessive feeding, and forcing the child to walk too early.

Some authors have cited an excess of the intestine or omentum and an elongation of the mesentery, as important factors. It seems to me that a preternatural diminution of abdominal capacity might constitute an important causation.

From the foregoing, it is evident that as causation differs in this disease, so must treatment be varied; and that while some causes will remedy themselves, others may be obviated; while with a considerable number, the infirmity depends on such conditions as are beyond art to remove they must remain incurable, though not being beyond effective measures of relief.

MORBID ANATOMY.

The underlying ground-work of all infantile hernia is defective development. In but a comparative few, will we find distinct evidence of recent pathologic changes. How or why remains a mystery, but it is evident that through some occult cause the testis in its march often acquires adhesions to adjacent parts, and thus, while pushing a duplicature of the peritoneum before it, may carry one, or possibly two, fringes of the peritoneum along with it; if not into the scrotum into the inguinal canal. These adventitious sacs or omental masses, in time, if no unusual strain is put on the abdomen, are not occupied by viscera; but contract, become obliterated and practically disappear.

The same may be said of the enclosed funicular process, which state is practically physiological at birth: the infant lying on its back the greater part of its time asleep, at this time of life, with loose, semi-liquid fecal discharges, seldom puts any severe strain on the abdominal walls, and no visible hernia follows. But, let there be atresia of the rectum or urethra; a tightly adherent prepuce, indigestion from improper food or too much of it, with flatulency; then the confined viscera, in obedience to a well-known physical law, will make their way in the direction of the least resistance, and we will have a matured hernia. Whooping-cough or a measles cough in the young infant will have the same effect.

Simple hernial extrusions in the young child will tend to recede and disappear of themselves, if the recumbent position is continued long enough, in a considerable number. The sac contracts, the rings narrow and the canal attains an obliquity. Along with this, there is a shortening of the mesenteric ligament, with an alteration in the seat of intestinal contact with the abdominal wall.

This process of hernial retrogression is not peculiar to small, diminutive protrusions, but applies also as well to those of considerable volume.

In the greater number of cases of ectopia of the testis, hernia is present. In certain cases, it appears that the testis passes down through, making a portal of escape for itself, and then recedes, or is suddenly drawn up inside the abdominal rings by a powerful contraction of the cremaster muscle. For we will sometimes witness a hernial formation in the scrotum, when the testis is not in sight on that side. And in the event of strangulation, as I once said, the testis is in the canal, between the rings, while the extrusion is in the scrotum. We will, too, sometimes find a case in which on one day we will discover the testis in the perineum, another time in the scrotum, again between the rings; and finally, we look for it when it has vanished, to reappear again in the scro-

tum perhaps the next day. In many cases in which there is a hernia at birth, but the testis has not yet descended, we will observe before the infant has taken its first, that it has lodged and the extrusion has disappeared or is greatly reduced in volume.

It is only when the testis carries with it into the scrotum either the intestine or omentum, and the congenital type continues, that we will have such a state as will fail of spontaneous relief, or not respond to a tentative therapy. The rings being constantly widened by a substance or structure which acts like a wedge on them, become wider and wider, so that the obliquity of the canal is lost. If omentum is extruded it will hypertrophy in time and acquire an immense volume. It follows, accordingly, that when the testis contracts adhesions with the escaped viscera, the reduction of the hernia will be quite impossible.

But there is a considerable number in which, after the rupture descends, adhesions form, when the type is not essentially what is anatomically known as congenital and which, too, in consequence are quite irreducible.

In babies, we will at times meet with those in which but one element of the abdominal contents is present, viz, a serous fluid. This is commonly called a hydrocele or hematocele, but is in reality, in its elements, clinically and pathologically unlike what is so designated in the adult. Not infrequently it is a genuine cystic formation, of a homogeneous composition; while again it is a pure serous fluid or what is known, physiologically, as lymph.

DIAGNOSIS.

Diagnosis of the inguinal type of infantile hernia is not difficult in the most of cases. But nevertheless, in many forms of cystic diseases of the cord, it is impossible to diagnose with accuracy the contents of a fullness which occupies the scrotum or the upper inguinal region. Manipulation will not do it, nor is transmitted light a reliable test in all. Hypodermic puncture is an important aid, but unless special care is exercised it may do harm, and hence in only exceptional cases is its employment to be recommended. But in mixed complicated cases in which there are both cystic disease and hernial protrusion, its use may lead us into the error of assuming that a mere tapping will effect a cure of the case; while as a matter of fact, it will fail in this; besides perhaps lead to puncturing the bowel or peritonitis.

Unless a hernia seems to be a source of pain and is increasing in volume, there is no pressing necessity for determining what the mass is; besides, nothing is lost by waiting.

In reducible hernia it is not difficult to recognize an epiplocele from an enterocoele; but in mixed cases, those which predominate in infants, this will be quite impossible.

TREATMENT.

The treatment of infantile hernia of the inguinal type, in the absence of complications, should be on tentative lines. It is only in exceptional and unusual cases that the question of operation will arise.

It will be borne in mind that those cases here described only embrace that class which are seen in the suckling infant before walking begins.

The treatment will have reference to a few things mainly:

1, diet; 2, clothing; 3, rest; 4, support or pressure;

5, removal of such causes as occasion straining; 6, radical operation.

Diet.—When the infant is a suckling, nothing need be done in the way of dieting it, only, if the mother is constipated, she should be given sufficient of an aperient to act moderately on the bowels of the infant, through the mother's milk. But in modern times, when so many mothers are over-fed and under-exercised, or are the partners of ardent husbands, they either have no milk, it dries up, or is unfit for the infant; when resort must be had to artificial diet. The infant commonly over-eats, overloads the intestine, or in consequence, accumulates an undue amount of fat in the omentum. If digestion is disordered, he has gaseous distension from alimentary fermentation, when the abdominal walls are put on a severe strain.

Caution should be exercised, then, when the natural aliment is cut off from the herniated infant, not to over-feed, nor give food of improper quality. Harm is apt to rather follow too much than under-feeding.

Clothing.—Little need be said as to the quality of clothing. The infant must be comfortably clad. The only question is with regard to how the garments are adjusted. The tight encircling band which has been so long applied over the lower thorax and entire abdomen, when adjusted, under the old orthodox rules is quite certain to render the spontaneous cure of a hernia impossible. Hence, in every case, this should be cast aside. The abdominal muscles should be allowed the freest possible play, and the peristaltic movements of the intestine be in no manner hampered by an artificial pressure of any description whatever.

To overcome this deleterious action of the binder, Dr. Frank S. Parsons has advised that the garments covering the trunk and extremities should be adjusted to, and suspended from the shoulders. (The Hygiene of Infant's Clothing, JOURNAL OF AMERICAN MEDICAL ASSOCIATION August, 1890. By Frank S. Parsons.) Those of us who have given this subject a special study must indorse Parson's views, and commend his special hygienically-made infant wearing apparel.

Rest.—Physiologic-rest, of all known agencies is one of the most potent, as an aid in the therapy of every species of hernia, and at every stage of life. This element of rest is what so powerfully contributes towards the recovery of infantile hernia. The baby lies in a quiet state in the horizontal position a large share of his time, and when he comes to sit up, yet the parts in the region of the infirmity by this attitude, are in a favorable state for restoration to the normal condition. The depression of the inguino-femoral fold, the pressure downward of the abdominal parietes and upwards of the convexity of the thighs exert a forcible influence in relaxing the fibers in proximity to the ring, and the recession of the visceral displacement. Therefore in the herniated infant particularly when the mass is of considerable volume, the lying and sitting positions should be encouraged, as long as possible. Crying or walking "on all fours," on the hands and knees, thus carrying the spine in a lordotic direction, and equally distributing the weight on the anterior abdominal walls, no doubt, is a necessary and secondary exercise, when the infant has attained the first year or before it. But the practice of carrying an infant into a lordotic walking, carrying the

spine erect and putting a severe strain on a weakened part is a vicious one considered in any light, to the herniated, as it not only interferes with the reparative efforts of nature, but it likewise greatly aggravates the preëxisting condition, rendering subsequent treatment more difficult and unsatisfactory.

Support or Pressure.—My own experience has been that a small painless hernia which shows no tendency to enlarge, will do better by entire non-interference, than by too much, or the misdirected application of pressure. Parents are naturally apprehensive when a hernia is discovered, that it will become worse with time, and expect something more than an encouraging promise; besides perhaps, with many of these simple cases, a simple bandage support will probably do no harm. But before we apply anything, let us be assured that the testis is well down and that the supposed hernia is not a simple cyst. With these cases the hank-truss so-called, made of a couple of skeins of worsted, or the simple pad and spica bandage, amply suffice. The general use of the spring truss in infantile hernia is a bad practice. Its adoption is to be prohibited, except in those cases, in which the medical attendant is permitted to keep the case under constant observation. Those trusses with a strong spring, do incalculable harm. By their pressure they often not only prevent the testis from fully descending, but they likewise induce adhesions of it with other parts. Simple reducible hernia they render irreducible, in many cases; and in many too, by their constant pressure, they induce atrophy over the rings which they are supposed to strengthen. When the child takes his feet is the time when the truss plays an important rôle; until then its employment must be guarded by an intelligent supervision.

The removal of such causes as occasion severe straining.—It goes without saying, that in every case, before any thought of treatment is entertained, we should first institute a searching inquiry as to the etiologic factors. If the hernia be an inheritance, when once reduced, it should be remembered that, as a tendency to relapse remains throughout life, it may be a wise precaution, as a prophylactic measure, to recommend the wearing of some sort of support over the inguinal rings.

In all cases, we should be assured that there is no impediment in any part of the urethral or rectal passage.

Operation for radical cure.—As the operation for radical cure of hernia is rendered devoid of pain and is attended with little or no danger to life, the temptation to perform it is very great; when we can practically promise success in every case. But when we bear in mind that the greater part of infantile cases will spontaneously disappear; and as we know, now, that very few operations for radical-cure produce permanent effects, we should hesitate to ever recommend surgical intervention in any, except certain complicated cases, presenting unusual characters.

The cases of infantile inguinal hernia which require operation are: 1, those in which there is a marked tendency to increase in volume; 2, those which are attended with severe pain and 3, those in which there are extensive adhesions between the testis and viscera, and there are no possible prospects of reduction or cure without radical methods. With these exceptions none should be treated by any other than ordinary, safe and tentative means.

The technique of operation is practically the same for the young as the adult. Although it is quite impossible to preserve the dressings from the urine; on being displaced, the wound heals well.

It is well in this latter class to require the wearing of some sort of support for a year after operation.

As the scope of this paper will not permit it, I have purposely refrained from including the various complex types of inguinal hernia; besides those which present in the umbilical, femoral and other regions; which overlie or are continuous with the abdominal cavity.

THE TREATMENT OF CHOREA BY LARGE DOSES OF QUININ.

Read in the Section on Diseases of Children, at the Forty-fourth Annual Meeting of the American Medical Association.

BY W. A. N. DORLAND, M.D.

INSTRUCTOR IN GYNECOLOGY, PHILADELPHIA POLYCLINIC; PHYSICIAN TO ST. CLEMENT'S HOSPITAL, PHILADELPHIA.

AND CHARLES S. POTTS, M.D.

INSTRUCTOR IN NERVOUS DISEASES, UNIVERSITY OF PENNSYLVANIA; PHYSICIAN TO DISPENSARY FOR NERVOUS DISEASES IN UNIVERSITY HOSPITAL.

Of the various theories that have been advanced from time to time, in the effort to elucidate the etiology of chorea and to localize the affection; that is, to ascribe to the choreic movements either a cerebral, or a spinal, or a confined origin, that of a diminution or loss of spinal inhibition recently proposed by Prof. H. C. Wood in a contribution read before the Philadelphia Neurological Society and published in the *Journal of Nervous and Mental Diseases* for the month of April, may be accepted as preeminently a rational one; a theory that is based upon sound scientific investigation and deliberate ratiocination. We would invite a perusal of this very interesting paper, as giving in a more concise and intelligent manner than any resumé we could offer, the various steps that led up to the enunciation of the theory suggested. In the meanwhile, permit us to review briefly some of the principles involved in this line of study of the motor function of the cord, with its physiologic and pathologic manifestations.

It appears to be a fundamental law that certain highly specialized cells of the nervous organism have relegated to them powers that are dominant; whose function it is to dominate and regulate other cell-groups not so highly specialized in the assignment of the complex workings of the body. Especially is this law exemplified in the familiar manifestations of the well-known cardio-inhibitory center of the vagal nucleus, and in the intensely interesting and intricate phenomena of thermotaxis. That group of cells to which has been allotted the power of inhibiting the motor function of the spinal cord is designated as Setschenow's center, which, in the frog is placed in the optic lobes, and in man and the higher vertebrates is believed to be situated somewhere in the corpora quadrigemina or medulla oblongata. Whatever may be its precise location, it is undoubtedly true that stimulation of this portion of the brain-substance will be followed by a marked diminution in the reflex activity of the cord, thus demonstrating at once the dominating influence of the center over the motor tracts of the cord beneath.

Spitzka, in the *Reference Handbook of the Medical*

School, has aptly said: "The spinal cord is essentially a segmental organ; in the typical vertebrate it may be regarded as made up of a series of nerve centers, fused into a column, 'each center corresponding to a somatic segment, with which it is connected symmetrically by a pair of spinal nerves.' Each one of these spinal segments corresponds in its topographical situation with the somatic segment which its nerves supply, and these nerves take a direct transverse course, leaving the cord at right angles to traverse the intervertebral foramina and thus reach their somatic destination."

Stimulation confined to any one of these spinal centers,—thus directly or absolutely augmenting its motor power, or its function of motor discharge, or the cutting off from any one such center of the inhibitory action of the dominant center in the brain above,—thus, primarily, indirectly or relatively, and secondarily, absolutely, increasing its motor power, will be accompanied by spasmodic muscular contraction in the somatic segment supplied by the implicated center. This is self-evident. Now, generalizing, suppose that the direct stimulation be applied to the spinal centers, as a whole, the entire cord, simultaneously, or that the inhibitory action instead of being removed from a single spinal center be very perceptibly diminished, or absolutely cut off from the entire cord, and it will go without saying that all of the somatic segments supplied by the spinal motor nerves will be involved in the exaggerated discharges of motor force, and that the muscular system of the body will, so to speak, run riot. Prof. Wood, from his studies in this direction would ascribe to chorea some such origin as this. He suggests that the direct cause of chorea lies in a disturbance or overbalancing of the equilibrium that normally exists between the motor power of the spinal cells and the inhibitory apparatus of the spinal cord located in the so-called Setschenow's center of the brain, the latter in choreas being involved in a paresis more or less marked. During inhibition the function of an organ is restrained; during paralysis it is abolished. The amount of disturbance will depend entirely upon the degree of loss of inhibition. Thus may be accounted for the varying grades of choreic manifestations, from the slightest case of so-called spinal irritation with the characteristic unrest and ebullition of nerve force and the exaggerated reflexes of the neurotic individual, to the grave cases of chorea major with absolute loss of control of voluntary muscular effort, and finally, diminished or absent reflexes from exhaustion and depression of the entire motor area of the cord.

Nowhere is the perplexing uncertainty that surrounds the true etiology of chorea better demonstrated than in the very recent work of Landon Carter Gray. In it, he gives a varied list of causes of the disease, covering the most remote possibilities and including such unsatisfactory etiologic factors as the seasons, the emotions, malaria, race, eye-strain, as well as the more definite causes: trauma, articular rheumatism, imitation and heredity. After such an array we would naturally expect to hear him say that although certain cerebral changes have been well described in the chronic and fatal cases, as well as of the disease in animals, there has never been any approach to a description of the pathologic alterations that would explain the movements of the

ordinary types of chorea of the Sydenham and athetoid types. We would suggest that at least an intimation to this "approach" is made by such an explanation as the ingenious inhibitory theory of Prof. Wood.

So much, however, for the physiology and pathology of the subject; now for the direct application of the principles thus hinted at, for as far as is possible, all therapeutics should be based upon the results of physiologic investigation and its ultimate rational conclusions. Accepting the premise, and regarding chorea as due in all probability to a diminution or loss of the inhibition power of Ssetschenow's center, it is evident that our efforts, therapeutically, should be directed toward the employment of such remedies as will tend to increase or restore the diminished or lost inhibitory power. Hitherto the drugs that have been exhibited in the treatment of chorea have been of two classes; either those whose action upon the nervous system has been confined to the motor nerves—direct paralyzants of the motor nerves and their peripheral filaments; or those whose physiologic effect upon the nervous organism has been that of a powerful depression of the spinal centers. To the former class belong the bromids, lobelia, and the more recently revived remedy, conium; while in the latter would be grouped arsenic, calabar bean, chloral, cimicifuga and antipyrin. Antipyrin alone reaches a little farther in its action, and exerts upon the cerebral cortex a peculiar sedative influence.

In quinin, however, we have a remedy whose action upon the nerve centers differs radically from that of the remedies we have as yet mentioned. Since the researches of Chaperon, thirty-five years ago, repeated experiments in the physiological laboratory have abundantly demonstrated the soundness of his claims. The direct stimulating action of quinin upon the so-called inhibitory center of the cord, even in small doses, is now thoroughly established. Undoubtedly, during its exhibition, there is a remarkable diminution in the reflex activity of the spinal centers. In cinchonized animals the discharges of motor force are sensibly lessened, and this spinal inhibition increases *pro progressu* with the degree and duration of the cinchonism. This interesting observation suggested to Prof. Wood the possible utility of quinin in the chorea of dogs. A choreic animal in the Hospital of the Veterinary Department of the University of Pennsylvania, was subjected to the method of treatment, and with a most interesting and satisfactory result. Within one week from the initial dose of quinin, as Prof. Wood records, the spasmodic muscular movements had almost entirely disappeared. With this indication to its still further applicability in the management of convulsive spinal affections, choreic patients visiting the dispensary for nervous diseases in the University Hospital were placed upon the quinin treatment under the direct supervision of Prof. Wood and Dr. Potts. While the time that has elapsed since the commencement of the treatment has been short, and the number of patients limited, the results obtained thus far have been, to say the least, gratifying. In but four instances did the disease fail to respond to the influence of the drug. A synopsis of the cases so treated is appended:

Case 1.—E. C., age 14, female. Is attending school. Family history good. Has had all the diseases of childhood,

including scarlatina. Her first choreic attack was noticed on January 1, the twitches beginning in the tongue. The movements at the time of her first visit, on the 19th of January were general and severe. She had difficulty in talking, and at times bit her tongue. She was given quinin gr. iv. every three hours until cinchonized, and then three times daily. January 21. Movements still present, but much better. February 24. Reports nearly well.

Case 2.—M. A., age 14, female. Attends school. Reported at the dispensary on the 9th of December, 1892, suffering with her second attack of chorea. The movements had begun a few days before, subsequent to a febrile attack. No history of rheumatism. The movements were general. She was placed upon increasing doses of Fowler's solution and iron and this treatment was continued without marked benefit until Feb. 11, 1893. She was then given quinin gr. iv. four times a day, with immediate and considerable improvement. She was under this treatment for ten days, at the expiration of which time she reported herself as cured.

Case 3.—E. F., age 8, female. Attends school. Reported first at dispensary March 14, 1893. The choreic movements had been noticed since the first of January, the attack having followed a fright. They began in the left arm. At the time of her visit the entire left side was affected. Her speech was thick, she complained of pain in her left knee, and her mother said that she had emesis since the chorea began, although perfectly healthy previous to this. The family history was good. She was placed upon quinin gr. iv. q. d. March 17. Reported much better, and did not return. The presumption is that she was cured.

Case 4.—L. D., age 10, female. Attends school. February 24. Visited the dispensary with the second attack of chorea, which had lasted then for about a week. The movements were confined to the right side. No rheumatism. Was given quinin gr. iv q. d. February 27. Mother reports great improvement. March 13. No movements noticeable. April 5. Return of some movements. The quinin was continued and syr. ferri iodid. gtt iii and emul. ol. marrhuæ f5j t. i. d. added to the treatment. April 19. Reported with complete disappearance of choreic movements.

Case 5.—L. K., age 14 years. School girl. March 1, 1893. Came to the dispensary with slight choreic movements, affecting principally the muscles of the face. This is her second attack, the first one occurring when a year old and lasting three years. She was ordered quinin gr. iv q. d. March 13. Her mother reports that she is much better. Cinchonism present. May 1. Came back with return of symptoms which she says commenced soon after stopping the medicine. The same treatment as before ordered was advised; at this date May 17, 1893, she has not returned.

Case 6.—M. H., age 9, female. Attends school. Nov. 7, 1892. First visit, the attack being of two weeks' duration. The movements began on the left side which is now the worst, though both sides are affected. No history of rheumatism or other acute diseases. Has always been nervous. Heart's action rapid. Was placed on increasing doses of Fowler's solution without improvement. December 6. Is taking 10 drops of Fowler's solution with compound syrup of the hypophosphites. Some gastric irritation present. December 19. Considerable irritation. Reduced to 5 drops. January 25. Choreic movements somewhat better but has developed neuritis in both legs. Was given quinin gr. iv t. i. d. February 8. Choreic movements have nearly disappeared. Has not completely regained the power in her legs, but they are much improved. February 21. No evidence of chorea visible.

Case 7.—D. K., age 12 years. Male. Attends school and works on a farm between times. Visited the dispensary April 12, 1893, suffering from his first attack of chorea. The movements were very severe involving both sides; could only feed himself with difficulty and his speech was so much affected that it was almost impossible to understand him. Quinin gr. iv q. d. was ordered. April 15. No better. Dose increased to gr. iv five times daily. April 17. No improvement. Increased to gr. vi q. d. April 21. About the same. Ordered Fowler's solution gtt iii. t. d. April 26. Somewhat better. Is taking five drops of Fowler's t. d. May 11. Is nearly well. Fowler's gtt. x. t. d.

Case 8.—R. E., age 11, female. Attends school. Was treated at the dispensary for her first attack of chorea from April 26, 1892 to Aug. 9, 1892, with arsenic and tonics. No movements when she stopped treatment. Returned March 14, 1893, with slight movements. Was given quinin gr. iii, five times a day. March 17. Reported worse. April 7. No improvement, when she was again placed on Fowler's solu-

tion, gtt. iv t. d. April 15. Mo. better. Is taking 24 vii of Fowler's. May 2. Not so well. Fowler's increased to gtt. ix t. d. She has not returned at this date, May 7, 1893.

Case 9.—M. C., age 14 years. School girl. April 16, 1893. Returned to the dispensary with her second attack of chorea. Her first one occurring about one year ago. The present attack has lasted several months. Both sides and speech affected. Ordered quinin gr. iv q. d. April 18. Seems considerably better. The dose of quinin increased to gr. iv five times a day. April 21. Chorea movements have almost disappeared. May 11. Return of some movements involving principally the hands.

Case 10.—M. D., age 7, admitted to the Hospital suffering with marked chorea of several weeks duration. Gait very unsteady almost staggering. Unable to feed herself. Was placed upon Fowler's solution for one week with but slight improvement. Three grains of quinin were then given in solution five times a day. In three days there was a very perceptible diminution in the choreic movements. In two weeks she was able to use her hands in eating; in another week the choreic tremor was no longer noticeable. With the improvement in this respect, there occurred also a change in her disposition, the child becoming brighter and more playful. Fifteen grains of quinin were administered daily for three weeks without the slightest sign of cinchonism. Appetite remained good throughout.

Case 11.—M. B., age 12. School girl. May 16, 1893. Second attack. Slight chorea for one week, preceded by rheumatic pains. Was given quinin sulph. gr. iv q. d. May 22. Chorea worse; gr. vi t. d. Pil. iron and strychn. t. d. May 25. No improvement; Fowler gtt. iv t. d. Not reported since.

Case 12.—A. L., age 14. School girl. May 15, 1893. Chorea since March, both sides and speech affected. Mother has had convulsions of epileptic character. Was given quinin sulph. gr. vi t. d. May 22. Better; gr. vi t. d. and pil. of iron and strychn. t. d. May 29. Much better; is taking quinin gr. xvii daily.

Case 13.—M. A., age 12. School girl. May 13, 1893. Second attack; first one in 1891. Movements in left side of moderate severity; do not cease during sleep. Was given quinin gr. iii t. d. May 17. No better; gr. vi q. d. Strychn. sulph. gr. one-sixtieth t. d. May 20. About the same. Was given Fowler's solution gtt. iv t. d. May 24. No better; gtt. v. May 29. Slight improvement.

Case 14.—C. S., age 14. Salesgirl. May 13, 1893. More or less choreic movements of muscles of face for past four years. Lately these have involved entire body. Was given quinin sulph. gr. vi t. d. May 17. No better; gr. vi q. d. May 19. Much better. Syr. hypophos. Co. 5i t. d. May 27. No chorea.

Case 15.—D. R., colored, age 10. School boy. May 24. Has had choreic movements for one year, which of late are much worse; both sides and speech now affected. Was given quinin sulph. gr. iv t. d. May 29. Better; gr. iv t. d. and pil. iron and strychn.

This record must be left to speak for itself. It will be noticed that in a number of the cases almost immediate improvement took place, which continued for a time, after which relapses occurred. This occurrence, it seems to us, may be due to the fact that the quinin merely acts as a stimulant and, like all stimulants, loses its effect in time to be followed by depression. Therefore, so far as any conclusions can be drawn from such a limited number of cases, it would seem that the best treatment for chorea would be the administration of large doses of quinin to lessen the severity of the movements, adding at the same time measures to build up and strengthen the depressed nervous system. This seems to be shown in Case 4 where final cure only took place after the administration of cod liver oil and iron, and also in Case 10, where cod liver oil also had to be administered after a time.

Another fact worthy of emphasis is the large doses that the majority of the children could take without any evidence of cinchonism. Finally, we do not claim that quinin is an absolute cure for chorea, and that from this time no such thing as failure in the treatment of such cases will be recorded. It should

be remembered that the cases here reported are of long standing, many of them having been in the hospital for a year or more. It is not surprising, therefore, that the most results of the operation were obtained in an atmosphere of relief. In such cases it is probable that nature will assist in subduing the morbid action, however rational. What is claimed, so far as the mercuric form of the operation is concerned, is that from the administration of quinin in large doses have been such as to warrant a further investigation as to the merits, immediate and ultimate, of this line of treatment.

STATISTICS OF INTUBATION OF LARYNX, AND EXHIBITION OF IMPROVED INSTRUMENTS.

Read at the Session of the American Medical Association,
At the Hotel McAlister, Chicago, Ill., May 1893.

BY F. E. WANHAM, M.D.

OF CHICAGO, ILL.

EMERITUS PROFESSOR OF LARYNGOLOGY AND RHINOLOGY, UNIVERSITY OF CHICAGO,
PHYSICIAN IN CHARGE OF THE CHICAGO LARYNGEAL HOSPITAL.

In again consenting to present a paper on the subject of intubation, it is with the thought that increased experience and the accumulation of a larger number of cases may be a more convincing proof of the utility of the operation.

It will be seen that out of the first 100 cases, there were 27 recoveries; of the second 100, 34; the third 100, 40; the fourth 100, 38, and out of the last 66, 22.

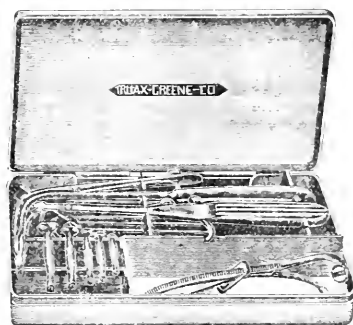


Fig. 1.

It is often said that intubation is done early, and that this accounts for the large percentage of recoveries, but this is a great mistake. The operation is only done as a last resort, and often after the patient has become moribund and unconscious. Not infrequently patients have been in extremis before I have been summoned, and upon arriving have been found dead. More than nine-tenths of these cases have been seen and operated upon through the courtesy of other physicians, and there has been no opportunity for operating early, even had there been a desire to have done so. Neither have these been selected cases; all have been operated upon from the young infant to the aged patient, without reference to age, malignancy of disease or unfavorable surroundings. Considering the fact that the great majority of these cases have been among the poor and destitute, where it has been impossible to properly care for or nurse them, the results seem highly gratifying.

PRIMARY SYPHILIS AND GONORRHEA IN CHILDREN.

Read in the Section on Diseases of Children, at the Forty-fourth Annual Meeting of the American Medical Association.

BY R. MERRILL RICKETTS, M.D.,
CINCINNATI, OHIO.

In presenting this subject, I wish to call attention to the comparative infrequency with which these diseases are found in children under twelve years of age, and the tendency to overlook their characteristics; also to report the cases that I have seen bearing upon the subject.

That the Hunterian chancre is not at all times recognized, when found upon adults, there can be no question. That it is less likely to be recognized when found upon children, especially when it is found upon other parts of the body than the genitals, is a foregone conclusion. The infrequency with which this lesion is met with in children, together with the few opportunities the average practitioner has of seeing it upon any other part of the body than the genitals, is no doubt the occasion of its being so often overlooked.

These rules hold good in cases of primary gonorrhea in children. To identify an acute inflammatory urethritis or vaginitis as being gonorrheal is a task not always easy, especially since the discovery of the gonococcus.

The identification is especially troublesome when there is but one child affected and the cause unknown. As I did not intend to enter into details in describing these primary lesions, but merely to report the circumstances surrounding each of them, together with the more prominent features, I must refrain from speaking of the etiology, treatment and subsequent results, none of them having remained under my care.

Case 1.—Male, age 12; white; German; robust; of humble parents, both of whom were dead. Accompanied by a friend he consulted me in 1887, complaining of a sore about the anus. Upon examination I found a hard chancre, about two weeks old. I found, by persistent questioning, that the boy had been the victim of hugging. That about four weeks previous a young man about eighteen years old, had practiced his vile habit upon this boy, whether willing or unwilling I was unable to decide. The throat was sore and the temperature 99 degrees. I advised treatment, but the lad never came back.

Case 2.—Male, age 12; white; robust; dark hair and eyes, was brought to me by his father in the fall of 1892. There was an extensive macular eruption over the whole body and extremities. The throat was very much ulcerated and temperature 100½ degrees. Rheumatism was complained of, and his general appearance was bad. I informed the father that the boy was suffering with syphilis and that he had contracted it within six weeks from that time. I accused the boy of having done something, but he would not admit anything until I had a private interview. He then admitted that a man had thrown him down in a stable and had attempted to do something to him in his back parts some eight weeks before. Upon examination I found the remnants of what I believed to be a hard chancre. Everything pointed to the boy's statement having been true. I found that Dr. W. E. Lewis had been treating the patient, and I at once proceeded to ascertain all I could about the case. Dr. Lewis informed me that he had found a sore together with warts. I at once referred the patient back to Dr. Lewis for treatment, and I find that this was carried out with the usual results.

Case 3.—Male, age 7; white; robust; brought to me with a sore upon the lower lip, about the median line upon the vermilion border. The lesion was about the size of a silver five cent piece and presented the usual characteristics. I could not find any history whatever, so that I was compelled to rely upon subjective symptoms entirely. The temperature was 101 degrees, face flushed and conjunctiva

congested. The submaxillary glands were somewhat enlarged, and the body and extremities covered with a fine macular eruption. The mother stated that the sore had existed for about three weeks. She gave no evidence of having syphilis, nor could give me anything to show that her husband had not have the disease. The family was poor and no doubt associated with the demi-monde, whose lips so often carry with them the messenger of misery and death. To my mind this was the source of infection. Although advised to have the child treated, I was never again permitted to see it.

Dr. David DeBeek of Cincinnati, has tabulated ninety-seven cases of primary syphilis of the eyelids having occurred in the practice of the various oculists of the world. This monograph is well worth reading, the cases having occurred in both adult and child life.

ACUTE GONORRHEA.—(SEVEN CASES.)

This is exceedingly interesting, especially as the origin in each case was discovered:

Case 1.—Female, age 7; robust; poor parentage; blonde; acute gonorrhea.

Case 2.—Female, age 10; robust; poor parentage; blonde; acute gonorrhea.

Case 3.—Female, age 11; frail; poor parentage; brunette; acute gonorrhea.

Case 4.—Female, age 9; robust; poor parentage; blonde; acute gonorrhea.

Case 5.—Male, age 9; wiry; black-eyed; poor parentage; quick, active and looked upon by the neighbors as the toughest of the Arabian type. This lad had a discharge evidently of six weeks' duration. Had it been but three or four weeks old, I do not believe that he would have felt much like attempting such a feat. The girls represented four different families, however, there were but three mothers who accompanied the four girls to my office. The statement of the girls was identical in the main, although given privately at different times. Each had a serious discharge, with great itching and tenderness, together with extensive swelling of the labia. Although I did not make a thorough examination, I am satisfied that the lad did not penetrate very deeply. It was, however, of sufficient depth to infect each child. I could not determine the exact day it occurred, but would say some time within two weeks. The indications were, that each girl consented to it. In regard to the boy, I was unable to secure any information whatever. He was as cool and unconcerned as though nothing had ever happened. He was an experienced street urchin, whose life had been hardened by contact with the inhabitants of Gano Alley, a place which can not be surpassed in corruption and immorality. That he was a frequenter of this district was well established, but who his seducer was will always remain a mystery.

But one of these cases was ever again seen, and that on the following day, so I can not speak farther.

Case 6.—Female, age 11; white; robust; with dark hair and eyes, was brought to me by her mother who was a poor woman, earning her living as best she could, her husband having died leaving but little. She stated that her child had done wrong and that she had a discharge. I found that there was a purulent discharge with much redness, itching and tenderness. Upon questioning, I found that they lived in a district parallel to Gano Alley so far as morals were concerned. The boy was a neighbor, having secured the consent of the girl some four or five weeks previous.

Case 7.—Male, age 12; white; robust; of poor parentage. Was visited by me on the following day. I found a purulent discharge, evidently having existed a month or so. He, too, was obstinate, giving no information as to who had victimized him.

I do not think that the diagnosis in any one of these cases can be questioned, in the face of such evidence as has been produced in each case. To my mind, the evidence is conclusive, without any search having been made for the gonococcus. I regret that I could not have treated at least a few of them, especially as I am desirous of comparing the severity of the disease in adult and child life. I should also like to follow these cases through life.

and see what the influence of the disease is upon the organs of generation, as to whether or not the females would be sterile or would have inflammatory changes in the tubes or ovaries. Although I have no especial reason for making the statement, I believe that the virulence of both syphilis and gonorrhea is mitigated in childhood. I mean, of course, if the same rules governing treatment in adult life are carried out. I also believe that the primary and secondary manifestations of each are very much lessened as to time. The fever will perhaps be higher, as is the case with most all diseases of childhood. My experience would teach me, that it is an almost absolute impossibility to discipline such patients and prolong their treatment. One reason may be in the fact, that the parents desire to conceal the fact, and at the same time are ignorant of the ravages produced by the disease. It is to be noticed in the history of these cases, that the parents are all poor and the children were allowed to be on the streets, ad libitum. As there is very little written, bearing directly upon the subject of primary syphilis and gonorrhea in childhood, I feel that this report is justified by the hope that it may encourage reports of observations pertaining to this subject.

CHOLERA INFANTUM—ITS TREATMENT IN MALARIAL LOCALITIES.

Read in the Section on Diseases of Children, at the Forty-fourth Annual Meeting of the American Medical Association.

BY J. SCHNECK, M.D.

MT. CARMEL, ILL.

The application of the term, cholera infantum, is so various, both in the medical profession and by the laity, that it will be necessary for me to define the term as I wish it to be understood in this paper. By it I have reference to a disease of early childhood, in which there is exalted excitability of the nerve centers and of their meninges caused by continuous high atmospheric temperature, producing high fever and causing sudden attacks of forced vomiting and frequent, copious, liquid purging; which if not controlled results in exhaustion and death in a short space of time. The disease is most common from the sixth month to the end of the third year of life. It may occur in the midst of perfect health in a well nourished and well fed child, or it may be preceded by symptoms of cerebro-spinal irritation, or it may occur during a preëxisting diarrhea. In malarial localities it not rarely succeeds a regular paroxysm of intermittent fever, when this occurs during a time of protracted and continuous high atmospheric temperature. In my experience the symptoms which are usually the first to manifest themselves are increased restlessness with more or less dilatation of the pupils. The eyes have a bright, staring appearance, yet do not appear to see, or the mind does not seem to comprehend clearly. I have in some cases found this symptom present for twenty-four hours before the disease became fully developed. But usually with, or soon following these symptoms, there occur vomiting and purging; first of such food as may be in the alimentary canal. These first discharges are usually decidedly acid in reaction and have a peculiarly offensive mycotic odor, especially the dejecta. As the disease progresses the discharges become more liquid; the stools lose their peculiar odor and are watery, and alkaline in reaction. When

the disease becomes well established, vomiting and purging often occur at the same time; these are violent and sudden and are frequently accompanied by a sharp cry, as if produced by a spasmodic contraction of the whole alimentary canal. There is great restlessness, unquenchable thirst, suppression or diminution of urine; high temperature, usually from the beginning, in some cases going beyond 107 degrees F., shortly before death. Usually the flexor muscles are contracted, the thumbs fixed to the palms, the fingers clenched over them, the elbows and knees flexed and rigid; the muscles of the neck and trunk are often stiff and the head drawn to one side; pulse 150 to 200, extremities cold, fontanelles and sutures sunken, features collapsed, convulsions, coma and death. The duration of the disease in severe cases is usually from four to seventy-two hours.

My field of labor is in the southeastern part of Illinois, on the Wabash river, a region of country that is noted for hot nights as well as hot days (it being too far north to receive any effect from the Gulf breezes and too far south to be reached by the cool winds from the North and the Lake region, which occur during the evenings and nights in those quarters). Our nights are usually calm and exceedingly hot, there being much less atmospheric disturbance during the night than during the daytime.

Above, I have given a very brief sketch of a scene that has been only too familiar to me during the past twenty-two years in times of continuous high temperature. There is no class of cases that I visit with so much dread as I do one of these little patients. None of the authors whom I have consulted appear to recognize the disturbance of the nerve centers as the initial lesion of this disease; while in my experience it is usually the first and most prominent. In many cases the symptoms of cerebro-spinal congestion are so violent and rapid that the characteristic watery discharges are not a prominent feature until near the approach of death. This, I believe, is largely due to the greater amount of malarial infection of the system, in many regions.

I believe the primary cause of cholera infantum is continuous high summer heat persisting both day and night. Teething, indigestion, malaria and unsanitary conditions are responsible only in so far as they lower the vitality of the system. In cities, where the houses are built close together, a comparatively small proportion of the heat absorbed on a long hot day is lost by radiation during a short but cooler night, so that the inmates experience a continuous high temperature. I have never seen one of these cases occur in the country, except after there had been several successive days of continuous heat, varying from 90 to 100 degrees F. in the daytime and from 75 to 90 degrees F. at night. This condition we are liable to experience during the first weeks of June, or rarely the last days of May, and may continue to recur at intervals until the cooler nights of August come to our relief. It requires only one or two cool days, when this class of cases will cease to occur.

I think many of our authorities place too much stress on improper diet and feeding as primary causes, while they fail to give continuous high heat its proper prominence. I have frequently seen babies who were in perfect health and were taking nourishment from healthy breasts, taken suddenly and violently; but only in continuous hot weather.

The secondary causes are indigestion and fermentation of the food contents of the alimentary canal; including the decomposition of the natural secretions and excretions of the digestive tract, which occurs when digestion is checked. Malaria also acts as a secondary cause, as it predisposes the system to congestion, especially of the cerebro-spinal system. Filthy and unsanitary surroundings are also potent predisposing causes.

The preventive treatment should consist in physical and mental quiet; keep the body as cool as possible during the time of greatest heat. Many of the cases that I have seen were precipitated by exposure in the hot sun, often over a rough road in a wagon or buggy; or what is still worse, in a baby buggy. I know of no more severe test of a baby's endurance than to huddle it down among the clothing and covers in a baby buggy, then trundle it over rough streets and pavements, on a hot summer day. I am sure that more than one half of my cases have had this or some similar experience shortly before the onset of the disease. A hot show day is a typical occasion, and almost invariably gives us several of these cases before midnight.

The food should be pure and easily assimilated. Digestion should be aided artificially if necessary, and the slightest diarrhea should be treated very carefully and thoroughly. To accomplish this end I have had very satisfactory results with:

R. Bismuth salicylate gr. iii—v.
Lactopeptin aa gr. iii—v.
This to be repeated every two to four hours.

Remove thoroughly all unsanitary conditions; counteract malarial influences with large doses of quinin. If it is not retained by the stomach, the following should be applied over the abdomen and spine every second hour:

R. Quin. sul. gr. XXX.
Spir. frumenti 5℥.
Acid. sul. gtt. iii.
Oleum olivæ q. s. ad 5℥.
Mix.

If there are evidences of abnormal irritability of the nerve centers, I give from one to five drops of the fluid extract of physostigma venenosum, combined with proper doses of bromid of potassium, every one to three hours, until these symptoms are relieved; then continue as required from two to four times daily. I feel confident that many cases can be prevented by carefully and thoroughly carrying out the above indicated treatment. In severe cases when the disease is well established, especially after vomiting and purging have commenced, assimilation is often very slight or even totally absent; hence our efforts at treatment must be directed principally at the surface of the body. In such cases I place the little patient on a rubber bag which has been filled with cold, or if the fever is high, iced water. The bag should be long enough to reach from the top of the head to below the waist. The head should be elevated as much as is compatible with comfort. Inhibit exalted nerve action and tone up the paralyzed vaso-motor nerves of the internal blood vessels by frequently repeated doses of physostigma and bromid of potassium, until their physiologic effects are produced. In older children I have seen much benefit result from the hypodermatic use of morphia, but it is necessary to give it very cautiously, especially after the disease is well advanced and is

approaching the stage of coma. If) mas. of cold water have proven, in my experience, to be reasonable and injurious; the temporary diminution of temperature is usually followed by relaxation and increase of the serous discharges in the alimentary canal. To control the vomiting I have found nothing equal to the following:

R. Mor. sul. gr. ii.
Carbol. acid ʒi. ii.
Aqua ʒi. v.

Mix. Sig. One teaspoonful every half hour as long as vomiting continues.

One drop doses of a mixture of equal parts of tincture iodine and carbolic acid, given in cold water and frequently repeated, is also a valuable remedy.

To allay the intense thirst and reduce the internal heat, I have found great benefit from frequently repeated, but small quantities of egg-water, made by stirring the white of a fresh egg in a half glass of cold barley water, or simply cold water with a few grains of salt or some brandy in it. Crushed ice put in a cloth and held in the mouth is also very grateful.

When, or before, the extremities commence to get cold, I apply large mustard draughts to all four extremities; first enveloping the fore-arms and legs from the wrists to the elbows and from the ankles to the knees until they are red; then the arms and thighs, extending from the elbows to the shoulders and from the knees to the hips. This should be continued until the skin over the extremities is thoroughly red from the effects of the remedy, after which it is only to be repeated when the redness begins to disappear. I consider this a most efficient means of relieving central congestion, and from abundant experience I feel I can not commend it too freely.

In addition to the above treatment, I endeavor to stimulate the secretions by giving small doses of calomel combined with bicarbonate of soda or prepared chalk, repeated every two hours. When there is time to do so I endeavor to disinfect the alimentary canal and control fermentation with antiseptic remedies. Of this class of agents I have employed bichlorid of mercury, per-oxid of hydrogen, arsenite of copper, thymol, salol and listerin, but with indifferent and doubtful results. They are of more value after reaction has been established and the case has assumed the character of an enterocolitis, which it will most surely do if the child recovers from the first severe attack. In these cases it is necessary to continue the use of quinin freely. If it can not be retained when taken internally, it should be used by inunction as recommended in preventive treatment. To control the persistent diarrhea, I have found no remedy so efficient as pulverized gum opium combined with salicylate of bismuth, and I have frequently been surprised to find how much opium these little patients required, and how well they bear its use in large doses for many days together.

DENTITION, AND SOME OF ITS DISEASES.

Read in the Section on Diseases of Children, at the Forty-fourth Annual Meeting of the American Medical Association.

BY MARION THRASHER, M.D.

SAN FRANCISCO, CAL.

Normal dentition is comparatively harmless. The teething in wild animals and barbarous nations is usually attended with no danger, and with but little

inconvenience. The young, however, of beasts confined in cages, rarely live during the period of teething.

In our age of civilized refinement, abnormal dentition is the rule. So deadly has it become, that one-third of the human family die before the twenty deciduous teeth have fully appeared. Its danger is constantly increasing. A few decades ago, when the practice of mothers nursing their children was more in vogue, the fatality was not nearly so great. Latterly it has become unfashionable, and children are fed on artificial food, and the result is an alarming mortality. Dentition in these children develops incidentally many diseases. The commonest are irritative fever, indigestion—with its attendant evils, flatulency, constipation and diarrhea—cerebral convulsions, stomatitis, capillary bronchitis and pneumonia. Practically, it is almost impossible to, at times, segregate the foregoing diseases. Clinically one, or most of them may be present, in the cutting of a single tooth. Irritative fever is the most frequent. The gums, irritated by the advancing tooth, generate a poisonous mucus, the salivary glands become abnormally active, and a rise in temperature appears. This saliva is swallowed, and interferes with the digestion of food, that otherwise even would be difficult to assimilate. Flatulency, constipation, or its opposite, diarrhea, are evils now present. This, now poisonous ingesta, may produce, through reflex sympathy, cerebral convulsions.

In childhood, the nervous system so preponderates that any irritant will readily disturb the delicately balanced equipoise. Adults, with nerves trained to pain and suffering, know how toothache will derange the entire nerve system, and even increase a degree or two the body temperature.

The infantile tooth gradually rising through the gums, producing continuous tension, develops varied forms of constitutional, as well as local disturbances. The mucous membrane becomes red, hot, swollen and tender. The saliva is greatly increased, and the itching over the protruding tooth is so annoying that to allay it the child tries to bite everything that comes in its way. A nervous or irritative fever now appears. The temperature will often rise to 104 or even 105 degrees, when eclampsia may come on. Though "teething convulsions" have been denied by a few modern medical writers, yet their existence has so often been corroborated by clinical experience, their etiology can not be gainsaid. During the coma of these convulsions, capillary bronchitis may arise as a complication, and when it does it is often fatal.

Purulent conjunctivitis has often been found during the time the upper canine teeth are being cut. In this case, inflammatory action is transmitted through the antrum of Highmore. During dentition, eclampsia is very common, as well as fatal, in a class of drunkards, who also are more liable to convulsions, and the different forms of stomatitis.

Scars often accompany the appearance of the third tooth, which resist medical treatment until the tooth has fully appeared. Exanthemata, such as scarlet fever, may occur at this time, which stubbornly resist treatment—and for this reason, if for no other, if a child, dangerous cerebral convulsions are present, themselves, the skin eruptions, and were a safety valve.

As the teeth exfoliate, the sub-maxillary

glands are often swollen, and I have often seen the cervical glands enlarged and suppurating, especially in children of scrofulous or rachitic parentage.

The treatment for all these diseases should be anticipated, and prophylactic. The time-worn saw of "an ounce of prevention" is especially applicable here. Dentition is a dangerous period in a child's life, and should be jealously watched by mother and physician. Conditions, hygienic and dietetic, should be most propitious.

Every unfavorable complication should be met at the threshold, and if possible mastered. Diarrhea, so common, is a safeguard in expelling from the system morbid material, and should not suddenly be checked. Purgative, so usually administered by the laity at this time, often works irremediable mischief in the stoppage of the flux which nature has wisely instituted for the benefit of the child. Should it become chronic and weakening, it then should receive the physician's attention. Usually, minute doses of hydrargyrum cum creta, bicarbonate of soda, and tannin for a day or two, followed by oil, will rectify the trouble. Excessive temperature should at once be controlled by baths, lessening the food, enemas, and aconite. Cutaneous affections should receive no attention during this period. Capillary bronchitis, pneumonia, and other diseases of the respiratory organs, should be treated as indicated, but prevented if possible. Restlessness can often be overcome by hot baths, with aconite and the bromids. If the tooth is just breaking through the gums, lancing it will often afford prompt relief. Delayed dentition in young children may be remedied by vigorous constitutional treatment of pure air, wholesome food, bathing, cod-liver oil and citrate of iron and quinin.

THE TREATMENT OF DIPHTHERIA.

Read before the Camden County (N. J.) Medical Society.

BY E. L. B. GODFREY, A.M., M.D.

PHYSICIAN TO COOPER HOSPITAL; LECTURER ON MEDICAL NURSING IN NEW JERSEY TRAINING SCHOOL FOR NURSES, CAMDEN, NEW JERSEY.

I desire to call your attention, as announced in the program, to the treatment of diphtheria. The subject is full of interest, not alone from the past and present prevalence of the disease, but from the startling fact that, despite the great advancement in sanitary science, diphtheria is more continuously present than any of the acute, contagious diseases. Further than this, it can be said that diphtheria, despite sanitary science, has steadily advanced, and, for several years past, has maintained the character of an epidemic in this section of the country. I shall speak from the standpoint that diphtheria is primarily a local disease; that systemic infection is secondary to the local invasion, and beg to call your attention to the hygienic treatment, the medical treatment and the preventive treatment.

THE HYGIENIC TREATMENT.

In the hygienic treatment, the selection and care of the sick-room and the care of the patient, as regards the toilet, are matters of prime importance. Neglect in these particulars means danger of re-infection and the further spread of the disease. The sick-room should be selected in reference to its air-space, its exposure to sunlight, its ventilation and the isolation of the patient. The care of the room is

equally important. All unnecessary furniture should be removed to obviate the need of keeping it clean and of disinfecting it after the termination of the disease. Dust should be banished from the sick-room, because it irritates the throat and affords a medium in which the poison thrives. Cleanliness during the progress of the disease, and the disinfection of the premises after its termination constitute, in the main, the duties of the nurse-attendant. However trite this may seem, it is so rarely carried out, that it will bear iteration and re-iteration until every patient knows its worth. None of the infectious diseases require greater cleanliness, or more thorough disinfection for their stamping out, than diphtheria. The temperature of the room should be kept at 68 degrees, and continuously moistened with steam, medicated with turpentine, thymol, or eucalyptol, etc., especially so if laryngeal invasion has taken place, when the temperature should be both warm and moist.

Care of the patient's toilet, and frequent changes of bed clothing are needed, on account of the liability of their becoming soiled with sputa, and the salivary and pharyngeal secretions, which contain the virus of the disease. This is not extensively diffused in the room but attaches itself to the clothing, bedding and the sick-room appliances. All soiled clothing should, therefore, be disinfected with boiling water before being removed from the room. These points are not insignificant; their observance will not only mark the difference (when the disease is treated from its initial stage) between a short or long continued case, but the difference between the limitation of the disease to one in the household or the infection of others. The confinement of the patient to the bed, as well as cleanliness in the toilet, is a matter of moment. This should be done during the progress of the disease, and for a considerable time after convalescence is established. Three weeks is not too great a time for the confinement of a case of ordinary severity. I make confinement in the bed an imperative rule, so long as there is noticed disturbed rhythm in the action of the heart. Rest in bed tends to ward off renal complications and paralysis, which are the most important sequelae. Paralysis takes place, as a rule, during or after the establishment of convalescence and may follow a mild case. It is claimed to be due to absorption of the ptomaines or the poisonous products of the specific bacteria, and is regarded as a toxic neuritis with degenerative changes of the nerve tissue. This accounts for the great exhaustion, the tendency to paralysis and for the extraordinary slowness of the recuperating process. Even after apparent recovery, paralysis, either local or general, may supervene, so slowly does nerve tissue regain its power. Its tendency to paralyze the heart, through inflammation of the cardiac nerves, makes the disease one of constant dread. Sudden exertion contributes to heart paralysis, when degenerative changes have taken place in the cardiac nerves or in the structure of the heart. Rest in bed, therefore, should be insisted upon until health is practically regained.

THE MEDICINAL TREATMENT.

The medicinal treatment of diphtheria, though far from satisfactory as the variety of treatments in vogue indicates, is not so much a matter of speculation as formerly, since the bacterian origin of the disease

has been established. The bacillus of Klebs-Ehrlich is now claimed, by our best authorities, to be the exciting cause. Experimentation has shown that cultures of these bacilli inoculated into the larynx of animals will cause diphtheritic exudation with necrosis of tissue, and that the injection of their ptomaines into the blood will cause paralysis allied to that belonging to diphtheria. From this relationship of cause and effect and with these premises admitted, the conclusion is irresistible that diphtheria is the result of their activity within the throat. Still it is claimed that the bacilli are not found in the blood even during the period of systemic infection, but are found, in connection with other bacteria, in the diphtheritic exudation. These germs, coming in contact with the mucous membrane of the throat, excite inflammation, destroy the cells of the superficial epithelium, which destruction constitutes the false membrane. This, for a time, is so closely adherent to the underlying structures as to prevent the poisonous products of the bacteria from being absorbed, unless the membrane of the throat is in an inflamed or ulcerated state, when systemic infection is frequently first observed. Following the state of inflammation, cell destruction and the formation of false membrane, there follows a condition of suppuration, tissue necrosis, detachment and abrasion, during which the toxic products of the bacteria are absorbed by both lymphatics and blood vessels and the system consequently contaminated. Believing this, the medical treatment of diphtheria will be presented from both a local and constitutional standpoint, but only in so far as the treatment relates to cases under my care at the present time.

THE LOCAL TREATMENT.

The local treatment should be directed to the arrest of the development of the Klebs-Ehrlich bacilli. This can best be done by thorough cleanliness and thorough disinfection of the nose, mouth and throat, since the membrane in the early stage of the disease can not be removed. Forceful detachment of the membrane is condemned, because it affords both an easy ingress for the virus and makes applications painful to endure. Thorough cleanliness, however, of the nose, mouth and throat is imperative. Broken down tissue, mucous accumulations and sordes must not be allowed to accumulate. Free expectoration should be encouraged and the sputa receptacle kept filled with a disinfecting solution. For cleansing the teeth, mouth and throat, vinegar and water, lemon juice, glycerin and water, claret wine and water or pineapple juice and water will be found of advantage, both on account of their being palatable, and because of their tendency to arrest, from their acid nature, the development of the germs. Thorough and repeated disinfection of the mouth is required in addition to cleanliness, and under no circumstances should the nose be neglected in either of these particulars.

For the treatment of the throat, the gargle, the spray and the swab, insufflation, inhalations and ice are used. The gargle does not affect the posterior part of the throat and, if pain is caused by throwing the head backward, is discontinued. The spray is repeatedly used, and corrosive sul. fimate dissolved in fluid extract of pines canadensis, glycerin and listerin has proven the most satisfactory.

although the sulpho-carbolate of zinc dissolved in glycerin and listerin, and the peroxid of hydrogen, glycerin and water have given good results. The swab, made of absorbent cotton, affords the best service. By this method of direct application, every part of the throat can be reached, and upon it rests largely the success or failure of the local treatment. A combination of corrosive sublimate, cocaine, Monsel's solution and glycerin is my chief reliance. Occasionally, I employ salicylic acid, glycerin and alcohol, or the nitrate of silver, or peroxid of hydrogen and glycerin. For insufflating, when this can best be done, calomel is used; after the membrane has become detached, leaving an abraded surface, aristol and boracic acid are employed. For inhalations, medicated steam is used of which I shall speak later. The use of ice is encouraged for the double purpose of allaying thirst and reducing congestion. Its application to the neck has been abandoned for warm or hot applications, especially during the process of sloughing of the membrane. As an application to the enlarged and painful glands, ichthylol and lanolin, or hot medicated flannels are used.

If it is true that diphtheria is due to the activity of specific germs, then the importance of local treatment is admitted. If admitted, then the treatment should be directed to arresting the development of the germ. To accomplish this, the ante-bacterian solution must be placed in direct contact with the germs. The success of the treatment, therefore, depends upon its thoroughness, and the accomplishment of the object sought. This requires patience, skill and courage. But when applied with this definite object, at least every hour of the first day, the disease will be cut short in its death-dealing progress. The disease makes rapid inroads. The child should be awakened for local treatment, because local treatment is more important than sleep. It will be observed the cleaner the throat is kept, the milder will be the disease.

THE CONSTITUTIONAL TREATMENT.

The object to be accomplished by the constitutional treatment is to combat the effects upon the system of the toxic absorption from the throat. This, excluding the sequela of paralysis, bears a definite proportion to the throat deposit. It consists chiefly, as has been stated, of a toxic neuritis, with impoverished blood, etc. To combat its effects, there is no specific remedy. To place the patient under the best sanitary environments; to regulate the secretions and to maintain the strength by regular feeding and tonic remedies is the object to be attained. For this, a combination of corrosive sublimate and tincture of the chlorid of iron is first employed. The corrosive sublimate is pushed almost to its toxic effects, but is withdrawn if symptoms of gastro-enteritis present themselves. It has not given me the satisfaction in diphtheria that has attended its administration in scarlet fever. As soon as the necrotic condition appears within the throat, a combination of the chlorate of potassium and Basham's mixture is given. Basham's mixture is more easily absorbed than the tincture of chlorid of iron, and serves of better service in stimulating the function of the kidneys. The depressing effect of the chlorid of potassium upon the heart must not be forgotten. The condition of the heart should always receive

attention. The danger of heart paralysis from neuritis of the cardiac nerves or from endocarditis is always present, especially during convalescence. The least disturbance in its rhythm, or the first appearance of a slow or a rapid pulse, calls for special treatment. Strychnia, or the tincture of nuxvomica, digitalis and stimulation are employed according to the condition of the heart's action.

Regular feeding, during the day and night, is very important, because diphtheria, more than any of the acute diseases, tends to exhaustion. In difficult deglutition or continued nausea, nutritive enemata are resorted to. The food is given hot, and in liquid form. Milk should be the basis, and to vary the taste, which is an important item, may be given in coffee, tea, cocoa, wine, oyster juice, clam juice, with vanilla, nutmeg, or eggs, or in the form of whey, junket, gruels, custards, etc. If curds are vomited, peptonize the milk; beef juice and beef pulp should also be given.

For laryngeal invasion, steam inhalations are given. The steam is medicated with turpentine, eucalyptol or carbolic acid, introduced into a tent under which the patient is continuously kept. Calomel is given internally with stimulants; vomiting is early induced and if dyspnea is not relieved, intubation or tracheotomy are recommended.

For nasal complication, indicated either by the odor or the discharge from the nostrils, the nostrils are syringed every half hour or hour with a warm solution of corrosive sublimate.

THE PREVENTIVE TREATMENT.

The importance of this treatment will be admitted when I tell you that 2,624 cases of diphtheria were reported to the Board of Health of Philadelphia, from January 1 to October 28, 1893, with 750 deaths, making a death-rate of 28½ per cent. During the same period, in Camden, 220 cases were reported to the Health Board with 56 deaths, making a death-rate of 25½ per cent. These are startling figures and prove that the principles of preventive medicine are not practiced to any great extent by physicians or executed by public health officials. Were cholera or small-pox present in either city to the extent that diphtheria prevails, both cities "would be up in arms."

To subdue the disease, isolation and disinfection must be insisted upon. These principles, as they relate to the patient, have been considered. Equally important is it that disinfection be applied to the premises. To insure the practice of isolation, cleanliness and disinfection in diphtheria, the people must be educated to the fact that the virus of diphtheria does not come from the breath of the patient, but from the sputa, the salivary and the laryngeal secretions; that the virus possesses the powers of life and development; and that it attaches itself to clothing and furniture, and in order to destroy it, the disinfectant must come in absolute contact with it and must be of such a nature as to destroy life. This education is the province of health officials, and if made a part of the policy of boards of health, the prevalence of diphtheria will be materially checked.

Blank Applications for membership in the Association, at the JOURNAL office.

Have you obtained a new member this year?

for him to again experience an impeded nasal respiration, bringing back not only the former disagreeable symptoms, but others in addition, for the operations themselves will assist by their irritation in exciting increased inflammatory action, the influence of which may extend to the brain; where it may manifest itself by the appearance of mental phenomena of various kinds.

It is chiefly because of futile efforts, as those just detailed that many victims of nasal inflammation, and they form the *other class* of dissatisfied patients above mentioned, come to the conclusion that "the disease can not be cured." This man now belongs to the "other class," and for illustration, his case will be followed still further. He is now thoroughly convinced that nothing can cure him; he has tried everything, consulted the most renowned medical men, and yet the complaint is on him in a worse form than ever. His nasal inflammation has now extended into the ethmoidal sinuses by continuity of structure, thence into the brain by blood vessels and nerves, as demonstrated by the exhibition of such common mind troubles as the following: he is forgetful; he is cross; he can not attend to his business as formerly; he can not think consecutively; his mind flits from one subject to another; he can not even read with satisfaction. When in his office he can not hold his mind on his business long enough to attend to it, and when in his bed he can not take his mind off it; consequently he can not sleep; his appetite is poor or capricious; he loses all ambition; becomes melancholy and nervous; is fearful that his mind will become seriously affected, and as a consequence of all this he is dreadfully tired of life.

"*Nervous Prostration.*"—It is a popular thing to flatter such a person by telling him that he is suffering from mental over-work and "nervous prostration" in consequence thereof. This diagnosis has some apparent ground, for such an individual is excessively "nervous" in disposition and actions. Generally if such a person accepts the advice urged upon him by his friends, and rests his brain, he will find but temporary relief from this enforced absence from his business. No healthy man's brain works "nervous prostration." The very great majority of those who are supposed to be affected with this popular ailment are really suffering from *undiscovered naso-mucositis inflammation*. In such cases, the chronic disease has been twenty or more years located immediately under the anterior portion of the brain. This portion of the mental organ being intimately connected with the ethmoidal cells, by both blood vessels and nerves, must seriously affect the brain, consequently affecting the mentality of the individual. It will be useful in this place, to see how this diseased action is brought about. This we can learn by an examination of the anatomy of the nasal passages and ethmoidal cells, and see how they are connected with the brain.

Vascular Connection Between the Nasal Passages and Ethmoidal Cells and the Brain.—The cranial carotid artery gives its first branch, the ophthalmic, to the eye, and this sends two branches to the nasal cavities. The first of the latter, the posterior ethmoidal artery, passes through the posterior ethmoidal foramen, supplies the posterior ethmoidal cells, and ascending, enters the cranium, gives off a meningeal branch which supplies the adjacent dura mater, then descends and enters the nose through an

aperture in the cribriform plate and is distributed to the superior turbinate processes. The anterior ethmoidal artery, also a branch of the ophthalmic, passes through the anterior ethmoidal foramen, supplies the anterior ethmoidal sinuses and, entering the cranium, divides into a meningeal branch, which supplies the adjacent dura mater, and a nasal branch, which descends and again enters the nose through an aperture in the cribriform plate, and is distributed to the middle turbinate processes. It is seen that the anterior portion of the meninges are stitched, as it were, by these arteries to the upper portion of the nasal passages, giving an excellent opportunity for the transference of diseased action from the nasal passages and ethmoidal cells to the brain; and experience proves that such is frequently the case, as in the case of "nervous prostration" above mentioned.

Relieve the naso-mucositis, and the "nervous prostration" occasioned by the transference of the nasal and ethmoidal disease to the brain, will be relieved also. Instead of calling the ailment, "nervous prostration," it should be called a *mental and physical debility*, for such is the condition of the patient.

In relieving the nasal and ethmoidal trouble, the stomach is relieved of the continual unconscious flow of disease-producing, muco-purulent secretion that is passing into it day and night from the pharyngo-nasal cavity, which in turn occasions indigestion and in this way *physical debility*. The relief of the nasal and ethmoidal inflammation also relieves the secondary or brain trouble which occasions the *mental debility*. That the exercise of the brain is exhausting to such a person is apparent, but this is not from mental over-work *per se*, but because this organ is weakened by the nasal disease, whose seat is located immediately under it. Remove this inflammation, and he can perform severe brain work, not only without exhaustion but with pleasure, just as the healthy muscular man performs physical labor with pleasure.

This course is but rarely pursued. The victim of so-called "nervous prostration" usually visits some of the popular springs in this country or in Europe, and experiences a little relief, but this is the most. Such a person, having lost almost all confidence in medical men, rarely visits a physician of his own motion. He is usually urged to consult some one, or is taken there by a friend. His story is a long, wearying one. It appears as though it was his effort or aim to prove that he can not be cured by any means or method.

Despair of Being Cured.—He is exactly in the opposite state of mind from what he was in at his first visit to his physician, at which time he thought that his painless disease should be cured in a few months at most, and was astonished when informed that it would take "three or four years" of supplementary courses, before he could be permanently cured. He has now wasted three or four years in the use of what he thought was as good, and certainly very much cheaper means of cure. Consequently, he is in a far worse condition than when he first consulted the physician, instead of being perfectly well, as he could have been.

Can such an individual be so treated that he will lose all of these most distressing symptoms? Yes, but they will not all disappear at once, nor any of them in a short time. It will take a greater number of treatments than when he first presented himself;

improvement will take place during the first few weeks more rapidly than afterward, for the reason that many of his most disagreeable symptoms are due to acute inflammation, which yields in a comparatively short time to local and constitutional treatment, but the chronic inflammation, which means enlarged blood vessels of the nasal passages and brain, diminished function of the mucous glands of the nose and stomach, and perverted action of many of the nerves of these health controlling organs, yields only after several months of preliminary treatment followed by several years of supplementary courses.

"Years?" says some one. Yes, is not this far preferable to *never*? Is not even very slow improvement far better than slow increase of disease, as well as the increase of the severity of its many mental sequelae?

RECURRENCES.

"Will the catarrh return after I am cured?" That is a very proper question and is nearly always asked by patients. A fretful medical man, fretful because he may be himself a victim of reflex naso-mucositis, might answer by asking the following questions: "Is it possible for me to treat you for a fractured arm so that you could not break it again? Could I cure you of a burn so that you could not burn yourself again? Can I treat you for a cold, and its effects on the mucous membrane, so that you could not take another cold if you tried to do so? In other words, can I cure you so that you could not expose yourself again? Or shall I rather try to cure you of your habits of exposing yourself to colds and other irritating influences?"

While these answers are in every respect answers to the patient's questions, yet they do not give enough information, such as to teach him how to prevent the return of the disease, a matter of very great importance to him.

Here are the answers I almost invariably give:

1. "Yes, the disease will be certain to return if you continue your former careless habits of life, using no precautions to prevent taking cold, and if you continue to use tobacco and stimulants, and be indifferent in regard to clothing; that is, if you are not cured of the customs and habits that induced the disease, showing the return of the disease will be entirely due to your own fault."

2. "No, the nasal trouble will not, or more properly can not, return if you live consistently with the laws of health. How is it possible for it to return if proper care is taken?"

"To prepare a person so that he will be affected with chronic naso-mucositis, one must expose him for a number of years so that he will take numberless colds, or must cause him to commit excesses for many years. I challenge any one to produce, as it were, a case of chronic nasal disease in any other way."

"After one is cured of chronic naso-mucositis, the disease can not return unless the patient again commits the same acts that produced it. Being cured, the mucous membrane of the nasal passages is in as healthy a condition as that of the mouth or eye. It is in the diseased eye and the diseased nasal passages that cold is taken. An eye in a normal condition will not be affected by colds, neither will a normal, that is, a cured nasal passage. One will take a cold in a fractured arm before, not after recovery.

"If one has been treated for several months, and continues to take cold, even when he is doing the utmost to prevent it, this proves that he has not been cured, for a cured person would not take cold, he is greatly exposed, and that he is a victim of disease and may be months."

"No person, after one, second, or third course of treatment for naso-mucositis, is so much cured that he is free from symptoms as severe as he had previously to being treated. He is, however, so cured that he has no nasal trouble at all. If he does, and is largely without it, it is his own fault, and he knows it and does not care to change his course of life to prevent it."

It is certainly a very proper as well as a very reasonable request to make of patients, that they will strictly observe the conditions of health, as they would it suffering from any other disease; that is, that they use their utmost endeavors to prevent a renewal of the causes of the disease.

Is this possible? Yes, always possible. It is not because of the inability of patients to discontinue the disease producing habits and customs, or to conform to conditions that will assist in bringing about a recovery, that the disease returns. Many times it is on account of ignorance and many times because of the strong hold that these customs and habits have upon them.

What can be Promised.—As a general rule, if the patient with uncomplicated naso-mucositis inflammation, who is under fifty-five years of age, will take care of himself and receive a perfectly non-irritating local treatment and suitable constitutional treatment, he will recover entirely. He will notice an alleviation of all the acute symptoms immediately after he commenced treatment; usually a patient under thirty-five years of age notices an alleviation and on the first day. With every grade, all violent symptoms disappear permanently in a few weeks, at the farthest. If the patient continues to observe the laws of health and receive the supplementary courses upon the completion of his *first course*, he will in a few years, at farthest, lose all tendency to a recurrence of the disease. The mucous membrane of the nasal passages, throat and ears will have regained its normal resisting power so that usual exposures will not result in colds as formerly. Such a patient may, once in a year or so, take a little cold in the head, but only upon unusual exposure. These colds will not be nearly so severe nor last so long as those formerly contracted. Should one or two local treatments and suitable constitutional treatment be received, every vestige of inflammation will quickly disappear, not to return until the patient again unusually exposes himself.

During this time and after this time such a person's life will not be disturbed by any disagreeable physical or mental symptoms as formerly; in other words, *he will be in a healthy condition*. A grand result, indeed a result, I am sure, that means many additional years of life. Being in health, if he lives in obedience to the laws of health, of which he should not be ignorant, he will remain healthy. His continued health will be the great reward of his small services to the goddess Hygieia—a goddess who never allows her devotees to go unrewarded.

Those patients of the fifth grade, who are over fifty-five years of age, will also be almost as quickly relieved of all painful symptoms as those of the fourth grade, but they will require a few treatments

each fall and spring during life to maintain them in continuous relief, although as already stated, a great many in this grade do pass one of two, or more, years without requiring a treatment. If the great pathologic changes that have been taking place during many years are kept in mind, I am sure no complaint would be expressed at the incompleteness of the cure, especially so when the patient is experiencing relief all the time that he is taking the supplementary courses, and really feels, not only entirely free from disagreeable symptoms, but would coincide with his physician, were the latter to assert that the complaint was completely cured.

THE TORSION OF ARTERIES FOR THE ARREST OF HEMORRHAGE.

Read at the Section on Military Surgery, at the First Pan-American Medical Congress, Washington, D.C., September 1893.

BY J. B. MURDOCH, M.D.

PITTSBURGH, PA.

To the members of the National Association of Railway Surgeons who were present at the meeting held at St. Louis in May, 1889, this paper will contain little that is new. The interest taken in the subject at that time was so great, and the discussion which it elicited so animated, that I am encouraged to bring it before this larger audience of the Pan-American Congress. The subject is, in my opinion, so important that every surgeon should be familiar with it. Since the reading of the paper referred to, I have continued to practice and to teach this method of controlling the hemorrhage from wounded arteries and veins, and increased experience only confirms me in the value of this method as a hemostatic. What I shall now say is a reiteration of what I have already said, with the addition of a later and larger experience.

There is no subject of greater interest to the practical surgeon than the arrest of hemorrhage. This remark is equally true, whether the hemorrhage comes from a wound accidentally inflicted or made intentionally by the surgeon's knife. Without the means of stopping the flow of blood from bleeding vessels the surgeon's art would be greatly crippled, and surgical operations where blood vessels must be divided would be impossible. There is no sight so appalling as a formidable hemorrhage. When a large artery is opened the blood gushes out in an angry stream, the face becomes pale, the color leaves the lips, the respiration becomes sighing, the heart fails to beat, and death soon closes the scene. Surgeons from the earliest ages have shared with the people this dread of hemorrhage, and have ever been striving for the best means for its control. Upon no subject has our profession been more conservative than upon this one, the arrest of arterial hemorrhage.

Since the time of Celsus, notwithstanding the numerous methods which have been proposed for this purpose, but two, viz.: the actual cautery and the ligature, have received the endorsement of the profession. But if the profession has been slow to endorse new methods, its confidence once gained has been most readily and willingly surrendered. From the time of Archigenus, who practiced in Rome shortly after the time of Celsus, up to the time of Richard Wiseman, a surgeon to King Charles II, the red-hot iron was the standard method employed. Thus this

method of checking hemorrhage after amputation not two centuries ago, was the same as that used for fifteen hundred years previous. The pertinacity with which surgeons adhered to the use of the actual cautery after Paré's great discovery of the ligature well illustrates the fear in which surgeons stood of hemorrhage. They had used, and had seen their fathers use, the red-hot iron, and notwithstanding the pain it caused and the interference with primary union, they were unwilling to discard the agent which long usage had taught them was successful.

In 1564 Ambrose Paré published his new discovery, which, to use his own language, "was taught him by the special favor of the sacred Deity." In this publication, as is well known, Paré demonstrated the value of the ligature as a hemostatic. But, owing to the extreme fear of hemorrhage, and the criminal neglect of surgeons, it was two hundred years before it was adopted by the profession, and then it came into favor through the influence of Sharpe, one of the surgeons of Guy's Hospital, London, who boldly championed the claims of the ligature to popular confidence. Since this time nothing has dislodged the position which the ligature has held as a hemostatic in the opinion of the profession. The efforts made by Sir James Y. Simpson of Edinburgh, to substitute acupressure, and the still more recent endeavor of Dr. S. F. Spier of Brooklyn, to substitute constriction for ligation have most signally failed. The same statement may also be made in regard to torsion as a means of arresting arterial hemorrhage. It has not received the support of the profession to any great extent, but, unlike the other rivals of the ligature, it has had champions for hundreds of years, and still holds a place as a valuable means of arresting hemorrhage. The subject has received but little attention from modern surgeons. The twisting of an artery to arrest bleeding is of ancient origin. It is spoken of by Celsus. A fact often observed, that an arm or leg may be torn from the body with the loss of only a few drops of blood, no doubt suggested the method. It has been advocated by such surgeons as Amussat, Dieffenbach, Schroeder and Syme. But the credit of bringing it prominently before the profession and establishing its efficiency is due to Mr. Bryant, the late distinguished surgeon of Guy's Hospital, London. At this Hospital the ligature is seldom used, torsion being chiefly relied upon. Mr. Bryant tells us, in the last edition of his "Surgery," that in two hundred consecutive amputations of the thigh, leg, arm, and forearm all the arteries were twisted, one hundred and ten of them being the femoral artery, and that in no case was there secondary hemorrhage.

Mr. Bryant says: "The physiologic arguments in favor of torsion are very great, and the practical advantages seem to be no less. After seven years' experience in its practice, applied to vessels of all sizes, the femoral being the largest, I have had no mishap. I have observed that wounds have united more rapidly and kindly, primary union being the rule. There has been less constitutional disturbance after operation, and consequently less liability to traumatic fever, pyæmia, and other complications, such as we are all too familiar with in the practice of surgery. I have had stumps heal in a week, and the patient up in two weeks, without one single drawback, rapid and uninterrupted convalescence following the operation.

That Mr. Bryant never lost his faith in the efficacy of torsion as a hemostatic, is evident, from the following letter received from him shortly after my first paper upon this subject had been published:

65 GROSVENOR ST., GROSVENOR SQUARE, LONDON, W.

January 11, 1887.

Dear Dr. Macleod:—I have to thank you for your *Pittsburg Medical Review* and your article on "Torsion." It is very gratifying to me to find my teaching has had such a happy influence in your country, and I trust I may not lead you into wrong ways. I adopt torsion as generally as ever, and so do most of my colleagues. The carbolic caught ligature is only a second best. How wonderfully our art is advancing, and how we reciprocally learn from one another across the Atlantic, and thus forge permanent links of friendship and good feeling. Ever yours truly,

THOMAS BRYANT.

Having given this experience of Mr. Bryant, I desire now to give my own as observed at the Western Pennsylvania Hospital at Pittsburg. At this Hospital, torsion is almost exclusively relied upon to check the hemorrhage from wounded arteries or veins, whether the wound be produced by the surgeon's knife or otherwise. My experience with torsion as a hemostatic, dates back to the year 1872, when I became a member of the Hospital staff. My colleagues had, previous to my connection with the Hospital, been twisting arteries as large as the radial and ulnar. The facility with which this was done, and the fact that the wounds healed kindly and without secondary hemorrhage, induced me to follow their example, at first timidly; but with success came confidence. Having been successful in the amputation of a forearm with no untoward result, I ventured next to twist the brachial after the amputation of an arm; soon after this, the axillary, and then the popliteal, and finally the femoral. And now, for the past twenty-one years, torsion for the arrest of hemorrhage after all surgical operations, has been the recognized and almost the only method resorted to at this Hospital. It is to be regretted that records have not been kept of the number of large arteries which have been twisted to arrest the hemorrhage.

The following is a table showing the number of arteries divided in cases of amputation, where torsion has been resorted to for the arrest of hemorrhage at the Western Pennsylvania Hospital, Pittsburg:

Femoral	160 times
Popliteal	24 "
Axillary	24 "
Anterior tibial	405 "
Posterior tibial	405 "
Brachial	115 "
Radial	59 "
Ulnar	59 "

There are two methods by which the torsion may be applied, as is illustrated by the accompanying cuts:

1. Limited torsion, and 2. free torsion. In the first method two pairs of forceps are required. The first pair grasps the vessel at its cut extremity and pulls it from the sheath. It is then seized by the second pair at a point from one-half an inch to an inch above the cut extremity of the artery, this second pair being held at right angles to the long axis of the vessel. The first pair is then given three or four sharp turns.

By the second method (free torsion) only one pair of forceps is required. It is the one recommended by Mr. Bryant as not being so likely to injure the external coat of the artery. And this is the method which was adopted in the cases which I have given.

A good pair of forceps is required which will hold the end of the artery firmly, which has no lateral motion, and with serrations blunt enough to obviate any laceration or cutting of the parts seized by the blades. The vessel should then be drawn out as in the application of the ligature, and three or four sharp rotations of the forceps made. In large arteries, such as the femoral, the rotation should be repeated until the sense of resistance has ceased. The ends should not be twisted off. In small arteries the number of rotations is of no importance, and their ends may be twisted off or not, as may be preferred. In all of the cases mentioned in the above table, free torsion of the arteries and veins was the method resorted to, to control hemorrhage.



FIG. 1. LIMITED TORSION.

In addition to these cases, of which we have a record, torsion has been the method resorted to in all other surgical operations performed during this period, such as amputation of the female breast, the removal of tumors, the excision of joints, etc. It is within bounds to say that torsion has been resorted to at this Hospital in thousands of cases without any mishap. We have had no case of secondary hemorrhage which could fairly be attributed to the method of controlling the hemorrhage, not only at the Western Pennsylvania Hospital, but in all of the hospitals in Pittsburg and the surrounding towns. Torsion is the method most frequently resorted to for the arrest of hemorrhage. Our surgeons, as a rule, have more confidence in it than in the ligature.



FIG. 2. FREE TORSION.

The following letter from Dr. J. J. Buchanan, the accomplished surgeon at Mercy Hospital, the second largest hospital in Pittsburg, bears out the truth of this statement:

August 30, 1893.

Dear Doctor Macleod:—In reply to your query concerning my experience with torsion as a means of controlling hemorrhage, permit me to say that I have used it constantly, though not exclusively, for twelve years for arteries of all sizes up to, and including the femoral, and have never known a hemorrhage to follow its employment. My colleague, Dr. R. W. Stewart, and myself, make frequent use of it in the surgical service of Mercy Hospital, both for arteries and the larger veins, and feel no anxiety concerning hemorrhage in our cases. Yours very truly,

J. J. BUCHANAN.

So, also, listen to what Dr. W. T. Huston of the Altoona General Hospital, says:

We find that torsion is just as safe as ligation, and gives nature a better chance for repair, for she has no foreign body to contend with as in ligation. At this Hospital I can safely say that there has not been one-half dozen ligatures in amputations during the last eighteen months, and we are having excellent results from the torsion of vessels. Dur-

ing the above mentioned time there have been over fifty major operations performed in which torsion was used for the control of hemorrhage. In all of these cases the patients were free from blood from twisted arteries—not even from the thoracic artery. We can, therefore, safely recommend torsion as an excellent means of controlling hemorrhage, and not resort to torsion altogether, as it has given the most gratifying results in the control of hemorrhage.

Commendations like the above could be secured from every hospital in Western Pennsylvania.

The advantages of torsion as compared with ligation are:

1. The greater facility with which it can be applied.

I am fully aware that this proposition is disputed, but to those who are familiar with both methods there can be no doubt that torsion is the easier of the two. For the ligation of an artery an assistant is required to seize the vessel and draw it out while the ligature is applied. For torsion, the surgeon requires no assistant. The vessel must be seized by the forceps in either case. In torsion it only requires three or four turns of the forceps to complete the process, which can be accomplished in as many seconds. When a ligature is applied, let the operator be ever so skillful, the thread may break or slip off the vessel; but if neither of these accidents occur, the process can not be accomplished in anything like the same time.

2. Torsion is a safer method, being less liable to be followed by secondary hemorrhage.

This proposition has been absolutely proven by the experience in the use of torsion at Guy's Hospital, London, and I have now given additional proof by the experience given in this paper.

3. Healing is facilitated because the wound is free from any irritating or foreign body.

This proposition is so plain that it should not require an argument. It was true before the antiseptic treatment of wounds had come into such general use, but is doubly so now. The catgut ligature is, no doubt, a safer ligature than the silk, for it does not require an ulcerative process for its discharge, and when this ligature has been made thoroughly antiseptic it is, no doubt, the best. But a ligature rendered thoroughly antiseptic is not always at hand; and those surgeons who have had the most experience with the antiseptic treatment of wounds will, I think, be the first to admit that, in spite of their most careful attention, septic germs are often introduced into the wounds by means of the ligature. Even after every precaution in preparation and preservation, the handling of a ligature in its application is a frequent source of infection. But there are other objections to its use. The catgut ligature may dissolve before the artery has become closed by the natural hemostatic process, or it may unwind. Both of these accidents have been the frequent cause of secondary hemorrhage.

Being a frequent visitor at the principal metropolitan hospitals, both in our own country and in Europe, I am familiar with the practice of our most skillful surgeons. It is exceedingly annoying for a surgeon to see a thread break or slip off an artery, when other means are in the effort to tie it, when I am sure that the vessel could be so easily twisted while in the grasp of the forceps. When I have asked many of our distinguished surgeons why they do not resort to torsion, the reply is always the same: "because it is too tedious."

This answer might have been given with equal force by Richard Wiseman in the seventeenth century, had he been asked why he did not resort to the ligature instead of the hot iron.

In a matter so important as the arrest of arterial hemorrhage, it is proper that surgeons should be conservative, but there is such a thing as pushing conservatism too far. In the torsion of arteries I claim we have an improvement upon ligation; its claims for recognition rest upon physiologic arguments which can not be shaken, and its reliability as a hemostatic has been proven by abundant experience.

CLINICAL NOTES.

A CASE OF GENERAL PERITONITIS CAUSED BY AN ENTEROLITH.

WITH A NECROPSY.

BY E. GRISWOLD, M.D.

SHARON, PA.

J. W., a strong, well built man weighing about one hundred and eighty pounds and 35 years old, had la grippe in the winter of 1891. He had been troubled for several years before with piles, but was seldom disabled entirely by them. By occupation he was a heater in a rolling mill. He never seemed to recover fully from the influenza; was troubled with frequent attacks of gripping pains in the abdomen, and seldom had a good appetite. Later, these attacks sometimes became so severe, while at his work, that he was obliged to leave his furnace and lie down for a while. From this time onward he was obliged to employ a helper who could attend to his furnace during these attacks. Not long afterward he began to suffer severe gripping and tenesmus at his stools. These distressing symptoms increased until they became so severe that he was afraid to be alone at stools, and was in the habit of having his wife or some one else with him. His stools were not abnormally frequent; nor did the pains connected with them seem to be modified by the condition of his piles. The pains centered, and radiated from, a point just below the umbilicus, and often affected the bladder. Notwithstanding the severity of his sufferings, at these times he would take a few minutes for reaction and rest, and then go to his work. He continued to do this until the conflagration which ended his life came.

On Monday morning, Aug. 6, 1893, about four o'clock, I saw him with his attending physician, Dr. J. H. Reed, and learned that he had been attacked with chills and violent abdominal pains about 7 A.M. on the day before. Dr. Reed did not see him until 3 P.M., when he found his suffering was intense, the pain centering largely near and below the umbilicus, followed toward the next morning, at the time of my visit, with pains down the right spermatic cord and retraction of the testicle, suggesting the possible presence of renal calculi. The temperature was 102 degrees; pulse 120; anorexia and nausea. The bowels had been loose the day before the attack. A careful examination led to the conclusion that there was general peritonitis. There was tumescence, tympanites, tenderness and partial rigidity of the abdominal muscles, with dorsal decubitus. The history of the case did not point to appendicitis, typhlitis or cecitis. Treatment, alterative doses of calomel, with

opium *pro re nata* and external applications of heat. The next day the pain, fever and nausea were slightly diminished, but the pulse was more frequent and weaker. There was progressive failure of the vital forces which, with a diminution of pain and increased frequency and weakness of the pulse, continued until death, which took place on Thursday at 2 p.m., a little more than four days from the attack. The bowels were slightly moved by enemata on the third day.

Necropsy.—An incision extending from the xiphoid cartilage to the symphysis pubis, revealed peritonitis involving all in sight. The vessels of the omentum were ingested so as to produce deep discoloration, and the entire visible peritoneum was involved. There were but trifling adhesions of the intestinal coils or of the omental folds, and this organ covered the intestines in its normal way. There was a small quantity of pus in the dorsal grooves each side of the spine, behind the intestines and mesentery. Upon searching for the caput coli and appendix it was found that there was no evidence of further inflammation about the cecum or any part of the colon or mesocolon than at other parts. There was simply peritonitis; no adhesions, no effusions, no infiltrations, no abscess. On raising the ileum from its dependent position, the cecal end of the appendix was brought into view. It was of normal size and less discolored than the surrounding peritoneum. It was attached to the anterior inner aspect of the caput coli and took a direction toward the median line of the body, with a slight upward trend. Following it with the fingers, it was soon seen to show signs of inflammation and to be attached to the ileum, which was here much thickened and discolored. On loosening it from its attachment to the ileum, its end was found to be bulbous in shape and of the size of a black walnut. This bulbous end was also adherent to the abdominal wall, just above the promontory of the sacrum. Having loosened it from its attachment, it was found to have been lying on the ureter of that side, and that the portion of the peritoneum covering the psoas magnus, and neighboring areas, was ulcerated and bathed in pus. The appendix was cut off close to the cecum and preserved. While examining the ulcerated area of the peritoneum and handling the coils of the ileum, a calculus was found. Its size was a little less than that of a filbert, its shape spheroidal, its surface irregular but without facets, and of a fawn color; the color much resembling that of biliary calculi. It was undoubtedly an enterolith. Searching for its place of escape from the intestinal canal, the bulbous end of the appendix was found to have a hole in it of sufficient size for its escape, and a cavity large enough to hold it. As the cecal end of the appendix was not enlarged, and there being no evidence of recent irritation or inflammation in that part of it, the conclusion seemed to be irresistible that the calculus was an old resident in the distal end, and that the inflammatory process and enlargement of the part containing the calculus had been the cause of the paroxysmal abdominal pains, and of the tenesmus and nauseating symptoms experienced at stool for some time before rupture and the onset of general peritonitis.

The literature of appendicitis, its concomitant and sequelæ, has been so copious of late that nothing less than an anomalous case would seem to invite a report. But the frequency of cases of peritonitis

and appendicitis in my practice of late, has led me to think that the light should be turned on whatever practicable. On making the diagnosis in this case, recovery was thought possible, though not probable. There was no satisfactory evidence that the case was caused by appendicitis; the malposition and adhesion of the appendix being of impossible determination. A celiotomy not later than the first day might have saved the patient if the calculus had been found and removed, but the finding and removal would have been more a matter of accident than of operative skill. The only symptoms of calculus, as already stated, pointed to the kidney. I regard this case as anomalous in the following particulars:

1. The presence of a calculus in the distal end of the appendix, adhesions to the ileum and ureter with a nearly normal condition of the cecal end.

2. The symptoms of renal calculus were caused, no doubt, by the adhesion of the accumulated or bulbous end of the appendix to the peritoneum over the track of the ureter, as well as the inflamed and ulcerated condition of that membrane.

AN IDIOSYNCRASY.

BY JAMES HARVEY RAYMOND, M.D.

(INDIANA.)

"A peculiarity of constitution in which one person is affected by an agent, which in numerous others would produce no effect."

It is not an uncommon occurrence in the practice of a physician to meet with a case wherein the judicious administration of a known harmless drug has produced alarming symptoms, and occasionally a case is seen in which unusual and unexpected effects are produced by different foods or even odors. This condition is known as "idiosyncrasy," and it is, at present, beyond the power of the physician to point out definitely a pathologic condition that may be considered a true etiologic factor. The best hypothesis yet offered is, that it is an exalted *calculus act*. I was told by Professor Walter S. Haines, of a clergyman in an eastern city, who, being the unhappy possessor of this peculiarity, was forced to request friends with whom he would dine, to allow no raw apples to be put upon the table else he succumb to the ill effect of their odor, which effect was a most distressing illness. Professor Haines also mentioned this peculiarity in a near friend who was the victim of the odor of the tuberose.

However numerous this class of cases may be, I am sure they are not met with every day, and it is for this reason that I am pleased to bring before the notice of the younger members of the profession a few interesting facts concerning the effects observed in a case following the administration of 5 grains of Dover's powder, the formula of which is:

R. Ipecac gr. ss.
Opul. opil gr. ss.
Sacch. lac. gr. 4.

Considering the physiologic action of the above we find the opium contains about twenty alkaloids, the most common of which are, morphin, codein, narcein, papaverina, narcotina, meconin, apomorphia, thebain and cryptopia.

The action of the crude drug and its various preparations is: Analgesic, hypnotic, diaphoretic, antispasmodic and narcotic. The alkaloids, with the exception of the last two named, thebain and crypt-

topia, are said to be anti-spasmodic and hypnotic, morphin being the most powerful in its effects. Thebain and cryptopia are spasmodic in their action, and in doses larger than gr. lss. may cause convulsions. One grain of opium is said to contain from 1-1500 to 1-100 grains of thebain and 1-3000 grains of cryptopia. Making due allowance for the anti-spasmodic effects of all the other alkaloids of the drug and other constituents, together with the minute quantity of those alkaloidal substances capable of producing spasms, it is unexpected and, I might say, phenomenal to witness a violent convulsion the outcome of a dose so small in quantity as 5 grains of Dover's powder, which would contain from 1-3000 to 1-200 grains of thebain.

I was called to attend a patient suffering with an acute bronchitis, age, 29 years, married and mother of two children, no organic disease of heart or other organs, family history good, past history good, general health good, not pregnant, pulse slightly accelerated, full and regular, temperature 100. I prescribed a saline cathartic and a simple expectorant mixture containing:

Ammonie carb.
Tinct. belladonnæ.
Syr. pruni virginianæ.
Syr. glycyrrhizæ.

I called the next morning and found the patient doing nicely, pulse and temperature normal. I ordered a foot bath, and 5 grains of Dover's powder, which was sent for and taken in my presence. In less than thirty minutes the patient was taken with a severe pain in the back, the most agonizing gastric pain and coldness of the extremities. Tonic contractions of the muscles and total loss of consciousness followed, lasting about ten minutes. The convulsions were epileptiform in character with no frothing at the mouth or biting of the tongue. Diligent inquiry revealed no history of epilepsy either in herself or family. The patient had taken at no time during the day anything of the nature of an irritant, nor could any drug or food be found in the house which afforded suspicion. I was greatly relieved when she regained consciousness and asked me if opium had been given her, stating she was always affected in this manner by opiates. She informed me that morphin caused most distressing cerebral symptoms, in fact "true delirium tremens," but no bodily pain or convulsions.

The practical deduction is, the advantage of taking a most thorough history of each case, and thus avoid the unnecessary and appalling experience that we are apt to meet at any time, if we neglect to inquire as to "idiosyncrasy."

NECROLOGY.

Dr. Paul of Havana, Ill., December 2.

Dr. W. J. Kelsey, of Cassopolis, Mich.

Dr. W. R. Berry of Gallatin, Mo., November 29.

Dr. Paul Hoffman of New York, December 2.

Dr. Alexander Guy of Oxford, Ohio, November 30, aged 93.

Dr. John E. Hugg of Alma, Wis., aged 86, died November 20.
... the first physician in the County of Buffalo

Dr. Francis Hagaman of Montgomery County, N. Y., died December 7 at Amsterdam, aged 74 years. He is survived by two daughters.

Dr. W. J. B. Baird of Seattle, Washington, died November 30, after a short attack of rheumatic fever, complicated by chronic valvular disease of the heart.

Dr. Samuel Moore Logan, formerly of East Boston, died recently in Riverside, Cal., at the age of 65. Dr. Logan was graduated from Harvard Medical School in 1861.

Dr. William Caswell, a Brooklyn physician, was found dead in his bed December 8, at his home, 986 Hancock Street, in that city. Heart disease is believed to have been the cause. He was 62 years old.

Dr. George B. Boyd, one of the oldest physicians in Scranton, Pa., was found dead in his bed at his residence. He was 65 years of age, and had practiced medicine in Scranton for nearly thirty years.

Dr. D. S. Sampsel, Sr., died December 10, at Ashland, Ohio, aged 71 years. He had served two terms as Mayor of Ashland and was mentioned for that office next spring. He was a leading candidate for Congress in the convention which nominated M. D. Harter three years ago.

Dr. N. L. Luck of Penn Yan, N. Y. He was one of the prominent physicians of that village and an officer of the Yates County Medical Society. The deceased was about 50 years of age, and had resided in Penn Yan over fifteen years. He leaves a wife and one son, Loren, who has always lived in Penn Yan.

Dr. E. H. Bowman, at his home in Andalusia, Ill., November 30, of pneumonia, after an illness of only a few days. He was 77 years old. Mr. Bowman was the oldest physician in this county, also the oldest member of the Illinois and Iowa Medical Society. During the war he was Surgeon of the 27th Illinois Infantry, General W. A. Schmidt's regiment.

Dr. James M. Bowling died November 30 at his residence in Nashville, Tenn. Dr. Bowling had long been a conspicuous figure in Nashville and was noted for his wealth and keen business sagacity. He was born in Adairville, Ky., seventy-seven years ago, where he married Miss Lucy E. Snadon, a lady of wealth and culture. Dr. Bowling was a practicing physician for many years, but retired some years since. He leaves a wife, but no children.

Dr. Roswell G. Bogue died in Chicago, December 8, at his home, No. 5 Washington Place. Dr. Bogue was born May 3, 1832, in Louisville, St. Lawrence County, New York, the son of Warren S. and Sallie Underwood Bogue. His education was obtained in the district schools and at Castleton Academy, Castleton, Vt. His early years outside of school were spent on the farm and in school teaching up to the time when he determined to follow the profession of medicine. Dr. Bogue studied medicine with Dr. Harmon Gay at Columbus, Ohio, and graduated from the College of Physicians and Surgeons in New York City in the winter of 1856-57. He came to Chicago in the early spring of 1857 and practiced medicine continually until he was disabled by total blindness in 1888. Dr. Bogue was appointed Surgeon of the 19th Regiment, Illinois Volunteers, in August, 1861, and continued in the service in the Army of the Cumberland until the regiment was mustered out near the close of the war. He participated in the battles of Stone River and Chickamauga and the Atlanta campaign. Dr. Bogue helped to organize the Cook County Hospital, and for thirteen years was one of the attending surgeons. He was the first Professor of Surgery in the Woman's College. He was also the attending surgeon in the Hospital for Women and Children during the years following its organization, and was Consulting Surgeon at the time of his death. He was also Consulting Surgeon of the Presbyterian Hospital and St. Joseph's Hospital. Dr. Bogue leaves a widow and two daughters, Mrs. Dr. Hough and Miss Lucy Bogue.

THE

Journal of the American Medical Association

PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE

PER ANNUM, IN ADVANCE \$5.00

SINGLE COPIES, 10 CENTS

Subscriptions may begin at any time, and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,

536 N. WABASH AVE., CHICAGO, ILLINOIS

F. J. REIMAN, LONDON AGENT, 11 ADAM STREET, STRAND, LONDON

W. H. LOWDERMILK & CO., WASHINGTON, AGENTS.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or Local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Dunsigson, Lock Box 1274, Philadelphia, Pa., sending him a certificate of statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues and subscription for THE JOURNAL. A certificate as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

All members of the Association should send their Annual Dues to the Treasurer, RICHARD J. DUNSIGSON, M.D., Lock Box 1274, Philadelphia, Pa.

SATURDAY, DECEMBER 16, 1893.

GRATUITOUS VACCINATIONS BY BOARDS OF HEALTH.

The newly elected President of the New York County Medical Society, DR. SENECA D. POWELL, in his inaugural address takes occasion to find fault with the city sanitary authorities for the too liberal and indiscriminate proffers of vaccination made to people who are abundantly able to employ practitioners—their own family doctor for example—to do the vaccination. He does not censure the special corps of vaccinators so much as the Board that employs them. The subordinate officers simply obey orders and use the various aggregations of unprotected persons whom they have found in large dry-goods stores, and the like, to swell their reports of a large number of proffers of vaccination, and a large number of operations performed. The vaccinating staff can not with justice be charged with any other fault than that of over-zeal, but the effect upon the opportunities of the family physician are curtailed in consequence of this zeal of duty. This of necessity gives ground for complaint. DR. POWELL does not complain of the zealous work that may be done in the crowded tenement houses, lodging houses, and in the poorer localities, but when free vaccination is furnished in the offices of rich corporations and in the commercial exchanges, DR. POWELL asserts that there has been unjust interference with the province of the profession. It is tantamount to an abuse of office power and opportunity, and right-minded medical men, if in official control of the Board of Health, should see to it that the subordinates should not do too much free work. Few reputable physicians consent to do work for rich corporations without an adequate recompense, and there is no good reason why the employes of our Boards of Health should be put in a position where they may feel compelled to render unpaid services. DR. POWELL held up as a bright

and shining example, the corporation lawyers of rich companies, who he says, "never belittle their professional standing by charging any other than the largest regular fee." We are not sure that DR. POWELL is correct in his premise, unless he hedges himself behind a very strong definition of the words, "reputable lawyers." It may be that he is arguing in a circle—the *locution checki*. We have met with lawyers that departed somewhat from the full fee bill rather than lose a rich corporation. However that may be, we believe that the notice taken of this subject in a bold way, will effect a change for the better in some official quarters.

If there is danger that the vaccination will be done inefficiently, or not at all, let the Boards continue to vaccinate rich and poor alike, but let them charge those able to pay, and let the sum thus created be deposited in the public treasury to the credit of the Board.

AUTHORITY WHICH CAN NOT BE CONFERRED UPON BOARDS OF HEALTH.

No law or ordinance can be valid which by its terms authorizes a board of health to grant one person a license, and refuse another, under the same circumstances. For example: an ordinance is void which is intended to confer upon a board of health, or upon the board of health and common council of a city, the undefined power of determining by whom, in what location, and as to the character of the building in which the business of tallow chandleries, soap factories, glue factories, slaughter houses, magazines, tanneries, or other hazardous trades or business may be conducted. If it be conceded that power exists to declare a tannery, or any other business, a nuisance, and to provide for its summary abatement, or if it be conceded that such business is a nuisance *per se*, the power to permit such business by express license ought not to and can not exist. But if such business, by reason of its location, the character of the building in which it is conducted, or the manner in which it is conducted may become a nuisance, the most that can be claimed by a city is the power to regulate or to abate such business.

The Supreme Court of Indiana so deciding, Nov. 2, 1893, in the case of the City of Plymouth v. Schultheis, finds a precedent in a former case in which it decided against the validity of an ordinance requiring that hospitals should be conducted only upon permit, to be secured upon notice and application to the common council and board of aldermen. It was apparent, it said, in that case, that under the ordinance, if valid, the common council and board of aldermen had the power to grant or refuse the license in any given case at their mere pleasure, and that no one could conduct or maintain a hospital within the city, however harmless or beneficial it

might be, except by their consent. No law could be valid which by its terms would authorize the passage of such an ordinance. What the Legislature can not do directly in this respect, it can not authorize a municipal corporation to do.

THE DAVID LIVINGSTONE MEDICAL COLLEGE IN LONDON.

DR. HARFORD BATTERSBY, formerly a medical missionary in the British dependencies along the River Niger, has become the principal of a new medical school in London. The object of this school is to furnish at the lowest possible cost, the training that will be most useful to intending missionaries, very few of whom are able to spare the years of study and waiting that are essential to the regular English school and qualifications. As a large number of the missionaries sent out from British countries are destined to some tropical station, it is a matter of the first importance that those persons should be instructed as to the hygiene and principal maladies of hot climates. A little knowledge of surgery is also considered important, not only as regards the welfare of the missionary who may perchance be located hundreds of miles distant from any surgeon, but also as to the poor heathen. On this latter point, it may be said that, taking parts of Central Africa for example, wars, witchcraft and slavery, famine and a long list of violent causes spare neither the cradle nor the grave; it has been stated that it is the exception, rather than the rule, for the natives of that part of the world to die a natural death. Scars, maimed limbs and the loss of vision are seen everywhere. Under circumstances such as these, a little knowledge of surgery—being better than no knowledge at all—is not a dangerous thing, as the adage has it. The college has the free services of a corps of able teachers, and the missionaries will get their clinical experiences by spending a part of their time in the God-forsaken slums of East London.

THE ASSOCIATION.

Let every medical man whose eye may glance at this column, ask himself whether or not he would like to see the ASSOCIATION so strong in numbers that its voice would be authoritative.

Let him reflect that with a great membership, would come the financial ability to purchase articles; to increase the number of pages; to illustrate articles better; to have better typographical work; to have more machinery; in a few words, to have a journal of the highest class, without increasing the cost to individual members.

Let him consider that a large membership will be a means of encouragement, by prizes or otherwise, to original investigators. That it can influence medical legislation and retard or stop the passage of

bad measures. Having thus reasoned, let him ask how he can personally lend his aid toward the accomplishment of these ends.

Let him sink personal feeling or disappointment; his own friends may be in command next year, if they are out now. Let him use his personal influence to induce every worthy physician of his acquaintance to become a member of the ASSOCIATION, or a subscriber to the JOURNAL. His duty to the ASSOCIATION will then have been accomplished. Let us have no stopping place until our membership surpasses any other.

Are there wrongs in the ASSOCIATION? Correct them by appearing in your place when the ASSOCIATION meets, or write your views to your JOURNAL for publication. In our ASSOCIATION the majority govern; if your views are correct, you can always have an intelligent support in the ASSOCIATION.

Help your JOURNAL property, of which you are part owner, by giving it all the influence you can wield in its favor. To ask a man to help build up his own property is surely not asking him too much.

Let us start the new year with a great rush; every new subscriber to your JOURNAL makes it easier to obtain paying advertisements, and these in turn add to the value of your property.

Write for your JOURNAL; for two years try to increase the membership by individual effort, each within his own circle, and the great work of organization will be over.

THE RICHARDSON MEMORIAL ADDITION TO TULANE UNIVERSITY.

The dedication of the new Medical College building of the Tulane University took place November 4.

After a prayer by Archbishop Janssens, Judge Chas. E. Fenner, President of the Board of Administrators of the Tulane Educational Fund, then formally presented the building to Col. William Preston Johnston, President of Tulane University.

His address was as follows:

The brief and modest inscription which attracts the attention of all who enter this structure informs them in simple words that "This building, dedicated to medical science under the auspices of the Medical Department of Tulane University of Louisiana, is erected by Ida A. Slocumb in memory of her husband, Dr. Tobias Gibson Richardson, Professor of Anatomy 1858-1872, Professor of Surgery 1872-1889, Dean of the Medical Faculty of 1865-1885." It is thus recorded that Dr. Richardson devoted thirty-one years of his life to active service as a Professor in the Medical Faculty, during twenty of which he served in the responsible office of Dean, the Executive and President of the Faculty.

It may be added that when Paul Tulane consummated his noble design for the erection of the great University in this city which now bears his name, he selected Dr. Richardson as one of the original administrators of his noble trust. His services to the cause of medical education which had consumed the best years of his life, while losing none of their devotion to that cause, thus formed a broader field in the task of organizing a University embracing, not only medicine, but the whole range of the liberal arts and sciences. Into this task he threw the whole enthusiasm of his nature. His wise counsels, educational experience and persistent energy were given without stint to the organization and development of the University in all its branches, and whether you stand in these halls specially devoted to medi-

cal science or in those devoted to any other department of the University, you may still justly say of him, "Si monumentum quaes, circumspice!"

I am not expected on this occasion to deliver a formal eulogy on Dr. Richardson. That grateful duty has been already performed by abler hands than mine. The administrators of Tulane education fund, the Faculty of the University, the Faculty of the Medical Department, the session of the church of which he was an elder, the various medical and educational societies of this State and other learned bodies, have signified their appreciation of his life and character in feeling and eloquent resolutions, which voice sentiments common to the whole people among whom his noble and beneficent life was passed. The last public commencement of the Medical Department was appropriately dedicated to the commemoration of the life and services of this great and good man, and all remember the eloquent and touching tributes which were paid on that occasion by the distinguished Dean of the Medical Faculty, who had been his colleague for so many years and his intimate friend, and by our eminent fellow-administrator, Dr. Palmer, whose matchless oratory derives added force from the deep affection and veneration with which he is regarded by all classes of his fellow-citizens.

On the 9th day of May, 1891, a letter was received from Mrs. Ida A. Richardson, addressed to "Hon. R. L. Gibson, President of the Administrators of the Tulane Education Fund," and saying in brief terms, "If the administrators will furnish a suitable site for a medical college I will contribute \$100,000 toward the erection of the building, to be paid from time to time as the work progresses." This letter was the consummation of a purpose which had for a considerable time been germinating in the mind of Mrs. Richardson with the full knowledge and sanction of her husband. It was designed by her as a monument and memorial of him, and was approved by him as the form in which her wifely devotion might best honor him. Although he did not live to witness the consummation of the work which we this day celebrate, he lived long enough to see it fairly begun and to experience the consolation afforded by the certainty of its completion.

The special committee appointed by the Board of Administrators selected as special agent one of its members, Dr. Edmond Souchon, who, with the approval of the Tulane committee and of Mrs. Richardson, was intrusted with the responsible duty of designing the floor plans and the interior arrangements of the proposed building. Dr. Souchon possessed rare qualifications for this duty, and while he acknowledges the invaluable advice and assistance which he received in every stage of the work from the able and distinguished Dean of the Medical Faculty, all agree that to him more than to any other is due the credit for the admirable floor plans and commodious interior arrangements which distinguish this structure, and that debt to Dr. Souchon has been acknowledged by the special inscription in his honor placed in the vestibule. These plans having been approved by the Medical Faculty and the Tulane committee, Messrs. Sully and Toledano, the eminent architects, were employed to embody them in architectural form and to prepare specifications, invite contracts and superintend the construction of the building. The work was prosecuted with all possible energy under the energetic supervision of our building committee, with the avowed purpose of having the building completed in readiness to be occupied by the Medical Department for the session of 1893-94. That purpose has been successfully accomplished.

The death of Dr. Richardson enlarged the scope of the original bounty of Mrs. Richardson, who then regarding it as strictly a monument to her husband, seems to have determined that not only the cost of the building, but the whole cost of completing the removal, furnishing and equipment should be at her sole expense. With this view she has given the administrators the considerable additional sums which have been necessary to accomplish these important purposes. And to-day this completed building, with all its new furniture and equipments, may be said to have been paid for by her, and to stand, free from all debt, as a monument to Dr. Richardson, erected wholly by his wife.

What a monument it is! How the costly sarcophagi, the lofty columns, the proud candelabra that adorn our cemeteries sink into insignificance beside it! These link the name of those whom they are designed to honor only with the past. This entwines it with the living future, associates it with active, persistent forces that continue to operate with expanding energy through succeeding generations, and thus, by ever renewing benefactions, vitalize and give

a common immortality to the name of him whose noble life inspired the purpose, and of her whose generous love executed it.

In behalf of the administrators of the Tulane education fund, I desire to express their profound appreciation of the wisdom, energy and economy with which this important work has been performed. The opinions of those most competent to judge, concur that this building, with its equipments and appliances in commodiousness and in complete adaptation to the complex requirements and needs of the most advanced medical and pharmaceutical instruction, compares favorably with those of any medical college in America, and that the result has been achieved at a cost far less than has been expended by other institutions in establishing accommodations by no means superior. With these extraordinary advantages with the incomparable clinical opportunities afforded by the great Charity Hospital, with an advanced and advancing standard of proficiency, and with a faculty of distinction, experience and approved ability, it is not difficult to foretell a brilliant future for this medical department which will reflect honor upon the University, of which it is a branch, and will vindicate the wisdom of the generous donor, and will hand down the memory of Dr. Richardson and his devoted wife to the blessings of untold generations.

And now, President Johnson, to you as President of the Tulane University of Louisiana, I am instructed by the administrators of the Tulane education fund to consign the care and custody of this building and its contents, to be devoted to the purposes for which it is designed, confident that under your wise supervision, with the cooperation of the Dean and Faculty of the Medical Department it will be so administered as to satisfy the wishes of the donor, to honor the memory of Dr. Richardson, to be a glory to the University, and to extend to this and coming generations the advantages of the best and highest medical education.

In accepting the property on behalf of the University, the President said:

Mr. President.—In your official capacity as President of the administrators of the Tulane educational fund, and on their behalf, you have delivered to me, as President of Tulane University, these buildings and grounds. This is in pursuance of your agreement with the State to build up a great University in the city of New Orleans. The Medical Department for whose use this splendid structure is designed, is by many decades the oldest branch of the University, and as its usefulness has extended to every section of the South, so has its fame spread as the years went by.

At a providential moment, when its requirements pressed heavily on its resources and expansion seemed a necessity of self-preservation, a beneficent hand was stretched forth to its aid, and in a brief space of time more than we dreamed of has been accomplished.

The gracious benefactors, your distinguished Board, and a friendly public to whom its worth is well known, all feel that in the hands of our Medical Faculty everything will be done for medical science and education that their resources will permit. The character of that Faculty as men, even more than their distinction as scientists, is a guarantee that this sacred trust will be employed.

It is therefore with pleasure and with a sense of profound gratitude to her from whom this gift came, and to the Spirit of Good who inspired it, that I commit this building and equipment to the custody of the Dean and Faculty of the Medical Department of Tulane University, for the uses for which it was designed.

In accepting the custody of the new college, as Dean of the Medical Faculty, Prof. S. E. Chaille, M.D. said:

Mr. President.—This great building and its spacious grounds and their valuable contents, the wide exceptionally well adapted to the needs of medical education, have been transferred through you from the University to the Medical Department, in order that its Faculty may occupy and utilize them. The Medical Faculty gratefully accepts this transfer, with full realization that the greater the gift the greater the obligation, and with firm determination that the responsibility, however great, shall be amply discharged; so discharged that the Medical Department of the Tulane University of Louisiana shall continue to be even more conspicuously than in the past the most famous and the most popular, as it is also the oldest medical college in the great Southwest.

The very warmest thanks are due to our colleague, Prof. Edmund Souchon, the agent unanimously chosen by the

Faculty to supervise not only the construction of the building, but also the supplying it with its contents; in fine, the agent to do the many and important things requisite best to adapt our building to the purposes of medical education. He has discharged his very onerous duties, burdened with endless and harassing details, with marked ability and conspicuous fidelity, and these virtues have yielded the very best results, because invigorated with the ceaseless and the enthusiastic zeal which springs only from labors of love. The Dean of the Medical Faculty gladly avails himself of this public opportunity to proclaim that the burden taken from his shoulders by his colleague was heavier than the Dean felt himself able to bear, and that his good friend, Prof. Souchon, discharged all the duties imposed on him better than the Dean himself could have done.

But of the memories of the living which most endear this structure to the Medical Faculty, none are as grateful, none are as loving as those due to the fact that our building came from the generous heart of a loving wife, from the gracious hand of a gentle woman of New Orleans, than whom there is not one better deserves to be and is more honored and more beloved.

Having briefly alluded to some of the grateful and loving memories already attached to our new building, still briefer allusion will be made to some of the hopes entertained by the Medical Faculty. But before giving expression to these I can not resist the temptation to state that the Faculty does not indulge any hope that our college, though its comparative superiorities are very great, is destined soon to become the ideal medical college which many dreamers idly anticipate and which is to have every possible need amply supplied and every professor endowed with the wisdom of Solomon and the perfection of saints. Were there no other obstacles to the realization of this vain hope, the very highest authority on the subject estimates that the ideal medical college would require not less than \$3,000,000 instead of one-fiftieth part of that amount invested in our college. As well as, and probably better than others, the members of the Medical Faculty realize the lack in this, as in every college, whether medical or not, of much that is desirable, and are in no need of criticisms, though these are often proffered gratuitously—if these criticisms be not destitute of practical suggestion which the Faculty will always highly prize as the ways and means by which whatever that is lacking can be supplied.

None the less, the greater resources now placed in the hands of the Medical Faculty, the past history of this Faculty and the recent prosperity of our college all unite to justify our very sanguine hopes. The hope that this college will become illustrious for the ability, fidelity, learning and eloquence of its Faculty, the hope that its students will be noted for exemplary conduct; noted for their zeal in utilizing the exceptional advantages here given them; noted for their devotion to this college, "the dear mother" destined to give them professional truth, and noted for the renown to be bestowed upon their college by their own honorable and prosperous careers.

The hope is also devoutly cherished that benefits so great will be bestowed on medical education, involving vitally as it does the highest welfare of the people, that our college will become an object of pride and affection, not only to the medical profession, but also to the people and not only to the people of New Orleans, but also to the people of every State of our dearest South and of all the States of our beloved country.

Prof. Edmond Souchon was then introduced by Dr. Chaillé. He gave a full and accurate description of the building and its contents. Dr. Souchon was warmly applauded as he closed his address.

The ceremonies were then brought to a close by Rev. Dr. B. M. Palmer pronouncing the benediction.

The building is composed of three connected buildings. The center one contains principally the lecture room, having over it the amphitheater and two wings which contain the laboratories, dissecting rooms and museum.

The basement is well lighted, and contains a study room for students, a recitation room, and an embalming room.

For the microscopic, chemical, pathological, bacteriological and pharmaceutical laboratories are supplied with the most improved apparatus and form one of the most complete and best constituted in this country.

SOCIETY NEWS.

Medical and Chirurgical State Faculty of Maryland.

Semi-Annual Meeting held at Annapolis, Md., Nov. 22-23, 1893.

DR. GEORGE H. ROBE, President, in the chair; DR. WILLIAM B. CANFIELD, Secretary pro tem.

FIRST DAY—TUESDAY, NOVEMBER 22.

DR. ABRAM CLAUDE of Annapolis, delivered the

ADDRESS OF WELCOME.

In which he heartily greeted the Society and bade them welcome in the name of the Anne Arundel County Medical Society.

DR. GEORGE H. ROBE then delivered the

PRESIDENT'S ADDRESS.

In which he thanked Dr. Claude and the medical profession of Anne Arundel County, and referred to the growth of the Society. He suggested some very important and practical changes which were acted on in the business meeting of the Society.

DR. WALTER B. PLATT then read a paper entitled

A CASE OF LAMINECTOMY; OPERATION ELEVEN MONTHS AFTER INJURY TO THE SPINE.

Hippocrates, who was such a voluminous writer, does not mention this operation. Paul of Eginna, was the first writer, nearly twelve hundred years ago, to notice this operation. It was generally fatal in its early days because it was not done with antiseptic precautions. Henry Klein, in 1814, was probably the first surgeon to do the operation. This patient died and the surgeon was censured. Many others after him reported fatal cases. It makes a difference whether the operation is done at once, immediately after the injury has been received, or some time after the injury. Fractured laminae are generally present with the fractured spine. The laminae become displaced and press on the cord. The operation should never be done to relieve the paralysis of Pott's disease until all other means have been tried and the patient is growing worse. Statistics show that over 80 per cent. of such cases recover without operation. In perfectly hopeless cases the operation is advised. His patient had first slipped on the stairs, and two weeks later he fell from a car, and one week after that he suddenly complained of extreme pain in the back and went to bed. There was found a curvature of the spine at the point of pain, and below this there was complete paraplegia with loss of sensation. Bad sores appeared, but there was no discharge of pus from any place except from the bed sores. The operation had been done about two weeks ago, and two parallel incisions were made to the inner side of the transverse processes and were joined by a transverse incision, making an H-shaped appearance. The hemorrhage was checked by pressure and the laminae of the fifth, sixth and seventh vertebrae were cut off. The flap was turned down for four inches and the dura was exposed; it looked healthy. The flap was replaced and no arteries were tied and the operation lasted one hour and twenty minutes. There was copious venous hemorrhage. He is at present writing, better, but still has skin anesthesia; there is no improvement in motion. In such operations the improvement in sensation comes first. The patient can lie on either side without fatigue, and no longer has night sweats as he had at first, although the most careful examination failed to show at any time any signs of tuberculosis of the lungs. Dr. Platt also showed a specimen from a cadaver to illustrate his paper.

In the discussion which followed, DR. RANDOLPH WINSLOW said he had been considering the propriety of doing this operation, and he related several appropriate cases from his own practice, cases which from falls and other accidents had fractured some part of the spinal column, and in whom an operation had not been successful. In one case there was complete paralysis below the eighth nerve, and in another case there was paralysis from the clavicles down, and in neither case did an operation do any good, and he did not put much belief in laminectomy.

DR. GEORGE J. PIERCE said that in the last few years he had seen several such cases, and in some he had recom-

mended an operation with bad results. He does not know which cases should be operated on. If the cord is cut entirely across, an operation will do no good. The spinal cord in human beings will not unite to any extent, as it does in dogs after section, and as the nerves do. If an operation is to be done it should be done at once, for if we wait until secondary degeneration has set in it will do little good. The operation should be done a few days after shock, hemorrhage and effusion have passed away; then operate as we do in other cases. There is not so much injury done by the pieces of bone as by effusion and tissue formation around the cord.

Dr. PLATT, in closing, said that the prognosis of this injury and of the operation depended on what part of the spinal column was injured. In general, the nearer the head the less chance there was of success. We should always consider laminectomy as we do trephining of the skull; in fact, laminectomy is nothing more than trephining and the mere operation is not of itself dangerous; it is only the injury that is to be feared. If the body of the vertebra is fractured we can expect little. Hippocrates gives good advice on this point.

Dr. J. H. BRANHAM then read a paper entitled

TUMORS OF THE SUPERIOR MAXILLA,

In which he gave an extended account of his method of operating in such cases, and exhibited specimens illustrating the subject.

Dr. RANDELL WINSLOW read a paper on

AMPUTATIONS,

In which he said that since the introduction of rapid transit in our large cities, surgery of all kinds had increased, and particularly was there greater necessity for amputations than before. He considered the condition of the blood supply to the injured parts the most important condition for a successful result in such operations. He then related several cases and mentioned complications such as tetanus.

Dr. J. M. T. FINNEY said he would like to emphasize a remark of his late instructor, Dr. John Homans of Harvard, who was Professor of Surgery there. He said that any fool could amputate a leg, but that it took a surgeon to save it. Dr. Finney thinks there are other methods than amputation and Thiersch's skin grafting is one. There seems to be a tendency to save limbs entirely useless for a future amputation. This may be a good thing, because a stump made from a later amputation in which the parts are in good condition is a much better stump than the one made at the time of the injury. All these things must be taken into consideration. There is no question so important as whether we should amputate the limb or not. Another point Dr. Winslow had made was the time of the operation. He had recommended waiting until reaction from shock had set in. The majority of cases are much better operated on at once unless the shock is very severe. Dr. Winslow referred also to the question of tetanus; it does occur in a certain number of cases, but the bacillus tetani is anaerobic and grows best where the air does not have access to it. In a bullet wound, or punctured wound from a toy pistol or rusty nail, there is danger of tetanus, and as most earth so often contains this bacillus, it is carried in with the object wounding and stays in the wound. This can be guarded against by laying such a wound open freely, the more freely the better.

Dr. WINSLOW, having been called from the hall, was able to make no reply to these remarks.

Dr. WILLIAM T. CATHELL then read a paper called

A STUDY OF THE EFFECTS OF TOBACCO ON THE THROAT AND NOSE.

He divided those who used tobacco into three classes: those that tobacco did not injure at all, those that it injured to a slight degree and those to whom it was a poison. The oil and nicotine are the poisonous ingredients. He condemned especially the short pipe and the stump. He thought that the pipe might be the exciting cause of cancer of the tongue and lips, and tobacco might cause polyp. He painted a very sad and painful picture of the evil results of using this baneful weed, and especially considered it injurious to the young and growing.

Dr. C. BREXIE, Taneytown, Md., did not think that physicians could dwell too much or too strongly on the harm which tobacco does to growing boys, but he thought that the rest of Dr. Cathell's indictment was altogether too severe and not supported by facts and sufficient proof of his statements. For his part he did not believe that tobacco had ever caused cancer or polyp. The very common rem-

edy among people in the country is tobacco. I do not get tobacco leaves or a wet squid from a friendly neighbor, put on a fresh wound and never removed until it cures and recovery is perfect. He has seen this often, and while he does not advocate it, he knows that the wound gets very bad whether the tobacco does it or not it is not easy to say, but the wound certainly never gets worse from it. It may possibly be a case of post hoc. Chronic conditions of the nose and throat are as common in the country among women as among men, and women do not use tobacco as men do.

Dr. WM. H. WOODHUGHED heartily with what Dr. Bixie said, and was glad to hear his remarks after the gloomy picture presented by Dr. Cathell. There is very little evidence to show that tobacco produces organic or malignant disease. The mechanical action of the pipe may cause an epitheliomatous papilloma of the lip, but not a cancer. He was much interested in Dr. Bixie's remarks on the way the people treated wounds in the country by tobacco. It had been shown in his laboratory at the Hopkins Hospital that the action of tobacco smoke on bacteria, as the smoke was drawn through the culture tube, was inhibitory. There had also been a physician in his laboratory who had always the diplococcus pneumoniae in his mouth, and from whom other workers used to get it for cultures. This physician began to chew tobacco and no more cultures could be made from his mouth secretions, as the tobacco had killed the organism.

Dr. ABRAHAM CLAUDE of Annapolis, said he had been practicing for fifty-five years, and was now 74 years old, and he had chewed tobacco almost all his life, and his father before him, and he was well. He did not advocate its use in the young, but some it injures and others it does not, never mind how much they use it. His friend, Dr. Tidout, had lived to the age of 90, an inveterate chewer. He had also often seen cuts and wounds treated with great success with quids of tobacco. Dr. Cathell had brought forward no proofs of his statements of the injurious effects of tobacco, nor had he ever made any postmortem examinations of the fatal cases.

Dr. CATHELL, in closing, said that the cases of Dr. Claude belonged to his first division of cases that were not injured by tobacco. He had not said that smoking and chewing could cause cancer or polyp, but that they could be the exciting causes of these troubles.

Dr. GEORGE J. PRESTON then read a paper entitled

SOME FACTS AND SUGGESTIONS CONCERNING THE CARE OF THE INSANE IN MARYLAND.

After reviewing what had been done in this State for the care and treatment of the insane, he spoke of the active part which this Society had always taken in all matters affecting the public health. Many of the insane, while technically classed as paupers, are really not such any more than are the accident cases in our emergency wards. The nature of the disease renders treatment at home impossible, and the duration of the disease makes it impossible for many to pay for treatment during the long course; and more than that, the man is dangerous to the public and must be confined. It follows, then, that the State must make better provision for this class of unfortunates than for the pauper class. Our advanced civilization demands more scientific and more humane treatment. Therefore the State should take care of her insane, not only because it is her duty, but because it is more economical to treat them properly and cure many of them than to have them a continuous burden. Therefore the State should assume entire control of all public insane within her borders; the acute and chronic insane should be separated. Also there should be at some central point, or in the large cities as at Baltimore, a detention hospital or ward where those becoming suddenly insane, the cranks of all kinds, could be confined until their cases are studied and a proper disposition is made of them. The station houses are not proper places for such cases.

Dr. HENRY M. HERD said that the insane should have State care; county care is only an excuse to economize. If the State deprives a man of his liberty, the State should take care of him as well as possible. He does not believe in dividing acute and chronic cases. He does not believe that any man knows who is curable and who incurable. We should have a detention hospital for the temporary care of the insane, and study these cases there and find out where they belong.

Drs. E. N. BRUSH, R. F. GUNDY, S. J. FORT, WM. LEE, B. D. EVANS and C. Bixie all spoke of the manner of obtaining proper legislation on this point, and its great importance.

Dr. Wm. H. WILKIN said the paper read was a most excellent one. He thought whatever was done, the insane should be used for medical educational purposes, and the general practitioner should know something of insanity. We should take no step that would throw the material away from Baltimore, and keep it from being used in teaching. The provision should not exclude the possibility of using the insane for clinical material.

Dr. Wm. LEE, Secretary of the Maryland Lunacy Commission, then read a paper entitled, "Advancements in the Care of the Insane in Maryland during the Past Eight Years; Insanity in the Colored Race."

As a result of these papers and the discussion, resolutions were passed, and a committee of twenty-five was appointed, to bring the matter in proper shape before the next Legislature.

Dr. THOMAS H. BRAY-HAW of Glen Burnie, Md., then read a paper, "Is Psychic Research a Benefit to Mankind?"

Dr. S. J. FORT of Elliott City, Md., read a paper on "Psychical Epilepsy."

Dr. H. M. HERR said he did not accept his nomenclature, nor did he agree with Dr. Fort in his conclusions; it is an unfortunate name for those not having epilepsy.

Dr. E. N. BUSH said he did not like the name, moral imbecility. Children may be educated too much and rest may help them. We may educate our imbecile into a criminal as he gets older.

SECOND DAY—WEDNESDAY, NOVEMBER 23.

Invitations were received to visit the Naval Academy, by Medical Inspector Thomas C. Walton; also from the Medical Association of the District of Columbia, which will celebrate its centennial next February. Dr. F. A. Ashby was appointed a delegate to represent the Faculty there.

Dr. Wm. H. WELCH then brought up the report of the National Quarantine Committee of the New York Academy of Medicine, on a Bill to Establish a Bureau of Public Health within the Treasury Department of the United States, and offered a resolution to appoint a committee to further the passage of this bill. The bill is very important, and has been prepared with great care and with due regard to the National Government and States' rights. The object of this committee is to further the passage of this bill, and cooperate with the committee of the New York Academy of Medicine. Resolutions were also passed appointing a committee to act in conjunction with the Medical Examining Board, to secure needed modifications to the Medical Practice Law.

Dr. B. B. BROWN then read a paper entitled, "Artificial Vesico-Vaginal Fistula for Examination and Treatment of Uteral Diseases."

Dr. H. A. KELLY remarked on the value of this paper, and said that where formerly we relied on touch and feel to explore the bladder, and even to catheterize the ureters, he had now taken up the plan of using the head mirror and throwing so much light into the female bladder through the speculum that at every part of the interior of the bladder, as the pharynx under similar circumstances, was visible, and we could see with distinctness the openings of the ureters. He showed a series of photographs, demonstrating how easy it was to use the head mirror for this object, and how important it was for the general practitioner to get into the habit of using the newest methods of making examinations.

Dr. T. A. ASHBY then read a paper on "Sterility Due to Tubal and Ovarian Disease."

Dr. J. E. MICHYAL was displeased with the paper of Dr. Ashby, and thought it emphasized the tendency of these times to save rather than destroy the organs of woman. There will be of great service in increasing the population. The theory of the fibrinated extremity grasping the ovary during coition was he believed an exploded one, although from a number of things this was not certain. He thought it was rather by a current set up in the uterus, and not by the tube and disease of the tube itself, and that the cessation of this epithelium and ovulation did not depend on the tubal and not stimulation before systole, but on the cessation before menstruation begins, and that the ovum is not ovulated before the establishment of a new menstruation.

Dr. CHARLES P. NOBLE of Philadelphia, said it was time to get away from the old theory, and depend more on the ovary and less on the tube, and if the uterus is diseased, the ovary will not be so much the better. Mr. Ashby's paper would say it was and it was the ovary open, and it was at the operator's disposal.

anxious to do the operation but that he can dare to do it. The combined work of Price, Dudley and Martin had been put down at two pregnancies, as the result of all their operations and it was a question whether these two pregnancies had anything to do with the operations. He had little faith that diseased tubes could ever amount to anything. We can save an ovary that is partly diseased. Some adhesions disappear of themselves and these may be of puerperal peritonitis. It was well to use palliative measures of treatment in these cases.

Dr. H. A. KELLY said that Dr. Ashby struck the right keynote, or to be more classical, "rem acu tetigit." It is very important that the general practitioner should know how to approach a case of sterility. No man should pronounce a woman sterile until he had examined her husband. Examine the semen. Impermeability of the os uteri is often the cause of sterility and a simple dilatation will effect a cure. In some cases he has found small tumors pressing on the tube and presenting an obstacle to the passage of the ovum. Dr. Ashby, in closing, said the question of the physiology of menstruation was a speculative one in the human being, but we can learn much from comparative anatomy. He does not believe in opening the abdomen by way of experiment.

Dr. H. A. KELLY reported thirty-nine cases of removal of the uterus; some by the vagina, some by the abdomen, with one death which was not due to the operation but to septic catgut. The earlier work had been done by the clamp method, drawing out the tumor, putting on the clamp and leaving it there until the wound had healed. Then there was the combined extra- and intra-peritoneal methods. The abdomen was opened, tumor lifted out, vessels tied, stump cauterized to prevent sepsis and then fastened to the lower angle of the wound. He thought that the unilobular tumors were more common in women who had borne children. He operated for good reasons only. His present method was to first make an incision, then to put on ligatures to stop the hemorrhage as he was operating. He had noticed that the tumor seemed to take the shape of the pelvic canal when it was situated there. There were only four large arterial trunks feeding the tumor and two were reached at once. The broad ligament was pulled aside by the fingers. He took great care not to get the contents of the uterus and cervix on the stump, and always disinfected the stump with the cautery, or he cut it off and left it cup-shaped. He put in a few silk ligatures in the stump, cleaned out the abdomen although it should never have a chance to be otherwise than clean, stopped oozing of small veins, cut off ligatures and dropped the stump back into the abdomen, turning the pedicle upward so that the bladder is exposed to view.

Dr. CHARLES P. NOBLE of Philadelphia said that the subject of the operation on fibroid tumors was of great interest just now to gynecologists. Formerly it was thought that they were innocent things that were never cured and should be left alone, as it was supposed that they disappeared at the menopause or did no harm. This teaching is undergoing revision and it no longer holds. The menopause is often put off in such women to the fiftieth or fifty-fifth year and it is very discouraging to tell a woman of thirty that she must drag on for twenty or more years with no help. Many do not cease to give trouble, even at the menopause. The first five cases he had operated on were of this kind. These patients are great sufferers. He thought that a tumor that weighed five pounds could be called a large one; a two pound tumor in the pelvis will fill it and he had never seen a fibroid that weighed more than eight pounds. In all the operations he had done, where the stump was left in the angle of the wound, hernia had resulted. The method of operating has been developed by many surgeons. He did not advocate using the ligatures in the cervix, and thought it was unnecessary to put on the ligatures in the vagina, and he does not think there is any use in cupping on the cervix. He did not think that we removed enough fibroids. Why should we leave a fibroid in to grow large? It is safe surgery to remove it and we should do it.

Dr. J. E. MICHYAL thought that gynecologic operations were like other surgical operations and advanced and changed in the same way, and there was no excuse for always clinging to the same way.

Dr. H. A. KELLY closed by saying, that he had been asked once in court as an expert witness, what a large tumor was, and he replied that a tumor was large when it pressed on the parts. A tumor that is large in the pelvis may not necessarily be large in the abdomen.

Dr. HENRY KING read a paper entitled,



GYNECOLOGIC OPERATIONS OUTSIDE OF HOSPITALS.

in which he gave specific and minute directions how to perform an operation outside of hospitals, and what assistance and what else was necessary to success.

Dr. W. S. GARDNER thought also that operations could be done as well outside of hospitals as in, if care be taken. In cases where you have large collections of pus and where much irrigation is needed it is not advisable to operate at home. He does not believe that wounds become infected from the atmosphere. He does not think it is necessary to take your sterilizer with us, as the sterilization can be done at home before starting, and if the instruments, sponges, etc., be kept in the cotton in which they were sterilized they will be clean. It was just as well to have plenty of sterilized water at hand but it was rarely well to use it.

Dr. JULIUS FRIEDENWALD read a paper on "Atony of the Stomach."

Dr. MILTON D. NORRIS read a paper entitled, "Subcutaneous Infusion of a Nutritive Salt Solution in Cases of Refusal or Inability to take Food," in which he reported his experience in feeding cases at Spring Grove Asylum with good results.

This paper was discussed by Drs. Brush, Evans, Gundry, Bramham, Rohe and Fulton.

Dr. C. BIRKIE then read a paper entitled,

WATER SUPPLY, ISOLATION AND DISINFECTION IN COUNTRY DISTRICTS.

in which he showed the carelessness of country people in respect to their drinking water and disposal of their sewage, and the filthy way they arranged their water closets. The suggestions in this paper were practical and simple, and his experience was a valuable one.

Dr. GEORGE H. ROHE said if he dared to make a comparison he would say that this was the best paper of the session.

Dr. CANFIELD said he thought the paper was to be commended for the practical nature and for the simple nature of the suggestions; he thought this was the age of preventive medicine and we needed just such papers as this. The paper was further discussed by Drs. Hines, Evans and Brush.

Dr. W. T. HOWARD, JR., read a paper on "Hemorrhagic Septicæmia," which was discussed by Dr. J. Friedenwald.

Dr. JOHN S. FULTON of Salisbury, Md., exhibited

AN APPARATUS FOR THE ESTIMATION OF UREA

which was superior to any instrument yet shown, and which with a little practice could be used by the general practitioner. This was discussed by Drs. J. Friedenwald, Canfield and Fulton.

Dr. EDWARD ANDERSON of Rockville, Md., read a paper on "Obstruction of the Bowels."

Dr. FRED J. DENNING of Easton, Md., in his

GLEANINGS FROM A COUNTRY PRACTICE.

reported a supposed case of yellow fever, with the difficulties attached to daring to make such a diagnosis or failing to do it in a crowded community. He also reported his first case of abdominal section.

His paper was discussed by Drs. Canfield, J. Friedenwald and Fulton.

College of Physicians of Philadelphia.

SECTION ON ORTHOPEDIC SURGERY.

Meeting held on November 17, 1893.

Dr. J. B. DEEVER exhibited a patient showing the result of

SUBCUTANEOUS OSTEOTOMY OF THE NECK OF THE METATARSAL BONE, FOR HALLUX VALGUS.

and gave the history of the case.

Dr. H. AUGUSTUS WILSON opened the discussion by exhibiting a cast of a similar case in which there was extreme hallux valgus of the right foot, the metatarsal bone being decidedly pushed from the normal position underneath the second toe. It was originally the intention to amputate the toe. A bursa was present on the right foot, and this was found to be a segment of the joint, which he had opened thinking it a corn or a bunion. The pain was excessive.

Dr. T. G. MORTON—The cases of this form of toe distortion which have come under my care have generally been accompanied by serious joint disease, so much so, that excision of a wedge including the entire articulation was required. I have never performed osteotomy which is at once so simple

and efficacious for the deformity of the foot. I believe that in the great majority of cases that the operation as performed on the patient before us, when it has been so eminently satisfactory, is all that generally would be required.

Dr. C. G. DAVIS. Dr. Deever speaks of the shape of the shoe as being the cause of the deformity, but I cannot fully agree with him. In some of these cases there is a marked rheumatic element. I do not think it is caused produced by pressure. I do not believe that an ill-fitting shoe, in all cases, produces it. There is often some rheumatic condition in the neighborhood of the joint.

Dr. J. B. DEEVER.—In answer to Dr. Morton, I confess I have not done osteotomy on so pronounced a case as the one referred to, but my deductions from the literature on the subject and from my experience with the operation, are that it would fulfill the indications in the case referred to. I have no doubt of its superiority over amputation and that we can promise the patient a good result. We all know there is a great objection to amputating the great toe, therefore the more conservative operation is the better one if it can be done. We also need to note the absence of adhesions in the joint after osteotomy.

In my own case, the condition was the result of a frost bite, but I believe with Dr. Davis that a rheumatic element is to be considered. In any case where the deformity exists, the sooner it is corrected, the better. I do not believe in any of the ordinary appliances; all of them are unsatisfactory; they make the shoe large and unwieldy and simply add to the existing deformity. The operation is not attended with any risk. We all have operated upon cases of knock-knee where there was greater deformity, and made good corrections. Dr. Wilson's illustration of the prominent head of the metatarsal bone being mistaken for a bunion, only shows how careful the general practitioner should be, and in any case of doubt refer it to an authority.

Dr. T. G. MORTON brought before the Society a very unusual instance of general bodily deformity, with ankylosis of the spine, upper and lower extremities, etc., in which he asked the attention of the members as to the possibility of any operation affording improvement, and gave the following brief history of the patient:

In July last I received a note from Dr. Wright of Gibson, Ala., asking for permission to send to the Orthopedic Hospital a case of deformity in an adult which was thought could be improved. As it was impossible to obtain an exact description of the case, the patient was allowed to come North, and accordingly started on his journey; first riding fifteen miles in an ox-team to the railroad, then without change to this city. He was so deformed that he had no use of his lower extremities and was confined in a sitting posture in a rude, home-made chair which he constantly occupied. The following notes of the case were taken by Dr. Walker of the Hospital:

Family History.—Amos C. G., age 32, of Gibson, Ala., Parents living. Father age 55, has had rheumatism from boyhood. Mother age 65 years, suffers almost continually with neuralgia. Two brothers living, both have had rheumatism.

Patient's History.—Patient was well until ten years old when he had an attack of rheumatism commencing in the right hip joint; the knee joint of the same limb was involved, then the ankle, and later the joints of the left lower extremity, spinal column, and finally both shoulders, elbows, wrists, and to a less degree the fingers and toes. The extension as above described occupied a period of over three years, during which time he suffered intensely and could be moved only with great difficulty. Joints were hot and swollen, fever moderate. His limbs were in one position during all this time, though not then ankylosed; he says that he could move but the effort caused him intense pain. At the end of three years, 1874, the pain became less acute, gradually lessening until 1885, at which time he says no rheumatic pain remained but the joints were still as at the present time.

During the years of his first attack from 1871 to 1874 he spent much of the time in an ordinary chair, leaning upon the arm of the chair which was placed along side of him, this position evidently accounting for the lateral curvature and some of the deformity of the trunk now seen. In 1874 he had a chair made of the same pattern as the one now in use, but for a time had to support the greater part of his entire weight by the arm pieces (two pairs, one beneath each shoulder joint because of the pain in the hips and spine if those joints were subjected to any strain. This would explain deformity (elevation of shoulders).

This chair was made with a cross piece passing beneath the knees for support. Femora found curved at this position. In 1886 had another attack of rheumatism affecting principally the shoulder joints and those of the neck. Several joints have been affected at different times since then.

Proc. at Stolt. Head normal in shape and size; wears a 7½ hat; trunk undersized and misshapen, antero-posterior and lateral curvature of the spine which is perfectly rigid; legs flexed on thighs, almost in contact; thighs on pelvis and in contact with the abdomen; and pelvis upon the thorax, the anterior superior spinous processes of the ilia being almost in contact with the lower ribs; all the joints of the lower extremities are firmly ankylosed, with the exception of the phalanges.

The right arm can be bent at an angle of 45 degrees with the shoulder. The left elbow is fairly ankylosed, no pronation or supination. The left arm can be brought to a right angle with the trunk at the shoulder; left elbow firmly ankylosed at a right angle; pronation and supination normal; wrist and phalangeal joints normal.

Weight, 32½ pounds; measurements, height from top of head to lowest part of body as he sits in chair, 22 inches; right calf, 5½ inches; right arm, 5½ inches; left arm, 4½ inches; right forearm, 6 inches; left forearm, 4½ inches; appetite fair; digestion well performed, tendency to constipation; heart, liver and lungs normal; urine highly acid, sp. gr. 1030 excess of urates; no abnormal constituents.

I shall be glad for the members of the Society to examine this patient, and then to give their views as to the possibility of any good being attained by operative interference. From a careful study of this case I feel that little if any improvement can be secured by any operative treatment on account of the inability of the man to use his arms to any extent, the ankylosis of the spine which precludes any movement of the body, and finally the excessive atrophy of the lower extremities, which, even if brought out straight, would not support the weight of the body. Probably the best that can be done will be to give him a suitable apparatus to support his arms as an attachment to a proper spinal brace.

Dr. H. AUGUSTUS WILSON said: Dr. Morton speaks of the possibility of reproducing one of his successful experiences, and, after bringing the legs down, of adjusting artificial limbs. It seems to me that osteotomy in this case would be an unwarrantable procedure; even if the legs were brought into good position, the curvature of the spine, the rigid pelvis and the position of the head to one side, would make the result one of disappointment even if osteotomy in itself were successful. I am rather of the opinion that a wheel chair would be the best thing for him. He has probably sufficient motion of the shoulders and hands to enable him to move a chair about. Something similar to the chair he now uses, with wheels added, would be a wise arrangement so that he could have more freedom of motion. The outdoor life thus induced, as well as the movements of the arms in propelling the chair, would be decidedly beneficial. In the sitting posture he could adopt some occupation by means of a movable shelf attached to the chair, and thus relieve the strain of idleness.

Dr. FRANK WOODBURY—Rheumatism in children is not a very rare affection, but this patient presents conditions rarely met with, and is a most interesting case. Probably it would be more correct to regard it, not as a case of rheumatism but as an illustration of arthritis deformans in an advanced stage of the disease. As the patient is now 32 years of age and has been suffering for twenty years, or more, the long course of the disease would be against any marked benefit arising from an operation, especially as there is only infantile development of the lower extremities. Regarding it as chronic arthritis, we recall the fact that in these cases, cod-liver oil, massage, gymnastics, hot applications, and electricity to improve the muscular tissues, are able to accomplish much good. By directing such treatment, especially to the upper extremities, he might gain sufficient range of motion to feed himself or to propel himself in a wheel chair, and get more comfort out of life. If most, of course, be determined, surgically, whether there are any fibrous adhesions in the elbow or shoulder joints which could be broken up by forcible flexion, but as regards anything more in the way of operation, I think that more radical measures might safely be postponed until the limit of improvement by the treatment just outlined has been attained. Certainly a six months' course of medicine would put him in better condition for operation, even if it were found that such procedure was necessary.

Dr. G. G. DAVIS—What struck me in looking at this case is the fact that the patient appears to be in a moderately healthy condition and would very likely stand operative procedures well. It would be a great gain if he could be made to stand upright. Failure might arise, of course, from sepsis, etc., but the advantages from straightening the extremities would be so great, and his health appears to be so good, and the danger from osteotomy so small, that I would think some operation might be undertaken. His condition could hardly be worse and he might possibly be benefited—to what extent I am unable to say, but it might be worth the attempt.

Dr. H. R. WHARTON—I would like to ask Dr. Morton if he would have any hesitation in giving this man an anesthetic? It seems to me that I should have some anxiety in doing so. So far as osteotomy is concerned, certain correction might be made, but I do not really see how the condition of the patient could be much improved. I do not think much motion could be obtained. I am inclined to think that the judicious course would be to make him comfortable by a mechanical contrivance. I have had considerable experience with osteotomies and the wounds usually do well, but in some conditions of the tissues, sloughing occurs, and the patient is very sick from the operation itself. I should be rather inclined not to operate.

Dr. DEFOREST WILLARD—In my judgment it would be doubtful whether the patient would be able to manage artificial limbs, even if his legs were put into good position. Necessarily the artificial legs would be heavy, and I doubt whether he would be able to balance himself, since his back and neck are so rigid. Osteotomy is an operation simple in itself, and not attended with any special danger.

I know of a case in this city, not quite so much deformed as this one, but having its origin in rheumatoid arthritis. It did not occur so early in life, but otherwise it is quite similar to this one. Nothing could be done for the patient. Another is that of a man so much deformed that he has lain in bed for twenty years. The disease in him is arthrosis by any attempt at motion of the joints.

Dr. J. B. DEEVER—I should hesitate to change the topography of the blood vessels on account of cardiac diathesis. Several osteotomies would have to be done, and it is a question in my mind whether any great gain would be secured. The bones are particularly small and I question whether they would be able to endure any weight, even if they were straightened.

Dr. T. G. MORTON—In again referring to the question of anesthetic, I would like to ask if any of the gentlemen would fear to administer ether in such a marked case of spinal curvature; especially in so serious a case. The only sudden death under ether that I have ever witnessed was in a patient at the Pennsylvania Hospital; within thirty minutes after operation the patient died from edema of the lungs, very suddenly. My own feeling is that there would be a great risk in this case, and that the suggestion of a wheeled chair is the best plan to follow.

(To be continued.)

Vermont Medical Society.

Eightieth Annual Meeting—Held in Rutland, Oct. 12 and 13, 1893.

Reported by Dr. D. C. HAWLEY, Secretary.

SECOND DAY—MORNING SESSION.

(Continued from page 943.)

Dr. T. D. CROFTERS of Hartford, Conn., read a paper entitled,

MEDICAL TREATMENT OF INEBRIETY.

The following is a brief summary of his paper:

"The disease of inebriety, like other diseases of the brain and nervous system, follows a uniform movement, controlled by laws of dissolution, and conditions and causes that can be determined. Locks and bars, pledges, chemie restraint by drugs, appeals to diseased higher brain sections, appeals to the credulity and disordered senses and emotions, by 'gold cures' or specifics, are all empirical. Our central object of all treatment is to restore the organism, so that the narcotic of alcohol or other drugs will not be demanded.

"The disease of inebriety follows a uniform line of events, from certain special causes and conditions. The prognosis and treatment depend altogether on a clear apprehension of the cause. The first thing is to place the patient in the most favorable conditions for cure, where all his surroundings can be helpful, and the best means applied to build up

and restore his brain and nervous system. This may be done in an institution, or at home under the care of a nurse.

"The withdrawal of spirits and the use of baths and massage daily, with brain rest, are essential. Remedies, such as the bitter tonics, mineral salts and acids, nuxvomica and often bromids and iodids are valuable.

"The use of nutrients, with rest and baths, fulfill most all the demands of each case. Reconstruction of cell and tissue is the object to be sought. Restraint, protection, the erty, and the application of means to meet all the demands and abnormalities must be applied.

"The entire subject must be studied from a higher level and along the line of accurately observed facts."

THE SURGICAL TREATMENT OF HEMORRHOIDS.

was the title of a paper read by Dr. D. C. HAWLEY, of Burlington. He said: "In all severe cases of hemorrhoids, surgical treatment is the most satisfactory. The arteries and veins of the lower portion of the rectum run nearly parallel with the long axis of the gut; hence it is that a longitudinal incision rarely causes much hemorrhage.

"The principal methods of operating are four in number: 1, by ligature; 2, by the clamp and cautery; 3, by excision; 4, by crushing.

"The bowel should be thoroughly emptied and the parts about the anus scrubbed, shaved and washed with carbolic solution. In all cases, the sphincters should be thoroughly but carefully dilated."

After describing in detail the various methods of operating, and the after-treatment, he said: "The patient should be kept strictly in bed for about ten days or two weeks; then may gradually during the next week exchange the bed for a reclining chair or lounge. Complete recovery usually requires about three weeks, and I consider time an all-important factor in the after-treatment. Patients should not, as they are often allowed to do, get up and go about in ten days or two weeks, as thereby congestion of the hemorrhoidal vessels is favored, healing is delayed and perfect recovery is retarded and perhaps prevented.

"No one method can be claimed to have advantages in all cases over any other, and the proper selection of an operation depends upon the good judgment of the operator. The operation by ligature is probably the safest, as it is the simplest (requiring no special instruments), and involves least risk of after hemorrhage. It is best in case the patient is anemic and where the tumors are large and vascular.

"Pain after the operation depends more upon whether or not a portion of the skin has been cut or burned, than upon the method employed. Hemorrhage at the time of operating is sometimes troublesome, when the clamp and cautery are used.

"Whitehead's operation is, in my opinion, seldom indicated."

A paper on

APPENDICITIS

Was presented by Dr. J. B. WHEELER of Burlington.

The following is a brief summary:

1. Among male patients, the great majority of all cases of peritoneal inflammation originate in appendicitis.
2. In spite of the fact that many cases are mild and recover spontaneously, the death rate of medically treated appendicitis is very high, and the list of recoveries contains many cases which afterward recur.
3. The death rate of appendicitis treated by timely surgical operation is very low, and the cures are complete and permanent.
4. The late operation for appendicitis is a last resort, and like all operations done in extremis, has necessarily a high death rate. Moreover, cases which recover after a late operation are in less satisfactory condition, and have a much longer convalescence than cases treated by early operation.
5. In the beginning of a case of appendicitis we are unable with our present knowledge of the disease to predict the end.
6. Until our prognosis has greatly improved in accuracy, the safest general rule for the treatment of appendicitis is to remove the appendix as soon as the diagnosis is satisfactorily established.

Adjourned.

SECOND DAY—AFTERNOON SESSION.

Dr. O. C. BAKER of Brandon, read the next paper.

DIAGNOSIS AND TREATMENT OF EMPYEMA.

He said: "I shall speak only of empyema as pus in the pleural cavity, and not in the general sense of the term. A wrong diagnosis, as a rule, means death to the patient,

and I would suggest, in all cases, I doubt if all workers, are with the hypodermic method. This in the majority of cases demands immediate evacuation. The treatment is continued under three heads: 1, aspiration; 2, free opening; 3, by the use of a drainage tube, and rib resection. The results of aspiration are disappointing. Free incision with drainage is often very satisfactory and gives good opportunity for working on the cavity.

Dr. O. C. BAKER of Brandon, read a paper on

THE TREATMENT OF EPILEPSY, WITH SPECIAL REFERENCE TO

The patient, a girl, aged 15 years, suffered in March, 1889, with uterine hemorrhage, which was controlled in a few days. Four days later severe epistaxis supervened, which was very stubborn, and accompanied with vivid spots, of variable size over body. This condition continued at intervals until June, and then subsided. The epistaxis returned in the spring of 1891, with increased vigor, when there was dilatation of heart, swelling of extremities and slight albuminuria. The case again yielded to treatment, and she enjoyed fair health until autumn of 1890, when a slight attack of epistaxis came on and was easily controlled. On the following morning was summoned in haste to the patient and found her dead, there having been, however, no return of bleeding. The family history shows that one paternal uncle was taken suddenly with severe pain in elbow and died in two days, and another had a tooth drawn at night and was taken with pain and swelling of jaw and died in three days.

A paper on

THE USE OF CHLORAL HYDRATE

Was presented by Dr. J. B. WOODMAN, of South Shaftsbury. He said: "Chloral produces sleep that is like natural sleep. The patient wakes without headache, has not been troubled with bad dreams and is refreshed. I usually prescribe chloral with an equal quantity of potassium bromid, and a very small dose—one-twentieth grain—of morphia. I have had marked success in the treatment of vomiting of pregnancy, with the above combination. I have had no trouble with patients forming a habit. I never tell patients what they are taking; as soon as you do so there is danger."

The following papers were read by title only:

"Thoughts Regarding Heart Failure, so-called," by Dr. E. V. Trull of Manchester; "Hypnotism," by Dr. Geo. B. Hyde of North Hero; and "Denuded Cranium: Its Treatment by Perforation of the External Table of the Skull, and Tischer's Method of Skin Grafting," by Dr. E. M. Pond of Rutland.

The report of the Committee of the AMERICAN MEDICAL ASSOCIATION on Revision of Constitution, by Laws and Code of Ethics, was considered and was approved by an unanimous vote.

American Electro-Therapeutic Association.

The Third Annual Meeting Held in Chicago, Sept. 12, 13 and 14, 1893.

AUGUSTUS H. GOELET, M.D., President.

THE NUTRITIONAL EFFECTS OF STATICAL ELECTRICITY, CONSIDERED IN RELATION TO HIGH FREQUENCY, HIGH POTENTIAL CURRENTS, AND THE TRANSPARENCY OF THE DIELECTRIC.

WILLIAM J. MORTON of New York, said: "I have not had time to write a formal paper, and will therefore communicate orally what little I have to say. I have had prepared a number of tables, which in reality contain the pith of the intended paper. They represent the work in this direction done in my clinic at the New York Post-Graduate Medical School and Hospital.

I believe there is a greater unanimity among electro-therapists in favor of Franklinization than ever before, and that there is yet much to be said in favor of this modality of electricity in medicine. I remember the day when it was said that this static form of electricity resided upon the surface, and could not penetrate beneath the skin, and that therefore it was of no value whatever, as it did not reach any of the tissues or organs. It was not long ago when Moebius said that most of the effects of electrical treatment were due to "suggestion," and particularly was this the case with static electricity.

I am inclined to think that static electricity will always remain as a useful therapeutic measure on a par with faradization and galvanization; but the trouble has been to convince ourselves and others that there was this power in

it. It is to the objective evidence of the physiologic effects resulting from electro-static treatment that I would now invite your attention.

Let me point out the new relations which static electricity has assumed to electro-therapeutics through the labors of a certain small number of men during the last two years. It is by the reflected light coming from the brilliant labors of D'Arsonval, Tesla and Elihu Thompson in developing the high frequency high potential current, that we are enabled to say why it is that electro-static treatment is so beneficial.

All along we were dealing with a beautiful principle of which we were not fully aware—that magnificent principle in Nature that intermitting energy has an enormous power; that things which have wave movements are those which are exhibiting power. Thus, light, heat and electricity are vibratory motions. The static form of electricity is an oscillating or wave motion due to the oscillation between the electric charges set up in one vicinity and those set up in another vicinity.

Now, what is the present situation in regard to these high frequency high potential currents, and how is it that static electrification can be brought into this category? The high frequency high potential current is simply a periodical current, where the electric energy is cut up into waves or periods. If these periods are very frequent—10,000 to 100,000, or even 1,000,000 per second—then we have a high frequency current in contradistinction to the low frequency currents obtained from the ordinary faradic coil. With this high frequency is a correspondingly high electro-motive force. It is electro-motive force and not electrolytic conduction which is doing the work. It has been said heretofore that there is no action on the human tissues except there is chemie decomposition, but this is not so. There is an action on the human tissues which has nothing to do with chemie action, and that is what we are talking about in describing the effects of static electricity.

The relation between these high frequency currents and the static electricity is easily explained. If we suspend a Leyden jar in connection with any electro-static machine, and cause a spark to pass, every time the spark passes there is a discharge of the Leyden jar corresponding to the spark, and oscillation takes place many thousand times per second. Generally these oscillations of the discharge vary from 100,000 to 1,000,000 per second. This is the periodic current with which we are dealing in electro-statics.

Whether you use the Leyden jar or not, the result is the same. If there is a plus charge on one prime conductor and a negative on the other, on approaching the rods there is a spark discharge, and at this moment there is exactly the same oscillating current produced. This oscillation varies according to the resistance in the circuit. If the resistance be great, the oscillations are reduced, perhaps even so much that the oscillations may be appreciated by the ear as a musical tone. If there be no such resistance, you have a high frequency current, whose capability to penetrate the tissues seems to be without limit.

In that remark we have the answer to the criticism that electricity resides on the surface, and does not penetrate the human body; for the resistance of the human body is as nothing against that of the particular form of the current. As the static machine is set in motion, every particle of ether is set in motion in the room, and the same vibration is set up in our own bodies. How strong that electrical influence may be is another matter; that it is strong I shall endeavor to show in the tables which I have prepared.

In addition to the familiar mode of electric conduction, we must remember, 1, that there is an electrostatic field; and, 2, that portions of the human tissues are dielectrics when in the neighborhood of an electrical discharge.

That there is an electro-static field in contradistinction to an electro-magnetic field may be easily demonstrated experimentally. For instance, the space between the prime conductors in the electrostatic field, and if you put a patient in that field, he is affected by "the lines of force" pass *ex* through him. It is only a question of how strong that field is, and of its oscillations, to determine the effect on the human body brought under its influence. That this field is one of energy can be demonstrated by bringing an incandescent lamp into the field, when it will be seen to glow.

To resist, then, the adoption of the mechanical view that the electro-static energy produces what we call "the current" in the wire, is not entirely in the wire; and that the wire is not a conductor as a pipe is of water, but that the influence is felt in the medium around the wire.

If this is not a conductor, then these same ether vibrations impinging on the dielectric put it in a condition of strain. If that strain were maintained, and the charge did not change, nothing would happen. But the discharge is first plus and then minus, and the surging movement is taking place thousands of times per second. By a dielectric I mean a non-conductor having a charge and in relation to another body having a charge.

We say that the non-conductors are "transparent" to periodic currents and "opaque" to constant currents. It will be found that these periodic currents are conveyed by our non-conductors. This important fact is demonstrated when you insert in a telephonic circuit a condenser; it is impervious to a constant current, but transparent to the periodical current. The human body may be regarded as under two influences—the one where electro-static alternations are dissipated upon the conductors as a current, and the other where they affect the dielectric and still act as a current.

Now, as to the effects on nutrition. The patient may receive an electric bath for fifteen minutes, and the hard, striking spark for about five minutes—this is a customary treatment. Many have not had much faith in the actual effect of such treatment, and for this reason I have endeavored to collect evidence on this point.

The spark or bath causes augmentation of the circulation. The spark when given along the spine causes a dilatation of the peripheral vessels, and the circulation is visibly increased. The patient frequently breaks out into profuse perspiration. If you will apply to a person's bare arm a long spark, you will see the spot is dead white; this is because there has been an instantaneous vaso-motor constriction; but some minutes later, you will find it intensely red as a result of the secondary vaso-motor dilatation. This on a small scale represents what on a larger scale takes place through the entire organism of the patient.

It has been stated in our books that static electrification increases the pulse from fifteen to twenty beats, but my clinical observations show that in certain cases the pulse may be uniformly diminished as well as augmented. (See tables.) The change in the pulse depends upon the nature of the disease. Many neurasthenic cases have a sub-normal temperature, and immediately after treatment there is usually an elevation of the temperature of from half to one degree. In a general way, it may be stated that the disposition of static electrification is to produce an equalization from the centers—reducing a high pulse, and elevating a sub-normal temperature or elevating a low or normal pulse and reducing a temperature above normal. If both pulse and temperature are above normal both will be reduced.

Case 1.—Mr. C. R., age 49; occupation, actor; diagnosis, tabes dorsalis; treatment, static induced.

Date.	Pulse.		Temperature.	
	Before.	After.	Before.	After.
April 25, 1892	98	98	99.2	98.4
" 27, "	100	106	98.8	98.4
" 29, "	90	102	99	98.8
May 1, "	92	86	99	99.2
" 3, "	115	98	100.2	98.8
" 13, "	102	101	99	98.4
" 18, "	104	108	99	99.2
" 20, "	98	101	98.5	98.5
" 25, "	100	100	99	98.9
" 27, "	81	110	98.6	98.8
June 8, "	104	104	98.8	99.2
" 10, "	103	103	98.3	98.4
" 15, "	100	104	98.2	99.2
" 22, "	102	102	99.2	99.4
" 24, "	101	102	99.2	99.2
" 29, "	102	102	98.6	98.4
July 6, "	100	98	99.1	99
" 8, "	91	102	99.2	99.1
" 8, "	101	108	99.4	99.2
" 13, "	102	114	99.6	99.6
" 15, "	108	116	99.1	99.6
" 27, "	100	111	99.7	99.4
Aug. 10, "	100	104	99.6	99.4
Sept. 2, "	92	101	99	99.1
" 9, "	106	106	99.4	99.2
" 16, "	89	101	99.1	99.6

Remarks.—Upon admission to electro-therapeutic clinic, Post-Graduate Medical School and Hospital, Dec. 16, 1891, had incoordination of movement in legs, slight in arms. Lightning pains, swaying with eyes closed; thickness of tongue, halting speech; knee reflexes absent; cramps in legs; urination difficult; fingers numb; pupils do not respond readily to light. Weight, 93 pounds.

June 29, 1892. Weight, 113 pounds, gain of 20 pounds. Stands steadily with eyes closed; no pain; locomotion less difficult; no thickness of tongue; speech improved. Pulse raised; temperature lowered.

Case 2.—Mrs. E. R., age 43; occupation, domestic duties; diagnosis, neuritis left brachial plexus; treatment, Frankline current, positive insulation, long percussive sparks to distribution of left brachial plexus.

Date.	Pulse.		Temperature.	
	Before.	After.	Before.	After.
April 1, 1892.	81	80	99.4	99.4
" 8, "	99	80	99.2	99.2
" 22, "	90	74	99.8	99.8
" 27, "	80	76	99.4	99.4
May 11, "	90	80	99.8	99.8
" 13, "	90	70	99.4	99.4
" 18, "	78	72	99.8	99.8
" 20, "	78	64	99.6	99.6
" 27, "	70	64	99.2	99.2
June 29, "	72	76	99.2	99.2

Remarks.—Pulse lowered uniformly; temperature little affected.

Case 3.—Mr. W. R., age 33; occupation, gas-fitter; diagnosis, transverse myelitis, with spastic paraplegic symptoms; treatment, Frankline current, positive insulation, long percussive sparks to spine, nerve trunks and distribution.

Date.	Pulse.		Temperature.	
	Before.	After.	Before.	After.
May 13, 1892.	102	98	99	98.8
" 18, "	98	108	99.8	99.6
" 20, "	90	94	99.4	99.6
" 25, "	100	98	100	99.6
" 27, "	102	104	99	98.8
June 15, "	80	80	99.2	99
" 29, "	80	88	99.6	99.4
July 1, "	88	88	99.8	99.8
" 13, "	86	81	99.8	99.4
" 20, "	88	92	99	98.9
" 22, "	84	85	99.4	99.2
" 29, "	90	96	99	98.8
Aug. 5, "	90	96	99.8	99.2
" 24, "	92	84	99	99.2
Sept. 2, "			101.4	101.2

Remarks.—Free perspiration always during treatment; gain in weight. Recovered.

Case 4.—Mr. J. W., age 35; occupation, soldier; diagnosis, double sciatica; treatment, Frankline current, positive insulation, long percussive sparks to lumbar and sacral plexes, to both sciatic nerves and distribution.

Date.	Pulse.		Temperature.	
	Before.	After.	Before.	After.
Mich. 18, 1892.	82	82	99.4	99
" 21, "	83	74	99.2	99.2
" 30, "	76	81	98.8	98.4
April 1, "	72	72	98.4	98.2
" 6, "	78	79	98.8	98.4
" 8, "	79	64	98.6	98.2
" 11, "	80	68	98.4	98.2
" 18, "	78	65	99	98.4

Remarks.—Free perspiration during treatment. Pulse lowered; temperature lowered very treatment.

Case 5.—Mr. E. W., age 37; occupation, nurse; diagnosis, sciatica right; treatment, Frankline current, positive insulation, long percussive sparks to lumbar and sacral plexes, right sciatic and distribution (pain) and to general surface (nutritional).

Date.	Pulse.		Temperature.	
	Before.	After.	Before.	After.
April 27, 1892.	72	72	98.6	98.4
" 29, "	80	80	98.6	98.4
May 6, "	68	78	98.2	98.8
" 13, "	71	56	98.4	98.4

Remarks.—Six treatments; nutritional gain; recovered. Pulse little affected; temp. lowered except when normal.

Case 6.—Miss E. McM., age 25; occupation, domestic; diagnosis, left inter-costal neuralgia; treatment, Frankline current, positive insulation, long percussive sparks to painful points (neuralgia) and to general surface (nutritional).

Date.	Pulse.		Temperature.	
	Before.	After.	Before.	After.
May 11, 1892.	120	110	99.8	99.4
June 8, "	122	104	102.2	101.4
" 10, "	90	88	100	100.4
" 15, "	96	80	100	100.4
" 17, "	100	88	100.2	100.2

Remarks.—Pulse full uniformly; temperature not much affected.

Case 7.—Mrs. M. E., age 54; occupation, bookbinder; diagnosis, paralysis agitans, hemiplegic type; treatment, Frankline current, positive insulation, long percussive sparks to spine, flexures of joints and all muscles.

Date.	Pulse.		Temperature.	
	Before.	After.	Before.	After.
Mich. 5, 1892.	80	74	99	99
April 1, "	78	74	99	99
" 13, "	68	68	99	99
" 26, "	72	67	99.4	99
May 1, "	70	70	99.8	99.8
" 13, "	70	70	99.8	99.8
June 13, "	80	78	99.8	99.8
" 22, "	72	72	99.8	99.2
" 24, "	78	78	99.8	99.8
" 29, "	76	76	99.2	99.8
July 4, "	78	76	99	99
" 6, "	67	67	99.2	99.2
" 13, "	78	78	99.8	99.2
" 15, "	80	82	99.2	99
" 20, "	88	82	99.8	99.2
Aug. 10, "	78	80	99.2	99.2
" 12, "	78	78	99.4	99.4
" 12, "	84	84	99	99.8
" 17, "	100	90	99.2	99

Remarks.—Gained 10 pounds. Pulse lowered eleven times, raised six times; temperature lowered.

Case 8.—Mr. W. H. B., age 59; diagnosis, neurasthenia.

Date.	Pulse.		Temperature.	
	Before.	After.	Before.	After.
Feb. 22, 1893.			97.4	98.4
Mich. 2, "			96.8	98.4
" 4, "			98	98.8
" 7, "			99.2	97.8
" 9, "			97.1	98

Remarks.—Sub-normal temperature uniformly raised; pulse not recorded.

Case 9.—Mr. W. A. H., age 57; diagnosis, hypermetropic astigmatism) neurasthenia.

Date.	Pulse.		Temperature.	
	Before.	After.	Before.	After.
April 5, 1893.	88	88	99	98.4
" 10, "	80	84	97.7	98.4
" 11, "	80	96	98.4	98.8
May 3, "	96	88	97.4	98.4
" 8, "	116	96	96.4	98
" 9, "	82	88	97.6	98.4
" 9, "	88	84	97.3	98.2
" 11, "	112	92	97.1	98
" 13, "	92	84	97.4	98.4
" 15, "	84	81	97.3	98
" 18, "	96	88	97.6	98
" 22, "	92	88	98.6	98.2
" 26, "	100	86	98.6	98.2
" 27, "	92	86	98	98.8
" 29, "	96	88	97.6	98.4
" 31, "	96	88	98.4	99
June 1, "	84	92	97.8	98.6
" 6, "	112	100	98.3	98.6
" 7, "	104	84	97.8	98.6

Remarks.—Average pulse above normal; lowered; temperature sub-normal; raised; pulse lowered, temperature raised, sub-normal; remarkable uniformity of raising a sub-normal temperature.

Case 10.—Mr. J. H. E., age 55; diagnosis, neurasthenia.

Date.	Pulse.		Temperature.	
	Before.	After.	Before.	After.
Jan. 24, 1893.	70	70	97.2	98
April 4, "	68	70	97.2	98
" 11, "	78	88	98.4	98.8
" 13, "	74	79	98	98.2
" 15, "	68	70	98	98.1
" 16, "	88	70	98.1	98.1
" 19, "	80	70	98	98.1
May 7, "	81	68	98.4	98.8
" 14, "	70	70	98	98.8
" 23, "	70	70	98	98.8
" 25, "	70	70	98	98.8
June 4, "	81	70	98	98.8
" 16, "	70	70	98	98.8

Remarks.—At first, pulse lowered nine times, raised four times; temperature lowered two times, raised six times; i.e., pulse lowered, temperature raised, sub-normal.

Case 11.—Mr. H. E., age 33; diagnosis, neurasthenia.

Date	Pulse	Temperature.			
		Before.	After.	Before.	After.
May 1, 1893	80	81	98	98.4	98.4
" 2, "	80	81	98	98.4	98.4
" 3, "	80	81	98	98.4	98.4
" 4, "	80	81	98	98.4	98.4
" 5, "	80	81	98	98.4	98.4
" 6, "	80	81	98	98.4	98.4
" 7, "	80	81	98	98.4	98.4
" 8, "	80	81	98	98.4	98.4
" 9, "	80	81	98	98.4	98.4
" 10, "	80	81	98	98.4	98.4
" 11, "	80	81	98	98.4	98.4
" 12, "	80	81	98	98.4	98.4
" 13, "	80	81	98	98.4	98.4
" 14, "	80	81	98	98.4	98.4
" 15, "	80	81	98	98.4	98.4
" 16, "	80	81	98	98.4	98.4
" 17, "	80	81	98	98.4	98.4
" 18, "	80	81	98	98.4	98.4
" 19, "	80	81	98	98.4	98.4
" 20, "	80	81	98	98.4	98.4
" 21, "	80	81	98	98.4	98.4
" 22, "	80	81	98	98.4	98.4
" 23, "	80	81	98	98.4	98.4
" 24, "	80	81	98	98.4	98.4
" 25, "	80	81	98	98.4	98.4
" 26, "	80	81	98	98.4	98.4
" 27, "	80	81	98	98.4	98.4
" 28, "	80	81	98	98.4	98.4
" 29, "	80	81	98	98.4	98.4
" 30, "	80	81	98	98.4	98.4
" 31, "	80	81	98	98.4	98.4
" 32, "	80	81	98	98.4	98.4
" 33, "	80	81	98	98.4	98.4
" 34, "	80	81	98	98.4	98.4
" 35, "	80	81	98	98.4	98.4
" 36, "	80	81	98	98.4	98.4
" 37, "	80	81	98	98.4	98.4
" 38, "	80	81	98	98.4	98.4
" 39, "	80	81	98	98.4	98.4
" 40, "	80	81	98	98.4	98.4
" 41, "	80	81	98	98.4	98.4
" 42, "	80	81	98	98.4	98.4
" 43, "	80	81	98	98.4	98.4
" 44, "	80	81	98	98.4	98.4
" 45, "	80	81	98	98.4	98.4
" 46, "	80	81	98	98.4	98.4
" 47, "	80	81	98	98.4	98.4
" 48, "	80	81	98	98.4	98.4
" 49, "	80	81	98	98.4	98.4
" 50, "	80	81	98	98.4	98.4
" 51, "	80	81	98	98.4	98.4
" 52, "	80	81	98	98.4	98.4
" 53, "	80	81	98	98.4	98.4
" 54, "	80	81	98	98.4	98.4
" 55, "	80	81	98	98.4	98.4
" 56, "	80	81	98	98.4	98.4
" 57, "	80	81	98	98.4	98.4
" 58, "	80	81	98	98.4	98.4
" 59, "	80	81	98	98.4	98.4
" 60, "	80	81	98	98.4	98.4
" 61, "	80	81	98	98.4	98.4
" 62, "	80	81	98	98.4	98.4
" 63, "	80	81	98	98.4	98.4
" 64, "	80	81	98	98.4	98.4
" 65, "	80	81	98	98.4	98.4
" 66, "	80	81	98	98.4	98.4
" 67, "	80	81	98	98.4	98.4
" 68, "	80	81	98	98.4	98.4
" 69, "	80	81	98	98.4	98.4
" 70, "	80	81	98	98.4	98.4
" 71, "	80	81	98	98.4	98.4
" 72, "	80	81	98	98.4	98.4
" 73, "	80	81	98	98.4	98.4
" 74, "	80	81	98	98.4	98.4
" 75, "	80	81	98	98.4	98.4
" 76, "	80	81	98	98.4	98.4
" 77, "	80	81	98	98.4	98.4
" 78, "	80	81	98	98.4	98.4
" 79, "	80	81	98	98.4	98.4
" 80, "	80	81	98	98.4	98.4
" 81, "	80	81	98	98.4	98.4
" 82, "	80	81	98	98.4	98.4
" 83, "	80	81	98	98.4	98.4
" 84, "	80	81	98	98.4	98.4
" 85, "	80	81	98	98.4	98.4
" 86, "	80	81	98	98.4	98.4
" 87, "	80	81	98	98.4	98.4
" 88, "	80	81	98	98.4	98.4
" 89, "	80	81	98	98.4	98.4
" 90, "	80	81	98	98.4	98.4
" 91, "	80	81	98	98.4	98.4
" 92, "	80	81	98	98.4	98.4
" 93, "	80	81	98	98.4	98.4
" 94, "	80	81	98	98.4	98.4
" 95, "	80	81	98	98.4	98.4
" 96, "	80	81	98	98.4	98.4
" 97, "	80	81	98	98.4	98.4
" 98, "	80	81	98	98.4	98.4
" 99, "	80	81	98	98.4	98.4
" 100, "	80	81	98	98.4	98.4

Remarks.—Pulse lowered fifteen times, raised six times unaltered two times, total twenty-three times; temperature lowered two times, raised ten times; i.e., pulse lowered, temperature raised, sub-normal.

I have three observations on the effect of static electrification on the excretion of urea. The analyses were made by Dr. Cleaves.

Case 1.—A. L., occupation, physician; diagnosis, lithemia; treatment, Franklinian current, positive insulation; long percussive sparks to spine, hepatic region and entire general surface for ten minutes; spray fifteen minutes three times a week.

June 19, 1893. Examination of urine: color pale yellow, faintly acid, odor normal, sp. gr. 1020; total amount for 24 hours, 5.5x; no albumen, no sugar; urea, gr. xij to f. 5; total urea for 24 hours, 140.

June 21, 1893. Color reddish yellow, reaction acid, odor normal, sp. gr. 1030, slight precipitate of uric acid; total amount of urine in 24 hours, 5.5x; urea, gr. 8 1/2 to f. 5; total urea in 24 hours, 138 1/2.

June 23, 1893. Sp. gr. 1025; urea 6 1/2 gr. to f. 5; total amount in 24 hours, 5.5x; total urea in 24 hours, 288; increase from June 19 to June 23, 148; June 29, urea 8 1/2 to f. 5; June 30, urea 8 1/2 to f. 5. No medicine given.

Case 2.—Mrs. E. L., age 35; occupation, domestic duties; diagnosis, chronic articular rheumatism; treatment, Franklinian current positive insulation, spray fifteen minutes, long percussive sparks to all affected parts and to general surface for fifteen minutes.

July 2, 1893. Examination of urine: quantity, 24 hours, 5.5x; color reddish yellow, odor normal, reaction acid, sp. gr. 1030. Boreum's urea test shows 13 1/2 gr. to f. 5. Total urea in 24 hours, 5.5x; 410. Abundant precipitate of uric acid on standing in cold.

July 2, 1893. Urine color amber, odor normal, reaction acid, sp. gr. 1030; total amount for 24 hours, 5.5x; Boreum's urea test, 19 gr. to f. 5. Total urea in 24 hours, 608 gr. Increase in nitrogenous elimination in 24 hours, 168 gr. Uric acid greatly diminished. Before, bottom of bottle covered; to-day only here and there a crystal. Result obtained from two static treatments, and in less than 48 hours.

Case 3.—Mr. L. W., age 36; occupation, manufacturer; diagnosis, neurasthenia; treatment, Franklinian current positive insulation, long percussive sparks to entire spine and general surface ten minutes, spray fifteen minutes.

June 21, 1893. Urine examination. Color pale amber, reaction faintly acid, sp. gr. 102; no albumen, no sugar; amount for 24 hours, 5.5x; urea 5 1/2 gr. to f. 5; total urea in 24 hours, 126 gr.

July 6, 1893. Color pale amber; no sediment; reaction faintly acid; sp. gr. 1025; no albumen, no sugar; urea 10 1/2 gr. to f. 5. Total amount 24 hours, 5.5x; total amount of urea in 24 hours, 187 gr. Increase since June 21, to f. 5, 3 1/2 gr. Total increase since June 21, 187 gr. No medicine given.

The second case was one of chronic articular rheumatism. If the acid was greatly diminished, and the urea correspondingly increased, that is much better than the introduction into the system of sediments of uric acid. As a result of two static treatments, the total quantity of urea in the twenty-four hours was increased about two hundred per cent, and the uric acid greatly diminished.

It must be noted that the patient gains in weight,

I can recall one case in which a man gained forty-two pounds in five weeks.

My purpose, however, to-day is only to call attention to the fact that there is objective evidence that nutritional processes of the human organism are intensely affected by the static form of electrification. I regard static electrification as simply the beginning of a new era of electrification; in other words, a period when we can place the patient in the electrostatic field and secure remarkable effects thereby. The day of the periodic current in medicine I think will come, and will give us better results than we have now. Much as I respect Duchenne's dictum about applying electricity locally, I believe we are approaching a period in which our treatments should be made so as to affect the whole system. General faradization or galvanization is a comparatively feeble method; it has nothing to do with the general treatment of which I am now speaking.

The mechanism which I published in 1881, is the very one which is found to-day to be essential for producing these electrostatic effects—the static induced current and the mechanism for its production have really proved to be the key to this whole subject.

I am glad that now after many years I can give evidence for the faith that has been in me; can in fact give proof that static electrification profoundly affects the nutritional mechanism in living tissue.

DISCUSSION.

Dr. H. E. HAYD said he had been particularly interested in static electricity, yet until now he had had but a faint idea of the manner in which he had obtained his results in practice. This form of electrification undoubtedly affects the secretions, for he had frequently observed that the specific gravity of the urine and the amount of the solids have increased. He knew the circulation must be influenced by static electricity, because his patients had often returned to him with the statement that since the treatment they had had a feeling of stimulation, and their feet were no longer cold. For this reason, treatment had proved particularly beneficial in cases of neurasthenia.

It is also especially useful in muscular rheumatism, because it stimulates the hepatic function. He believed that all forms of rheumatism are largely due to hepatic trouble, and hence, the stimulation of the liver is an important element in the treatment. He had often observed a great increase in the body weight in those subjected to this treatment. As he had always been under the impression that the effect of the static spark was that of a stimulant, he was surprised to learn that the pulse was diminished. He had found the quantity of urea for the twenty-four hours increase from two hundred to four hundred grains.

Dr. MASSY referred to a recent case in which the improved nutrition was only explicable by the effect of the static charge. The case was one of lupus of the skin, occurring in a nurse. As a result of a month's treatment there was an increase in weight of ten pounds, and a very marked improvement in her general appearance.

Dr. HERDMAN said he felt personally indebted to the author for the paper, and he hoped to have an opportunity to carefully study it at his leisure. He considered it one of the most valuable presentations on the subject he had heard.

The acceleration of the circulation in itself, it seemed to him, explained many things. As to the lowering of the pulse, the first effect on the circulation as the author said, was that of vaso-motor constriction, and the secondary effect, a dilatation. The vaso-motor dilatation would account for the perspiratory glands being excited to unusual activity. We also can explain in this way the favorable influence on nutrition observed in neurasthenic patients. He believed that neurasthenia was essentially an anemia, and by anemia he meant that parts which need blood can not get a sufficient supply of it. This may be the case in passive congestion, as well as in conditions where there is a lack of blood in the part. This being essentially the condition in the spine in neurasthenia, this static electrification would necessarily stimulate the circulation. In spinal irritation and neurasthenia he had found as a matter of experience that the circulation of these parts is increased and the general nutrition secondarily improved. The nervous centers as a result of the increased and quickened circulation are restored to their original activity of function.

Only a few days ago, Tesla in his presence admitted that these high frequency ideas started from the Leyden jar

action, the action of the static electricity, and the action of the movement necessarily brought about by the action of the static electricity. Hence, Morton's experiments were not the starting point of Tesla's astonishing experiments.

DR. WALKER wished to know where the fact of the acknowledgment of the error of his ways. Last year he stated that he attributed the results of static electrical treatment to a hypothetical suggestion. However, he had since come into an experience, and he had found that the results were not as he had characterized by Dr. Morton. He had a boy, a child, who had obtained very excellent results in the way of increased circulation. The patients observed increased warmth of the body for one or two days after treatment. In rheumatic cases the success had been uniform, and the results were obtained from those he obtained by massage or other means.

DR. GREEN was sorry he could not say he was a convert, although he had investigated static electricity for some years. The author had not shown a marked difference in the temperature although claiming a marked effect on the pulse; and he had given sphygmographic tracings. The speaker said that in 1887 he had the pleasure of watching some investigations in hypnosis in the McGill University. Here sphygmographic tracings were found to be different in the two wrists. The author had also criticized his statement about the effect of electricity being due to chemic action. The fact that there is an effect on secretion of urea, and that there is a change in temperature and an equalization of the circulation shows that there has been a chemic change. He has seen effects from the other currents he thought he could attribute to them, but had not had sufficient experience to lead him to feel that the results of static electrification are not due largely to suggestion.

DR. SPRAGUE said he had been using the static current in an empirical way, and was therefore glad to learn that this subject had been placed on a more scientific basis. He also had obtained good results with the so-called "toy" machines, in neurasthenic cases particularly. One girl received treatment on alternate days with a little static machine, and by this means was able to obtain refreshing sleep and continue at her school work. He did not yet understand why glass was better than ebonite in the machine. He was at present using a Gaidle ebonite machine, and it gave better results than he had formerly obtained with one of Atkinson's glass plate machines.

DR. PLYM S. HAYES of Chicago, said that up to about ten years ago he was skeptical as to the actual utility of the static machine, but since then he had used it almost constantly, and he could verify most fully what had been said to-day in its favor. He was very thankful to Dr. Morton for his tables, showing the changes taking place in the system as a result of static electrification.

One point of importance he thought had not been brought out, i. e., whether the cell proper is affected by the passage of the galvanic current through the tissues. Some hold that the galvanic current passes through the fluids surrounding the cells, and that the cells by their structure resist the passage of the current. With the high tension of static electricity he believed that the current acted directly upon the cell contents.

DR. CLEVELAND said she could confirm Dr. Morton's statements as to the nutritional effects of static electrification. One feature had not been alluded to in the discussion, the relief of constipation of years standing by the use of the Franklinian current. Her method consists in making the applications to the reflex centers involved. She had also observed the remarkable increase in weight in a great many cases. In the cases reported in the paper, no medication was employed.

DR. MORTON, in closing the discussion, said he did not think Tesla yet fully realized that his original mechanism was the foundation of Tesla's remarkable experiments. If suggestion can produce a lowering or raising of a pulse, uniform in each case, and affect the urea in the manner described, then it would seem to be as good as electricity, and a method of treatment which might well be adopted instead of electrical treatment. Before accepting this statement, however, he would like to see some tables corresponding to those he had presented. He had himself followed hypnosis quite closely, but had found nothing in it comparable to the results which he had described. A continuous current can not pass through our tissues except by electrolytic conduction, and if this exists, there must be chemic decomposition, but these currents do not decompose the tissues they traverse.

He did not doubt that the machines he had dubbed "toy" machines produced many good effects, but he hoped there

would be a time when the static machine would be used as a basis for the treatment of disease, and not as a toy. He had seen many cases of disease cured by the static machine, and he had seen many cases of disease cured by the static machine, and he had seen many cases of disease cured by the static machine.

He had seen many cases of disease cured by the static machine, and he had seen many cases of disease cured by the static machine, and he had seen many cases of disease cured by the static machine. He had seen many cases of disease cured by the static machine, and he had seen many cases of disease cured by the static machine, and he had seen many cases of disease cured by the static machine.

He had seen many cases of disease cured by the static machine, and he had seen many cases of disease cured by the static machine, and he had seen many cases of disease cured by the static machine. He had seen many cases of disease cured by the static machine, and he had seen many cases of disease cured by the static machine, and he had seen many cases of disease cured by the static machine.

He had seen many cases of disease cured by the static machine, and he had seen many cases of disease cured by the static machine, and he had seen many cases of disease cured by the static machine. He had seen many cases of disease cured by the static machine, and he had seen many cases of disease cured by the static machine, and he had seen many cases of disease cured by the static machine.

He had seen many cases of disease cured by the static machine, and he had seen many cases of disease cured by the static machine, and he had seen many cases of disease cured by the static machine. He had seen many cases of disease cured by the static machine, and he had seen many cases of disease cured by the static machine, and he had seen many cases of disease cured by the static machine.

He had seen many cases of disease cured by the static machine, and he had seen many cases of disease cured by the static machine, and he had seen many cases of disease cured by the static machine. He had seen many cases of disease cured by the static machine, and he had seen many cases of disease cured by the static machine, and he had seen many cases of disease cured by the static machine.

CORRESPONDENCE.

Women Kept Out of Salt Lake Medical Society.

SALT LAKE CITY, UTAH, Dec. 5, 1896.

I, E. E. — I have been a member of the AMERICAN MEDICAL ASSOCIATION for seven years. I think, spots red at my admission by Dr. Etheridge and Prof. W. S. Haines, my preceptors. I have paid my dues and appreciated the distinction of membership. When I came to Utah almost six years ago, I was, so far as I was able to learn, the only member of the parent society in this Territory. The profession turned a cold shoulder to me, but I persisted upon thriving. In course of time, a well-meaning man presented my name to the local society for admission, and I was turned down, one noble exponent of the art of medicine says, "If I were admitted, he admitting that my claims to fellowship were beyond controversy, 'that the doctors in town would want in'—he referred to the women practitioners among the Mormons. When this was reported to me, I said that they had Mormon men in their society; why not Mormon women who were graduates of a regular medical school Philadelphia, and qualified practitioners. "Well, we need the men's money," they cried. But you get women's money just the same, I further claimed. But they did not abandon their very untenable position. When it developed that I belonged to the AMERICAN MEDICAL ASSOCIATION and had belonged to the Chicago Medical Society, it struck some men of the local society as very absurd, and they came to me personally to apologize, and said the people present at the meeting where I was refused admission were not representative, and would I apply again. Of course I refused. After this, this society sent one of its members East to attend a meeting of the ASSOCIATION as its representative. He was received and made chairman or vice-president, or something from this Territory. Recently, another woman asked for membership in this society and was refused—because she was a woman, the answer to her application stated, and they did not admit women. Last year, I concluded to ask the AMERICAN MEDICAL ASSOCIATION why I should do my duty towards them when they did none towards me. I had already written to one officer of the ASSOCIATION at the time it recognized this society, and I received no answer. So I wrote the President, and he advised me in his reply to go to Milwaukee in 1896 and lay my case, with "evidence," before the committee of grievance or other such fair body. Milwaukee is not immediately adjacent to my place of resi-

dence and the walking was not good last spring, so I did not go. I am again in receipt of my due bill to the AMERICAN MEDICAL ASSOCIATION. Last year, I concluded not to put up any more, but they drew on me through a bank and I paid up. Now, what I want to know is, What right has the AMERICAN MEDICAL ASSOCIATION to extend fellowship to societies which will not receive its members? Why should I put up five hard silver dollars every year* as my tribute of respect to a society which shows no respect for me? I am only one woman, way out in the repudiated silver district—but the ASSOCIATION owns lots of women on its list; and when it decided to admit women, it agreed to champion them. Now, membership in this society is of no manner of value to any one, for most of the best representatives have left it and formed another society, and its meetings and productions would be of no advantage to a tyro; but it is the principle I am after—if there is one to be found in the premises, and before I pay any more money to the AMERICAN MEDICAL ASSOCIATION I want to know what I am getting for it?

Sincerely,

ELLEN CURTIS GAGE, M.D.

*What is the matter with the JOURNAL, Dr. Gage?

Rush Medical College.

CHICAGO, Dec. 8, 1893.

To the Editor:—Kindly announce in the JOURNAL that the Faculty and Trustees of Rush Medical College have decided to introduce a resolution at the next meeting of the American Medical College Association that all students who begin their studies in 1895 with a view of graduating in 1899 will be required to attend four full courses of lectures in a medical college, of not less than six months each. Providing that graduates of universities and colleges which give a suitable scientific course may be admitted to the second year in the medical college, and also that graduates from schools of pharmacy that require three years of study and an adequate preliminary education, and graduates of dental schools requiring two years of study and adequate preliminary education will be admitted to the second year in the College. I am, yours very truly,

E. FLETCHER INGALS, Registrar.

BOOK NOTICES.

Surgery. By BERN B. GALLAUDET, M.D. Demonstrator of Anatomy and Clinical Lecturer on Surgery, College of Physicians and Surgeons, New York; Visiting Surgeon, Bellevue Hospital, New York; and CHARLES N. DIXON-JONES, M.D., Assistant Surgeon, Out-Patient Department Presbyterian Hospital, New York. Being the final volume of The Students' Quiz Series, edited by BERN B. GALLAUDET, M.D. Duodecimo, 291 pages, 149 illustrations. Cloth, \$1.75. Philadelphia: Lea Brothers & Co., 1893.

This book is an extremely useful one of its class, much more complete than the ordinary quiz manual.

The author has sought to explain the surgical topics of the day in clear and concise terms, and has succeeded well. The style is rather dogmatic, but that could scarcely be avoided in a work so condensed.

A Manual of the Diseases of the Nervous System. By W. R. GOSWELL, M.D., F.R.C.P., F.R.S. Consulting Physician to University College Hospital, physician to the National Hospital for the paralyzed and epileptic. Second edition, revised and increased. Vol. II. Diseases of the brain and spinal cord, general and functional diseases of the nervous system. 182 illustrations, including a large number of colored plates. Philadelphia: J. P. Blakiston, Son & Co., 120 North Second Street, 1893. Price \$1.50.

This volume has been largely a new work was devoted to the study of the spinal cord and nerves. There is therefore a new edition of the volume on diseases of brain and

cranial nervous system, and the thoroughness with which the subject has been considered, leaves nothing to be desired. Whoever in the next few years attempts to cover the same field, will have very hard work, either to present a new topic or to present it from a new standpoint, and even then the chances are more than equal, that the point will have been already better said in Gowers. No work could be more exhaustive within the limits of living issues, and few could be compressed into clearer or better English. There is no disconnection; there is continuity and system from title page to colophon. The paper is good and the illustrations are fair. The vast amount of material compressed into this volume has necessitated the use of small type, but not the sacrifice of typographical excellence.

Transactions Illinois State Medical Society.

This handsome volume of 528 pages contains the proceedings of the Forty-third Annual Meeting, which was held in Chicago; list of officers since the organization; list of members; announcement of committees for the current year; the papers read at the meeting with the discussions thereon; a full account of the society business for the year, and the annual neurology report.

Among the papers of historical interest we notice one by Dr. W. O. Ensign on "Medical Societies of the State." It appears from this report that the oldest medical society in the State was organized in 1846, and still exists as the "Esculapian Society of the Wabash Valley." The Chicago Medical Society was not organized until 1852.

President E. F. Ingals in his address takes strong ground in favor of a National Department of Public Health.

The papers as a rule are excellent, and reflect credit alike on the authors and the Society.

The Forty-fourth Annual Meeting will be held at Decatur May 15, 16 and 17, 1894, under the Presidency of Dr. Otho B. Will of Peoria. The society is in a flourishing condition, the membership list showing 595 active members.

Annual of the Universal Medical Sciences. A yearly report of the progress of the general sanitary sciences throughout the world. Edited by CHARLES E. SAJOUS, M.D., and seventy associate editors, assisted by over two hundred corresponding editors, collaborators and correspondents. Illustrated with chromo-lithographs, engravings and maps. Vols. V. Philadelphia: 1893. The F. A. Davis Company.

The sixth issue of this great Annual is this year more distinctly inter-national than before. The temporary removal of the accomplished editor to Paris, has enabled him to secure more well known names on the list of active editors, such as Du Jardin-Beaumetz on cholera and epidemiology, Benjamin Ward Richardson and others.

As time has passed, the different compilers of this work have become more similar in style, so that the work as a whole is more uniform.

The fortunate possessor of this work is spared the necessity of subscribing for so many medical journals, as he finds a carefully prepared digest of the different branches of medical literature, ready to his hand, and in most instances the digest has been prepared by one who is himself an authority on the subject of which he treats.

MISCELLANY.

The College of Physicians and Surgeons of Richmond, Va., has a class of 111 students.

Saturday and Sunday Hospital Association.—St. Louis is to have a Saturday and Sunday Hospital Association, on the model of the London and New York Associations.

Dr. Joseph Price of Philadelphia, has proposed to tender his resignation as physician to the Preston Retreat, and the *Philadelphia Record* urges the appointment of a female physician to the prospective vacancy.

The Journal of the American Medical Association

VOL. XXI.

CHICAGO, DECEMBER 23, 1893.

No. 26.

ORIGINAL ARTICLES.

A GLANCE AT THE AMERICAN MEDICAL PROFESSION SINCE THE BEGINNING OF THE PRESENT CENTURY.

BY ROBERT HUNTER DALTON, M.D.

ST. LOUIS, MO.

To estimate the progress of medicine since the beginning of the nineteenth century, it is necessary to view the conditions of that period. Physicians then were not troubled with obstacles and responsibilities as they are now, as the calling rested on the same basis with all other common enterprises. Practitioners, whether regularly bred or impostors, had liberty to offer their services, and there was little difficulty in justifying their work among the people, who knew much less about medicine than they do now. Quacks with gift of gab and popular manners were sure of success.

There were no specialties then, but naturally, in every community, some practitioner sprang up into notoriety whose genius led him to feats of surgery, by which he gained superior fame. Opportunities of medical education were so restricted that a majority of physicians in rural and village communities were either self-taught or served a term of apprenticeship under some popular doctor of experience. Scarcity of money and difficulty of transportation were hindrances to all but a few. Transylvania was the only school in the West and South, only three of any note were in the Northeast, and among these, that of Philadelphia held chief patronage, for as far along as 1830, the Pennsylvania University was crowded with students from New York and the New England States. Medicine was then taught almost entirely from the rostrum, clinics being left out at Transylvania, and occupying only one hour of every week at the Pennsylvania Hospital in Philadelphia. The chairs of theory and practice and the institutes entirely overshadowed all others, and the professors of these were favorites of every class; indeed, they were fairly worshiped. Any octogenarian now living who listened to Charles Caldwell at Lexington, Ky., or Nathaniel Chapman of Philadelphia, in 1827, will bear witness to this, for he must have been charmed by their eloquence, especially that of Caldwell, who may have had equals in other branches of oratory, but never a superior. His person was of the grandest type, six feet two or three inches tall, well proportioned and as straight as an arrow, and modeled like an Adonis, all except his feet, which were incased in shining boots No. 10 or 11, of which he seemed to be vain. His eye was that of an eagle, and his bald head, with a broad, projecting forehead, thin lips and ruddy cheeks, gave him the appearance of a superior being. He never failed to arouse the enthusiasm of the class as he gracefully entered the

doorway every day at 10 o'clock, elegantly dressed, and with hat in hand marched up to the rostrum, while the house was shaking with thunderous applause. Booth and Forrest never created a louder stamping of feet. His hour never seemed more than twenty minutes, and while speaking, every action was grace and every word was music. Indeed, Caldwell had a right to be vain. But alas! envied by his colleagues and victimized by their secret ex parte machinations, he was finally superceded and left on the brink of old age to pine away in sorrow, with his laurels withering on his brow. Such is fame.

At that early time, medicine could hardly be called a science; the whole practice was more or less imbued with empiricism, for Marshall Hall, Brown-Séquard, Bell and other physiologic discoverers had not yet spoken. Authority was paramount, and he who had the eloquence and logic to maintain his theories, whether they were right or wrong, was always a champion. Didactic teaching was "the order of the day," especially in America, where polemics and democracy dwell together. Humoral pathology was the principal subject of controversy, and the forces were nearly equal. They were dubbed by the boys *fluids and solids*; the former referring all processes of disease to the circulation, the latter to nervous sympathy. The fiercest battles, however, were fought to decide whether fever is idiopathic or symptomatic. Caldwell, with his rhetoric, was a brilliant symptomatist, and thus many out of the large class went home "dyed in the wool." According to his view, *ubi irritatio, ibi fluxus* is the *fons et origo* of all disease; and so firmly did he believe in the power of nervous sympathy, that he boldly declared that conception was amenable to it, thus disfranchising and rendering nugatory the spermatozoic individual with all his living energy.

But while all this was going on in America, now and then an ambitious young graduate who had ventured across the perilous waters in search of additional accomplishments, was soon convinced that he had yet much to learn. He was surprised to observe eminent professors walking the clinics surrounded by crowds of students anxious to see as well as to hear, while others, with gangs of seekers intently looking on, were delving in laboratories to expose to their view the hidden mysteries of Nature. At once he became a lover of science, and appreciated the glaring necessity of reformation in the mode of teaching at home. Availing himself of the favorable opportunity, the young man labored as a student again; and after ample observation, and storing his mind with all the improvements of medical art and science in Europe, he returned to his native country to enlighten the profession and fall in as a teacher of young men in some one of our schools. And as intercourse with Europe became facilitated by steam, crowds of young men began to pass over, to imbibe

the lore of renowned institutions there, and thus medicine soon became renascent in America, where it had still maintained the conditions of colonial times.

Before the advent of this revolution, surgery differed materially from surgery now. Though commanding the most profound admiration of every one, and exalting the bold operator far above his compeers, yet few, even the most talented, ever aspired to that distinction; for, in the absence of anesthetics, surgery was little less than human butchery, as it unavoidably tortured the victim of a capital operation beyond endurance. Screams of the agonizing patient, wails of the nearest kindred, tears of sympathizing friends were never absent. It is a fact that operating surgeons, having passed through these sad ordeals, were known to weep like children when all was over and they were away from the scene of suffering, and dared remember the tragedy. Well does the writer of this, recollect an operation performed, in 1811, on his little brother, by the once celebrated Dr. White of Virginia. The child was 9 years old. His right tibia, for two-thirds of its length, was necrosed, and the doctor might have left the lower third in its socket, but he did not. He rapidly scooped out the entire bone, and then filled the gaping space with fine oiled tow and wrapped a loose bandage around it. Then leaving the room to put up his instruments, tears were falling and he was wiping the instruments dry, and wiping his eyes at the same time. Another case has not been forgotten: a young physician, just returned from Philadelphia with his diploma, was called upon to amputate the leg of a poor young man brought from a distance and accompanied by his mother, sister, two brothers and several friends. The large attendance signified the interest felt in the young man. An empty old house across the river was obtained free of rent, and the doctor and assistant were on hand at the appointed time. The leg had been amputated with firmness and dispatch, and directions given for attending to the case, and the two doctors were fording the river on their way home when, all at once, the operator burst into tears as his mind began to realize the pitiful scene, impressed but not noted while the operation was going on. Doctors of the present generation may regard all this as quite silly; nevertheless, language fails to portray the horrors of bloody surgery in the absence of an anesthetic.

Midwifery in those times was chiefly confided to the care of old women who, in the country and village, were called "granny," whether white or black. In the slave States, the black granny was often employed and physicians were seldom called in, except in difficult cases—mal-presentation, hemorrhage, or retention of the "arter betn." In the few large cities of that period, doctors were just beginning to reap the benefit of that valuable practice, which had ever been in possession of midwives since the first accouchment of our Mother Eve. Surgical gynecology was unknown then, and horrible cases of vesico-vaginal fistula, uterine fibroids, and ovarian tumors were the painful, long continued preludes of death among the women of almost every neighborhood. It is true that Dr. McDowell of Kentucky had long since plunged his knife through the *sacred* peritoneum and turned out a very large ovarian tumor, saving a woman's life, but that only proved that he was a reckless dare-devil void of conscience; and so the

great surgeon and benefactor of woman lived on and died, ignorant of the fact that he had rendered the name, *Ephraim McDowell*, immortal. In fact he might have regarded himself as under the ban of public sentiment. Such is often the reward of manhood and genius. Thus went on the sufferings and misfortunes of the gentler sex, till about the middle of the century, when a poor young doctor, in feeble health at Montgomery, Ala., was known to be harboring, at his own expense, two or three negro women in a small board shanty in his own yard, which was laughed at as *Sims' Hospital* by some neighboring physicians. These women were victims of vesico-vaginal fistula, and Sims was experimenting to find a substitute for the hollow, conical speculum, which precluded free manipulative access to the injured parts. The bent handle of an old pewter spoon was improvised, the rupture exposed, and nothing remained to insure a perfect cure, but ordinary mechanical digitation. The jokers had enjoyed their fun for a year or more, but when Aunt Peggy and Aunt Lucy walked out smiling and rejoicing, dressed in their clean, homespun, white cotton frocks of sweet smelling odor, they began to bite their lips; and one of them even ventured to declare that he had already anticipated Sims, and a controversy seemed imminent. But the poor young man only said "shoo by," and went on stitching, till he found himself in Europe hobnobbing with royalty and nobility, while stuffing his pockets with shining shekels to scare away the wolf from his door forever. The writer was several years older than Sims, and at that time lived in the same State not far distant, when he was struggling, as a young practitioner, for means to support his family; and he well remembers the witty comments of rivals, who criticised his methods of laying the foundation of surgical gynecology. He must plead guilty to the charge of smiling as he listened to those jokers, but now he begs the privilege of falling on his knees to honor the memory of Sims. And now, who will say that Dr. Francis Marion Sims ought not to have a monument erected and paid for by American physicians to immortalize his name?

More than one-third of the century had passed away, when it became evident that the domain of medicine was too extensive for the qualification of any individual physician to discharge its functions with intelligence and honest service. Therefore, specialties naturally came into vogue, enabling the general practitioner to fully equip himself for every phase of disease in his line; and at the same time, the simple stethoscope and the marvelous microscope, with many other minor improvements and facilities of great value, were inaugurated to augment the importance of our profession. But when the middle of the century was reached, lo! chloroform had been discovered, and surgeons everywhere were seen quietly and leisurely carving the flesh of living, sensitive human beings, while their subjects were wrapped in the folds of lethean bliss, and then at a single bound, surgery leaped to the highest distinction. The terrible agonies of frightful operations had ceased forever, and blood, in great measure, had ceased to flow by the surgeon's knife, being restrained by more careful cutting, and the genius of Esmarch. In addition to all this, the civil war came in 1860, not only to alter, with terrible vigor, the basis on which

¹ Named after General Francis Marion of the Revolution.

our political institutions are rooted from the beginning, but to arouse the energies of the American mind, in the way of invention for the benefit and comfort of the race, to a degree never witnessed before; and medicine was not left in the rear of that progress.

For some years the microscope had been sporting with bacteria, but only as a biologist would scrutinize the appearance of a new species; but now bacteria began to be suspected of playing an important part in the production of disease, and forthwith the eyes of almost every physician was piercing the lens to observe the habits, potency and peculiarities of these mysterious, imponderable minugia of life; but thus far the investigation fails to result in any satisfactory or positive conclusion. Whether the microbes are the cause or mere harmless accompaniments of disease is yet a question. However, one great benefit has already resulted: aseptic surgery, almost equal to the discovery of chloroform, has been established and healing by first intention fairly secured.

Whatever may be the final outcome of this earnest inquiry, an honest review of the last half century will show, beyond peradventure, that our profession has vouchsafed to mankind, independently of its grand achievements in the way of sanitation and quarantine, everlasting benefits entitling it to the highest honor; but when we take into consideration the fact and truth that the nation's health and vigor have, in the meantime, been fortified by medical science, against the assaults of deadly epidemics, that sacrifice so many thousands of human beings every year to the Moloch of contagion, we are startled at the magnitude of the obligation.

Public health is manifestly a matter of the gravest importance and can not be too highly regarded, for a nation, like an individual citizen, is strong and progressive or weak and inert, according to its condition of health and vigor; for a nation is only an aggregation of individuals. Look at John Bull. He dines every day on roast beef and feels buoyant, and then he bounds away into enterprise with enduring muscles and tense nerves, hustling among the nations and beating his warlike tattoo from the rising to the setting sun. On the other hand, behold the Celestial King. He lives on a little pale rice and feels lethargic, and then he reclines in vaporeous dreams to vegetate, as he has been doing for the last two thousand centuries or more. A feeble, ill-nourished people are always cringing slaves, and ill health is equally debasing to a nation.

Hitherto all efforts to guard or promote public health have been more or less due to the spontaneous intervention of physicians, supplemented occasionally by State or local authorities, but now there seems to be a reasonable demand for the general Government to recognize it as a Department, with all the functions of a Cabinet office. So mote it be.

THE IMPENDING REVOLUTION IN MILITARY SURGERY CAUSED BY THE NEW INFANTRY RIFLE.

BY EDMUND ANDREWS, A.M., M.D., LL.D.

PROFESSOR OF CLINICAL SURGERY IN THE NORTH-WESTERN UNIVERSITY, CHICAGO; SENIOR SURGEON IN VETERAN HOSPITAL; FORMER SURGEON IN ARTILLERY SERVICE.

Some nineteen-twentieths of all the wounds received in any modern battle are from infantry rifles, and from the machine guns. England, France, Ger-

many, Austria, the United States, and all other nations, have recently adopted machines for their infantry which will fire thirty to sixty times a minute, with the Gatling machine firing at a rate of 1,000 shots in the same time.

A new powder is used, and the velocity of the bullets and its smokeless, and sends the missile over two miles, while the cartridges are less than half the weight of the old ones, enabling the soldier to carry more than double the number of cartridges.

These weapons change the conditions of warfare, so that all open ground can be swept with a storm of bullets, before which men can neither charge nor stand still. The only exceptions where the country is rough enough to admit of an advance by gradually crawling through the hollows, and making short rushes over narrow crests from one hollow to another.

The old charges of dense lines of cavalry and infantry over open ground are ended forever.

This new condition of things has altered the infantry tactics, so that the fighting lines are longer and thinner, the men being separated further from each other. Five thousand infantry used to make a double line of battle about a mile long. Hereafter they will extend two miles, and sometimes even three or four miles, and firing will commence as soon as men can see each other, which may be at the distance of a mile and a half. All this introduces into field surgery numerous changes which may be described under two heads: 1, surgical tactics, or the general management on the field of battle; and 2, the operative treatment required by the peculiar wounds made by the new guns.

First, as to surgical tactics: in our civil war the first aid to the wounded was given by a few assistant surgeons detailed to accompany the "line of battle," or "the fighting line," as it is now called. Each of these officers served from three hundred to a thousand men, giving temporary aid, but not attempting important operations; and sending the wounded back on foot or on litters to the field hospital, whenever a lull in the firing permitted it. As the lines will hereafter be stretched out to such a great length, it is probable that the extreme right and left of the assistant surgeon's charge may get beyond his reach, and more medical officers will be needed at the fighting line. However, the increase may not be very great, owing to the modern plan of "first aid" service. Four privates in each company are instructed by the surgeon in weekly drills. They are taught the art of stopping hemorrhages, of dressing wounds and fractures, of lifting and carrying men on stretchers, on extemporized litters, on their own backs and on horses or mules, and are trained in various other matters concerning "first aid." Each of them carries in his hip pocket a small "First Aid Package" containing a little sublimate gauze and a triangular bandage, with printed directions on the wrappers, and pictorial illustrations on the bandage, to assist the soldier's memory. In battle these privates act as fighting men until ordered to collect the wounded, or otherwise attend to them, when they lay down their guns and proceed to their work, the rest of the company being forbidden to leave their posts.

This weekly drill has as yet been introduced into only one post of our army, which is Fort Sheridan near Chicago. There Surgeon-Major Girard has inaugurated the plan in full form. It is not yet

decided how long it is best to continue the education of each squad. Some advocate changing them often, so as to gradually bring the whole company under the training. It is obvious that with the help of these educated privates the assistant surgeon at the front can serve a longer line of battle than formerly.

The assistant surgeons at the front select places for "First Dressing Stations" near the fighting line, and the instructed privates conduct or carry the wounded there whenever a lull or a cessation of the firing permits. Until then the wounded should lie flat on the ground where they are, or get behind any available shelter. The wounded being temporarily cared for, the instructed privates return to the fighting line.

The assistant surgeons examine the wounds and dressings and correct any error or omission. Farther to the rear, as near as the fire of the enemy and the topography of the ground permits, the ambulances are assembled under the charge of a line or staff officer, subject to the orders of the surgeon. Here at the beginning, the "Hospital Corps" is stationed. This consists of hospital stewards and privates enlisted for this special work, to the number of four for each battalion of troops. They are not combatants. They are thoroughly trained and wear the red Geneva cross upon the left arm. By the comity of all civilized nations they are never to be intentionally fired on, and never to be taken prisoners, so that they are safe everywhere except when exposed by the actual operations of the fighting lines against each other. In Mohammedan countries the badge is a red crescent, which gives the same protection. Each of the Hospital Corps carries a pouch containing the following articles, viz.:

Ammonia aromatic spts., 1 oz.	Petrol. carbol. $\frac{1}{2}$ oz.
Bandages, roller, No. 4.	Pins, common, 1 paper.
Candle in tin box, No. 1.	Pins, safety, No. 6.
First aid packet like that of the	Plaster, adhes. 1 spool.
instructed privates, No. 1.	Scissors, medium, No. 1.
Forceps dressing, No. 1.	Splints, wire, No. 2.
Iodoform sprinkler, No. 1.	Sponges in bag, No. 2.
Jackknife, No. 1.	Thread, linen, 20 yds.
Lint, cor. subli., 2 oz.	Tourniquets, field, No. 2.
Needles, medium, 1 paper.	Wool, boracic, 2 oz.

The Hospital Corps, thus equipped and provided with litters, moves forward leaving the ambulances at the nearest safe point, meets the instructed privates at the front and carries back all the wounded not able to walk to the ambulances, and places them in the vehicles. They are thence carried back to the field hospital. This is a spot selected so as to be if possible, tolerably safe from fire, in proximity to water, and in winter sheltered from cold winds. In settled countries, houses or barns can be utilized. The medical officers not detailed to accompany the fighting line are assembled at the field hospitals, or "field depots" as they used to be called, where the operations are performed, and the wounded in other ways more completely provided for than at the front. As the fighting lines will be more than double in length and in large armies may extend fifteen or twenty miles, the field hospitals will have to be more numerous than formerly, and have fewer surgeons at each. From these, the ambulances come and carry the wounded to camp or to any place desirable.

Owing to the awful sweeping fire of the long range weapons, the field hospitals will have to be farther to the rear than formerly, unless there are hollows, ridges or breastworks admitting of nearer shelter.

In level, open ground, they may have to go back as far as one or two thousand yards. This necessitates a great increase in the labor of bringing back the wounded on litters, for it must be remembered that in open ground ambulances can not approach the fighting line, as horses, drivers and wounded will all be killed. Ambulances can not lie down when the gusts of firing become hot.

The following diagram illustrates the relative positions of the fighting line and the stations, but not the distances:

Brigade in Line of Battle



First Dressing Stations

Ambulance Station

Field Hospital

This arrangement of four "first aid men" in each company, supplemented by the Hospital Corps, will place the surgical tactics in a far more perfect condition than in former American wars, where the surgeons had no help in the field except a very few hospital stewards and some blundering, untrained musicians, spared from the front because they could not fight. The Hospital Corps, including stewards, acting stewards and privates, but not including the instructed privates of the fighting line, constitute about 2 per cent. of the entire army.

The steward ranks above the first sergeant of a company and has a pay of \$50 a month; assistant stewards have \$25.

In peace the Hospital Corps is on duty in the camp and post hospitals.

The assistant surgeons on the fighting line have each an orderly carrying a pouch filled with surgical supplies.

The United States have been slow to adopt the magazine guns, but at last have aroused themselves to the necessity of it, and have selected the Krag-Jorgensen rifle, which is a new repeater, throwing a small projectile much like those already introduced in European services, but in several respects superior to any of them.

Before discussing the new wounds and their treatment, let us compare the old and the new bullets.

When our civil war commenced, our army used the old Springfield muzzle loader. The bullet was conical and had a diameter of fifty-eight hundredths of an inch and a length of about one inch, and was fired at a velocity of about one thousand feet a second. At the close of the war, breech loaders were intro-

duced, and the caliber was reduced to forty-five hundredths of an inch and the velocity was increased to 1,300 feet a second, but except in size the bullet remained without essential change.

The older of these bullets produced wounds of a character peculiar to themselves. Being large in size and slow in velocity, their effect on striking a bone was to produce a great shattering, while the missile, crashing through the mass of loosened bits of bone, flung them violently in every direction almost as if an explosion had occurred in the middle of the limb. If the shaft of the femur were struck it was often comminuted for several inches. If the bullet traversed the condyles of the femur, or the head of the tibia, half the knee joint was instantly reduced to a mass of bony gravel. These wounds were of the most frightful character, and in the field of my observation about half the cases of shattered femur died of shock by the end of the fourth day, whether amputated or not.

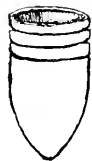


Fig. 1.



Fig. 2.



Fig. 3.

When the caliber of the rifle at the close of the war was reduced to .45, the shattering was less, and the shock probably diminished, but in the main the wounds partook of the same general character.

The Krag-Jorgensen gun, and others of like type, produce very different wounds, and this difference will revolutionize certain parts of war surgery. Smokeless powder is used, of such a strength as gives the bullet a velocity about double that produced by the old cartridge; that is to say, about two thousand feet a second. The bullet is about an inch and one-third in length, and only thirty hundredths of an inch in diameter, being about as large as a good-sized lead pencil. It consists of a casing of thin steel, or of German silver, filled with lead and nickel plated. This casing with a harder metal than lead is to prevent "stripping" in the grooves of the rifle. Its surgical effect is that the bullet goes straight through a bone without being spread and flattened out of shape, and consequently with less tearing and shattering than the old projectile.



Fig. 4.



Fig. 5.

Fig. 1, shows the large bullet used in our civil war. Fig. 2 the .45-caliber used since, and Fig. 3 the new projectile now coming into use.

The old lead bullets were deformed into every possible shape on striking bones. This spreading out of the lead greatly increased the shattering of the bone, and the tearing of the soft tissues beyond it.

Fig. 4, shows a spent bullet which I cut out from

under the vastus externus muscle, where the concavity of the distorted bullet rested on the outer side of the shaft of the femur, not having velocity enough left to shatter the bone.

Fig. 5, represents an old-fashioned globular bullet which I removed. It had struck a bone and was cut and spread open into a very singular shape.

Dr. Louis A. La Garde of the United States Army, has studied the effects of the new projectile upon cadavers. His experiments show that they are rarely deformed, but go straight through the bones without being altered in shape, or deflected from their course. In one single instance, however, the lead broke through its hard metal casing and separated from it.

Pure lead bullets are often cut and rasped into several pieces by the sharp projections of the fractured bones, and the metallic fragments diverge widely from each other.

This comminution of the lead has given rise to a conjecture that the sudden stoppage of the motion converted the energy of the bullet into heat and melted it, causing the molten mass to be splashed about in all directions. There is no proof, however, that such is the case. I have taken out a great number of deformed and comminuted bullets, and never found a single one which presented any of the forms characteristic of molten lead. The angles are sharp, the surfaces are scratched, and there is a total absence of any of the burnt appearances which molten lead would produce.

Moreover it is impossible to generate a melting heat in that way. Mr. Victor Windett, an eminent mechanical engineer, has calculated for me the temperature possible if all the energy of the projectile were suddenly transformed into heat, and he finds that though the heat would be theoretically sufficient, if the energy at the instant of leaving the muzzle were all expended in heating the lead, yet this complete conversion is impossible. At high velocity a large force is lost in the resistance of the air. On striking the body most of the remaining energy is lost in perforating and shaking the tough tissues, and rending, shattering and dispersing the bony fragments, so that the proportion of heat left for melting is too small. Beck of Europe, has also made the calculation, and found the same result. The theory is therefore untenable.

The most important thing from the surgical point of view, is the changed character of the wounds, made by the new projectiles, and the consequent modifications which will ensue.

So far as the old weapon is concerned, I have made numerous experiments on the cadaver with the Springfield army rifle, choosing the old pattern (caliber .58), as well as carefully studying the wounds in field surgery during the late war.

Several varieties of the new gun have been tested on cadavers by Dr. La Garde of the United States Army, and by Beck, Delorme, Langier and Roget of Europe.¹

These investigations show the following facts:

1. In a general way, we may say the old gun tears and shatters; the new one pierces.
2. The old projectile creates more shock and "stops" a wounded man more effectually; the new one causes less shock and less injury.

¹ *Fractures Experimentales* par Delorme, *Traité de Chirurgie* par Dupuy et Reclus, *Traité de Chirurgie d'Armée* par Chauvel et Nimmer, etc.

However, it is necessary to qualify these broad statements somewhat by the following observations:

The new gun starts its slender projectile at a velocity of 2,000 feet per second. If it strikes a human body within the distance of about three hundred and fifty yards it tears and shatters almost as badly as the old gun of 58-caliber. European experimenters seem to suppose that this is partly peculiar to the new weapon, and speak of the effect as a "genuine explosion," an "explosive effect," etc. However, they have not figured nor described any shattering which was not familiar to us in the wounds made by the 58-caliber projectile in our late war, but there is this difference: the old conical 58 bullet shattered at all distances, so long as it had force enough left to break the bone; the 45-caliber had less of this so-called explosive effect, while the new 30-caliber ceases to shatter extensively at about three hundred and fifty yards, and produces more of a perforating wound, and continues in that style up to about one thousand eight hundred yards. Beyond that distance, the shattering effect is resumed, which is a singular fact and one difficult to explain. As nearly all wounds will occur between the distances of 350 and 1800 yards, it follows that in future wars most of the lesions will be of a perforating rather than of an "explosive" character.

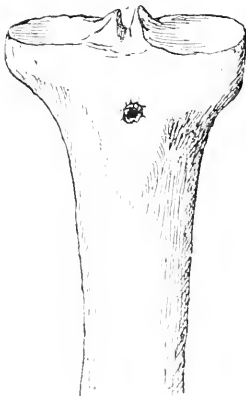


Fig. 6.

Fig. 6 shows a perforating wound of the tibia, sketched from one of Dr. La Garde's specimens.

Fig. 7 is from one of Delorme's illustrations. Both show the singular perforating power of the new bullet.

In contrast with these, we may illustrate the "explosive effect" of the old 58 projectile. The cut is a diagram rather than a portrait of any one case, but it shows the effect which we so often saw in battle during the days of the 58-caliber gun. The cut represents by a shaded strip the track of the bullet through the condyles of the femur, and the appearance of the condyle if we suppose the fragments to be all replaced in position. As a matter of fact, however, they all lay loose in the capsule in the form of a great double handful of bone gravel, constituting a frightful injury.

In future fighting, most of the wounds will occur at the perforating, and not at the shattering distance, so that field surgery will have to deal with new conditions:

1. The wounds being smaller and less shattering, shock will be less and the missile will generally go through the body, and not require to be extracted.

2. The bullet being so small will have much less tendency to carry in with it patches of septic clothing and skin, and any bits that are lodged in the track of the wound will be so minute that a deep flushing of the wound with antiseptics will often sterilize the injury.

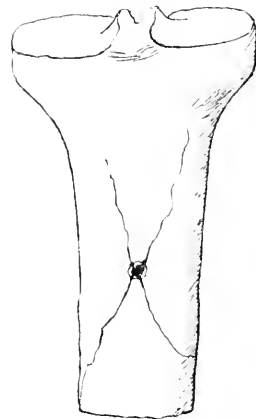


Fig. 7.

3. In cases where there is actually some chipping of a joint surface it will be possible to open the joint on the field, pick out the fragments, sterilize the cavity and close it up, thus avoiding amputation.

4. It will in future be possible to avoid a large portion of the amputations and excisions, which were formerly necessary.

5. In perforating wounds of the abdomen, the tearing of the hollow viscera will be much diminished, giving a hopeful opportunity to save life by laparotomy on the field.

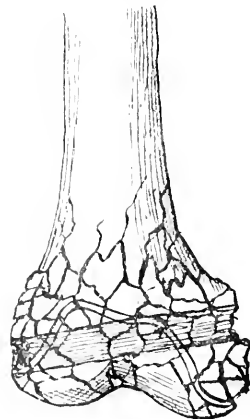


Fig. 8.

6. As prompt antisepticism of the wounds will be important, the hospital corps will have to be instructed how to do it before they bring in the patient.

7. The dispersion of the wounded over wide areas will increase the difficulty of prompt "first aid."

8. Field surgery will be more scientific, and require a greater variety of operations, hence the poverty stricken little cluster of instruments formerly furnished by the Government to field surgeons must have additions adapted to the new exigencies of the battle-field.

6 Sixteenth Street, Chicago.

MEDICAL EDUCATION.

BY HENRY M. LYMAN, A.M., M.D.

PROFESSOR OF THE PRINCIPLES AND PRACTICE OF MEDICINE, RUSH MEDICAL COLLEGE, CHICAGO, ILL.

The present is a time of evolution and change in the methods of medical education. The country has outgrown the old system which was the best that could be provided for the hungry boys who could hardly keep soul and body together during a term of sixteen weeks of exclusion from the maternal pantry. Thus far the progress that has been made is in the way of real improvement. It might have been much more rapidly effected had the pecuniary endowments of medical education been established upon a broader foundation; but, taking everything into consideration, the teachers of medicine throughout the country have accomplished all that with their limited resources was possible. We have reached the point where eight or nine months' sessions are required at the leading medical schools, and four years of study are requisite for graduation. The next step in advance will consist in the enforcement of attendance upon four courses of medical lectures delivered during the four consecutive years of medical study. This arrangement will render it possible to adopt a course of study that shall be complete and easy of apprehension, instead of the unphilosophical curriculum covering only three years, during the second year of which the belabored student is struggling to finish his preparation in the elementary branches, and at the same time striving to cope with the advanced subjects for which he is not sufficiently equipped.

But with the adoption of the four-year course, no such helterskelter method need be followed. The first two years should be devoted to the study of the science of medicine, and the last two years to the art of medicine. The great object during the first two years should be the acquisition of a sufficient practical acquaintance with that body of classified knowledge which we now possess regarding the structure and functions of the body, and the active agents that modify that structure and function in health and disease. For this purpose the student should be carefully trained to use his powers of observation in the dissecting room and in the laboratories, where histology, physiology, chemistry, medical physics, bacteriology and materia medica are taught. This will consume the working time of two full years. Inasmuch as many of these subjects are admirably taught in the literary colleges and scientific schools of the country, the graduates of such schools and colleges may very properly be admitted to the second year of the medical course. This is additionally desirable for the purpose of attracting to the medical profession many highly educated young men who might be repelled by a requirement

that they must spend a year in reviewing what they have already sufficiently studied.

Having thus completed two years in the study of the elementary branches, the student should be examined, and only if duly qualified, should he be permitted to advance to the study of the art of medicine. Progressing in the philosophical order he should now be made acquainted with the visible and tangible forms of injury and disease. In other words he should begin the study of surgery. This should be taught in all its branches, including the principles of surgery, injuries, skin and venereal diseases, eye and ear diseases, surgical diseases of the respiratory passages. Obstetrics may now be fittingly taken up, and the principles of medicine should receive attention. Finally, those topics which require the largest experience, observation and power of intellectual discrimination should engage the attention. These are the practice of medicine and surgery, gynecology, medical jurisprudence, state medicine, mental diseases and therapeutics. The following schedule will readily exhibit this classified arrangement of subjects:

FIRST YEAR.	
Anatomy.	Chemistry.
Physiology.	Medical Physics.
Histology.	Materia Medica.
	Dissections.
SECOND YEAR.	
Anatomy.	Chemistry.
Physiology.	Toxicology.
Bacteriology.	Hygiene and Climatology.
	Dissections.
THIRD YEAR.	
Principles of Surgery.	Principles of Medicine.
Pathological Anatomy.	Skin and Venereal Diseases.
Eye and Ear Diseases.	Orthopedic Surgery.
Therapeutics.	Surgical Diseases of the Respiratory Passages.
Dental Pathology.	Physical Diagnosis.
FOURTH YEAR.	
Practice of Surgery.	Practice of Medicine.
Gynecology.	Nervous Diseases.
Mental Diseases.	Therapeutics.
Medical Jurisprudence.	State Medicine.

But even the most scientific classification of medical studies will avail little if the method of instruction be faulty. The day has gone by when medical students could become learned physicians by absorption of knowledge from the atmosphere of a lecture room that had been impregnated by the breath of an eloquent professor. Like all other students, medical students must acquire knowledge for themselves by diligent work in the laboratory and recitation room. During the first and second years the greater part of the time should be passed in the dissecting room, in the chemical laboratory, in the laboratories of histology, bacteriology and pharmacy. Instead of considering their duty fully performed by a voluble description of the sphenoid bone, or a dissertation upon the functions of the supra-renal capsules, the professors should be sparing of lectures, and should confine their didactic efforts to the demonstration of such objects and experiments as can not be readily performed by the students themselves. With each professor should be associated a sufficient number of tutors whose office should be the hearing of regular recitations upon the topics assigned by each chair. Every student should be required to attend these recitations, just as if he were a freshman or a sophomore in a literary college. In this

way, accuracy of knowledge will be insured for the student, and for the tutor experience in the art of teaching. At the end of two years, if his examinations are satisfactory, the student may be allowed to commence the study of the art of medicine. During the next two years instruction by recitation should be continued by the tutorial staff, while the professors of each department should confine themselves chiefly to the supervising of the work of their subordinates, and to clinical instruction of their classes in the clinical amphitheater or at the bedside. At the end of the third year the qualifications of the class should be fully ascertained, and no one should be permitted to enter the graduating class in the fourth year until he has given satisfactory evidence of sufficient preparation for such candidacy. In this way it will become possible to avoid many of the ruinous disappointments which now occur, when all sorts of loose fish are coaxed into the graduating net only to be rejected at the final examination. The sifting of students should precede their matriculation, and should be continued during the whole of their course, instead of being postponed till the final examination, leaving the unfortunate dullard in ignorance of his fate till time and money have irrevocably vanished, with nothing to show in exchange for the sacrifice.

A REMINISCENCE OF THE NICARAGUAN FILIBUSTERS.

BY L. C. LANE, M.D.

SAN FRANCISCO.

Acepto con gusto la leche, queso y pan de maíz que me ofrecieron, mientras él decoraba estos huesos, ocupado exclusivamente en estudiar la manera más sólida de la naturalización, no se entablaba de modo alguno de sus discursos.

He accepted with pleasure the milk, corn bread and cheese which they offered him, and while he ate this food, occupied wholly in satisfying the most want of nature, he took no heed of their discourses.—From Captain Alvarado's Novela, "Pamplona y Elizondio."

When an Assistant Surgeon in the United States Navy, in 1858, and connected with the sloop of war *Decatur*, the writer was on the western coast of Central America, at the close of General Walker's invasion of Nicaragua. The older reader will remember this freebooting expedition, which was composed of bold, reckless, fearless and unscrupulous fortune hunters; and whose operations, as was evident to the writer, had the sanction of President Buchanan's administration, and the aid of the Navy, as far as it was possible to go without arousing international suspicions. And in this movement the sloops of war *Decatur* and *St. Mary*, and frigate *Meriton*, so famous afterward in the Confederate service, quietly acted their respective parts. These vessels were moving from port to port for the purpose of aiding or protecting Americans who might be found in distress.

On the arrival of the *Decatur* at Punta Arenas, the Pacific port of Costa Rica, our commander was informed that a body of American filibusters, who had been conquered by the Costa Ricans, were held as prisoners at that place. These men were young; few of them had reached the age of 30 years; they were half naked and of cadaverous paleness, for in their blood, to an undue measure, the leucocyte had replaced the red globule. As prisoners, they were fed by the Costa Rican Government; and for this purpose were provided for in the manner which the robber would usually receive from him whom he

had failed to rob, viz.: they were each given a dime a day with which a sufficiency of bread, bananas and plantains could be purchased to stay off, or rather prolong, starvation. And as dessert, each evening their eyes feasted on a sunset picture unequalled by nature or painter in Italy. It is probable that in that scene of sublimity, cloud-forms tinted with opal, amber and rose, did little towards appeasing the fierce qualms which tormented those starvelings.

The predominating diseases of these men, apart from numerous minor lesions received in sacrificing to Venus, were malarial fever and an ulcer of peculiar and unusual characteristics.

The fever was of remittent or intermittent type, and was much milder in form than that which occurs at the North in the robust subject who has been exposed to malarial influence. From the writer's observation every white immigrant from the temperate zone to Central America soon fell a victim to this fever. After a few years' residence there they became emaciated, bloodless and spiritless. A few succumbed at once and died soon after arriving in the country. A Minister to Guatemala from the United States died in two weeks after reaching his destination. To live there the Northerner must be provided with quinin, and from time to time, take enough to counterpoise the malarial poison with which he is becoming saturated.

The ulcers with which the filibusters were affected were seated chiefly on the arms and legs, and their causation and commencement were to be found in some lesion which was of a trivial nature; for example, the prick of a thorn, the bite of an insect, and in a few cases the wound had arisen from a knife-thrust or gunshot missile. In the Central American forest one encounters at every step trailing vines and shrubs which are armed with small spines or thorns, the contact with which lacerates the skin. And in these men such wounds quickly enlarged, and assumed the form of an unhealing ulcer.

These ulcers presented characters which the writer has not seen elsewhere. They consisted of half-formed tissue which, in the exuberance of its growth rose two or three lines above the adjacent surface. They were of a pale yellow color, and so non-vascular that when touched they did not bleed. This pseudo-formation differed widely from any form of granulative tissue, and in appearance it resembled a thick emulsion rather than an organized animal tissue. In fact, it was a new type of structure, so low in organization that it was the analogue of a fungoid plant, and was no more sentient than the latter. This fungoid neoplasm had arisen in the human body that was saturated with malarial poison, half starved and living on a non-nitrogenous food.

The commander of the *Decatur* gave orders that a few of these men who were in the worst condition should be taken on board and cared for. A small number were selected, and were given treatment. Little was done except to place them on the man-of-war's rations, and under this improved regimen, and simple cleanliness, the ulcers vanished like magic. These cases afford an illustration that food and not medicine may give health to the sick, reversing the initial sentence of Celsus.

Of the men who were left ashore in Punta Arenas, a considerable company took a large boat and came alongside of the *Decatur*, hoping thus they would

also be received. Which denied permission, these men indulged in profane comments against our commander and the United States, in the form of studied curses which would have shocked even ears which had become obtuse to marine blasphemy. Volleys of imprecations were heard which reverberated back from the neighboring Cordilleras; and, borrowing the words of the Homeric Muse, they resembled that shout

"That moved Heaven's concave and above
Shook the fixed splendors of the throne of Jove."

Or perhaps their action were better expressed in the words of Virgil's suppliant: "*Etherei scopuli superos, Ichonta morbo*,"—(If I can not move heaven I will try hell.)

The men who remained at Punta Arenas, after a longer or shorter sojourn, either died or managed to escape, and in their invasion of Nicaragua they learned, or taught others, the lesson of the embarrassment which may beset the attempt to conquer a Central American republic; and that the latter, though weak in military resources, has numerous other allies in the pricking thorn, the stinging ant, the chigoe, the vertical sun-ray, and of potency equal to these, the atypical ulcer and the microphyte of malarial poison.

TREATMENT OF SEA SICKNESS.

BY M. CHARTERIS, M.D.

PROFESSOR OF THERAPEUTICS AND MATERIA MEDICA IN UNIVERSITY OF GLASGOW, SCOTLAND.

SEA VOYAGES.

Sea life is not new to me. I commenced my professional career by acting for nearly two years as Surgeon in the Peninsular and Oriental Company's service, and my autumnal holiday since then has never appeared to me to be satisfactory or complete, unless part of it has been spent on board ship.

I never was seasick. I love the sea in its calm and pleasant mood, when the waves lazily lap the steamer with the kiss of friendship, and I am not distressed when they turn upon it as an intruder and lashed by the fury of a storm seek to bury it in the ocean's depths. In all its moods, bright or dark, the sea has for me a wonderful charm, for I admire its vastness, its grandeur, and its boundless power, except when the fog horn is heard or an iceberg looms in sight.

So when I had the honor of being placed upon the Advisory Council of the Medico-Climatological Section of this great Exposition I elected to address you upon a subject with which I was very familiar—sea voyages.

INFLUENCE OF A SEA VOYAGE IN CERTAIN DISEASES.

The sea atmosphere has certain marked features. It is pure, it is equable. There is freedom from the risk of chills when on deck. Day by day the traveler breathes in saline particles, abundance of ozone, a slight quantity of bromin and iodine, and all these tend to have a salutary action on the general system. By increased appetite and good digestion the health improves, and this improvement is manifested by gain in weight, by a better color, and by more bodily vigor.

In causing increase in weight, the ocean climate surpasses all others, and it is not uncommon in a long voyage to find that a man increases more than fourteen pounds in weight.

In what cases, then, is a sea voyage to be recommended?

We would answer this in three distinct ways.

1. That it is very serviceable in certain pulmonary affections. The moist atmosphere does good in chronic bronchitis with little expectoration, for it tends then to relieve the dry cough by relaxing the bronchial tubes.

In chronic pleurisy it appears to facilitate absorption and in chronic empyema it effects a morbid change. Empyemata patients have embarked with drainage tubes in their chests and in the course of the voyage the discharge gradually ceases, and the cavity granulates up sufficiently to allow of the removal of the tube.

The late Dr. Walshe stated: "A sea voyage, especially in the case of young adult males, will occasionally work more effectual change in the phthisical organism, than any other single influence, or any combination of influences with which I am acquainted." The experience of many observers has confirmed this opinion, and it is now an acknowledged fact that the progress of tubercular mischief in the early stage can be completely arrested by a timely and prolonged voyage.

Experience has also shown that a voyage does good in cases of phthisis when there is a single cavity without great local irritation, and that it is very beneficial in that form of phthisis which is seen with scrofula.

2. A sea voyage operates like a charm in the case of patients recovering from acute dysentery, and in aiding convalescence from an acute inflammatory affection. The recuperative efforts of nature are then assisted by the exceptional advantages of an unsurpassed atmosphere and by an improved digestion. So, also, in the various sequelae of influenza, a sea voyage is unquestionably a better remedial agent than any drug or combination of drugs that can be prescribed.

3. In chronic Bright's disease, if it be not marked by much loss of albumen, the regular diet at sea, the systematic exercise on deck, the impossibility of any chill being caught there, combine to make conditions which render recovery more possible than any residence on land can effect.

4. Above all, a sea voyage is the unquestioned cure for nervous derangements which result from over work and are attended with sleeplessness. In a voyage there is leisureed recreation. There is an unequalled holiday. There are no business cares and no professional worries. There is complete physical rest which in the end brings gradually but surely mental repose. Soothed by the breezes of the ocean, a tired man, professional or mercantile, acquires a new physique, while real or fancied ailments disappear under a tonic which art can never supply.

THE GREAT DISADVANTAGE IN SEA VOYAGES—IS SEA SICKNESS.—ITS NATURE AND SYMPTOMS.

In these, and other diseases mentioned, physicians recognize that the sea air and the mode of living at sea are potent therapeutic agents. Yet many physicians justly hesitate to recommend its adoption and many patients, even if it be recommended, hesitate to undertake a voyage, from dread of the familiar physical disturbances associated with the sea.

In advising a voyage, sea sickness can not be ignored, and unconquerable sea sickness is acknowl-

edged by authorities to be a circumstance counter-indicating a sea voyage. So, also, is a tendency to hemorrhage.

We will show, at a later stage, that these contraindications no longer apply, and give proofs of our statement.

Meanwhile, we may digress for a little and ask, What is the history of *mal de mer*, in general literature and professional, and what means have been suggested to ward off an attack or to give relief from it if it has begun?

If we turn to general literature we find that among ancient authors, Plutarch first alluded to it. Cicero, also, in feeling language told his experience, and resolved that he would rather fall into the hands of an executioner, than again pass through the same ordeal.

The author of "Tristram Shandy" very happily and very racy described its depressing cerebral effects, and Shakespeare in inimitable words mentions "the quite, quite down feeling." While Browning terms it, "the swooning sickness on the dismal sea."

No extensive bibliography in medical literature exists on the subject, and we only find descriptions of its nature and treatment in scattered pamphlets.

There can, however, be little doubt of the "quite, quite down feeling" with which it begins, and which culminates after more or less prolonged intervals in vomiting as a rule, at first, with little effort. The stomach must be emptied and its contents are evacuated, with little regard to time or place or to appropriate receptacles conspicuously evident on the deck or in the cabins of the steamer.

This may be termed the first stage of sea sickness, and is followed in many cases by a *second* stage, when the vomiting is succeeded by retching and by great physical and mental prostration. The afflicted person, no longer able to maintain the erect position, lies half asleep, half awake, dozes and dreams and the dreams are not pleasant.

Many explanations have been offered in later years of the nature of these symptoms; some of these proceeding from men who have had some experience of the sea, or from men who have had no experience at all.

With the latter we have nothing to do, but with regard to the former we may say that the controversy ranges between advocates of the central origin of sea sickness in the vomiting center in the medulla, and those who contend for a stomacheic origin. The latter origin certainly accounts for the nausea and the vomiting in the great majority of cases, and for the shortness of the attack. Thus an infant at sea becomes sick, but when vomiting takes place the sickness is over. A steerage passenger becomes sick but in the course of twenty-four hours the sickness is gone, and there is no after depression or retching. A cabin passenger is more affected than a steerage passenger but yet, as a rule, he is able in the course of two days to take his seat at meals.

Yet we know that with a few passengers the ordeal is severe and protracted, and that recovery only takes place at the end of seven or eight days. The irritation of the stomach here does not explain the prolonged period of their illness, and we can only account for it by supposing that the stomach disturbance has given rise to reflex action, which implicates the medulla and the whole cerebro-spinal sys-

tem. Hence the indescribable misery of the wretched sufferer who, at this period, would often welcome death as a glad relief.

This attack of the whole cerebro-spinal system is most apparent, to use an American expression, in "brainy" people, whose nervous organization is highly strung, and whose mental activity is great.

We must also concede that in some cases the irritation proceeds from the brain, as a whole, for we know that the very thought of going to sea may occasion a peculiar terror, which is followed by headache, distress and an over-mastering weakness.

Henry Ward Beecher, the great American pulpit orator, relates that, "many years after his first voyage across the Atlantic, he heard some sailors in a Brooklyn dock singing the same old 'Chanty Song' that he had heard when ill at sea, and that the mere listening to it produced the creepy feeling of sea sickness."

So, also, a boatswain's whistle, by an association of ideas arouses in certain individuals unpleasant sensations, and some naval officers feel remarkably queer, on the reception of orders to proceed to sea.

Three years ago, when standing on the deck of the little steamer, which was about to start from Penzance in Cornwall, to the Scilly Islands, I observed a very striking instance of this cerebral irritation. A cab drove hurriedly up to the pier and from it alighted a lady and a gentleman. The moment the lady saw the steamer she became pale, staggered and caught the gentleman's arm, and could be induced by no persuasion or coaxing to step on board.

If we consider this, and other evidence which might be adduced, we are forced to the conclusion that the causation of sea sickness is complex. We contend however:

1. That the vomiting is due to gastric irritation proceeding from the stomach.
2. That the retching and mental depression indicate the further implication of the whole cerebro-spinal system.
3. That in exceptional cases, it depends primarily on cerebral causes.

REMEDIES TRIED IN SEA SICKNESS.

We have spoken of how sea sickness is mentioned in general literature, and we also find in this literature some allusions as to its cure. Bacon extolled a liver pad and Shakespeare tells in "Cymbeline," how the fair heroine, "Imogen," before she proceeded to seek out her lover in Italy, received from her attendant a certain cordial. "If you are sick at sea," he said, "a dram of this will drive away all distemper."

She did not proceed to sea, but, when wearied by troubles on land she remembered the advice and took the cordial, and she fell into a sleep so deep and so lasting that it simulated death. Doubtless it contained some narcotic, but what this was the great dramatist does not reveal.

Some cures advocated we find to be nothing short of heroic. Long ago green midshipmen in the English navy had a rope's end applied to them, and sea sick men on board whaling vessels had buckets of salt water dashed over them.

Boys on board training ships when sick were supported in each case by two other persons, and had to walk the deck and swallow occasionally spoonfuls of hot soup until they got well. In medical literature

we read of many remedies, but we shall only mention a few of these. Dr. John Chapman of Paris, attributes the malady to cerebro-spinal congestion, and recommends an leeching to be applied to the spine. Cocain, nitrite of amyl, nitro-glycerine, and atropin have each had their advocates, but experience has proved their action to be evanescent.

The vomiting is often allayed by lying down, and by swallowing small quantities of ice-cream, and the same thing can not be said of brandy and soda-water, which only tends to heighten the gastric irritability.

In the last few years there has been a growing belief in the administration of sedatives, with the object of securing rest and sleep, and this indeed is the only true and rational method of treatment, for it strikes at the root of the malady in the second stage. Sleep gives rest to the mind amid the worries of life on land, and in allaying the troubles of the sea its action is no less efficacious.

But with most drugs employed, sleep so desirable can only be obtained under such manifest disadvantages that their use at sea is forbidden. Opium secures sleep, but as on land so also at sea, the patient awakes with furred tongue and loss of appetite.

The hypodermic injection of morphin induces sleep, but when injected in a case of sea sickness it often appears to intensify the gastric irritability and to increase the vomiting.

Hydrate of chloral, though it produces sleep, as is well known, when administered in any disease a depressing influence on the heart; accordingly since in sea sickness the action of the heart is weak, and the general system is not in its normal condition, one can have no hesitation in affirming that its use in such cases would be hazardous in the extreme.

Paraldehyd is undoubtedly a safe and valuable hypnotic, but its nauseous taste and its persistent odor render it useless in sea sickness.

Sulphonal is out of court for this malady, because of the length of time which elapses before its hypnotic influence is exerted, and because the patient, who has used the drug has no awaking from sleep, an unsteady gait coupled with general confusion of ideas.

In fact, the only hypnotic we can safely employ in sea sickness is bromid of potassium, but when it is given in a hypnotic dose of 30 grains it is often immediately rejected by the stomach. Yet when retained it is a most efficient remedy, and where its bitter taste has been effectually disguised I have observed distinct benefit to follow from its administration.

I may here interrupt my remarks to observe that it has been vaunted as a prophylactic in sea sickness, especially by Beard of Boston. He recommends its administration for some days before going on board, in such doses that its physiologic action—bromism—should be established. But bromism is associated with mental incapacity, and the passenger thus half asleep and half awake, unable to look after his own affairs or to converse with ship officers or friends, would be a spectacle for gods and men. The cure would be worse than the disease, and therefore we think as a prophylactic in such doses bromid of potassium can not be recommended.

I have said that bromid of potassium, when retained had, in the experience of others and of myself, been found to be an efficient remedy, and my reflections upon this efficacy led me to consider in

what manner it should be administered. I found by another hypothesis that it could be administered in a palatable form.

I satisfied myself by administering a special solubly private practice that it retained all the advantages and none of the disadvantages of the hydrate of chloral. It secures sleep by its action on the cerebral cortex and has not sought the lower or other parts of the nervous system of voluntary life. It has no direct action upon the heart or circulation. It does not reduce arterial pressure and its administration is not attended with any disorders of digestion or with any depression.

I found also it could be rendered soluble in certain proportions by rectified spirits, and that this solution was not altered by the addition of bromid of potassium.

The attention of the makers of chloralamid was drawn to these facts, and subsequently Messrs. Burgoyne & Co., London, submitted to me a solution termed

CHLORO-BROM.

which contained in each ounce 30 grains of chloralamid and 30 grains of bromid of potassium, with other ingredients which assisted their action and made the taste pleasant.

In my own country this solution has been extensively tried in a-lyum practice during the last twelve months, and the trials have been eminently satisfactory in various forms of mental disease, notably in melancholia and in the insomnia brought on by overwork.

This solution is stable, palatable, potent and safe, and as evidencing its safety it may be stated that 18 drachms have been given to an a-lyum patient suffering from aortic incompetency, and with no bad results.

TESTIMONY OF SHIP SURGEONS AS TO THE EFFICACY OF CHLORO-BROM IN SEA SICKNESS.

In the autumn of 1891 I had opportunities in a trip across the Atlantic of testing chloro-brom, and I found that when vomiting had been succeeded by retching, its effects were speedily manifested. When administered at this point it was in no case rejected and after a dose varying from six to four drachms, sleep which lasted from six to eight hours, invariably followed. To make assurance doubly sure, it was submitted for trial to ship surgeons who had charge of steamers sailing from Great Britain to various ports.

I have before me evidence and reports of fully 100 cases where it was tried in the second stage of sea sickness. These all show that its action is most satisfactory, that it possesses the inestimable advantage of being retained by the stomach, that it insures sleep of six or eight hours duration and that it leaves the patient free from headache and possessed of a good appetite. The dose administered was in the quantity mentioned, in six to four drachms, but this quantity may, I consider, be judiciously divided so that a teaspoonful may be taken every five minutes. When the retching is very severe this division appears to be preferable.

It seems to be unnecessary to give the reports in full, and I shall content myself by submitting one from Dr. Macdonald of the Anchor Line Service, which was published in the *British Medical Journal* of September, 1892:

"After a series of careful trials, extending over two voyages to and from New York, I can testify to the efficiency of chlorobrom in cases of sea sickness. During my experience at sea, I have prescribed almost every reported remedy, including cocaine, antipyrin, nitro-glycerin, quinin, etc., but with insufficient and uncertain results in most cases.

"Of late it has been my custom to prescribe a mixture of bromide of potassium and spirits of chloroform; this I found to be of considerable service, but unfortunately like most remedies administered by the mouth it was exceedingly liable to be rejected by the stomach.

"Chlorobrom, however, to my knowledge has never been rejected, and has seldom failed to relieve the gastric disturbance and nausea. It produced sleep from which the patient awoke with a clear head, a good appetite, and remarkable freedom from most symptoms which were so painfully evident prior to the administration of the solution. Its perfect safety, agreeable taste, and freedom from disagreeable after effects, all combine to render it an admirable preparation and an ideal sedative.

"As illustrating the benefit from its use I select one case, when *mal de mer* was complicated with a history of gastric ulcer. Unless the solution had been retained I believe there would have been great danger of perforation of the wall of the stomach from the excessive retching.

"On the second day after leaving port, I was called to see Miss C., age 22, and found she had been very sick since the steamer started. There was continuous retching with headache, sleeplessness and great depression. She was markedly anemic and very weak. The peculiar "coffee ground" appearance of the vomited matter attracted my attention and I found that the patient had for two years been under treatment for gastric ulcer.

"I immediately administered half an ounce of chlorobrom which was retained, and in twenty minutes secured a sound sleep, which lasted for eight hours.

"At frequent intervals fluid nourishment was subsequently given, with finely chopped ice and small doses of chlorobrom. There was no return of nausea or retching. After two days she was able to be moved on deck, and she continued to improve in her general health until the end of the voyage."

EFFICACY OF CHLOROBROM IN SHORT VOYAGES.

I have also here, reports as to its efficiency in short voyages of ten to twelve hours duration, when these voyages were made by the night service of steamers. In such cases the following directions to secure its prophylactic effect must be rigorously observed by the passenger.

1. Unload the primæ viæ by taking for two successive nights, previous to going on board, an anti-bilious pill or a tamarindien lozenge.

2. When on board take no food but at once seek the sleeping berth, undress and take, in the case of a male, a tablespoonful and a half, and in the case of a female a tablespoonful of the solution. There follows a sound sleep from which the passenger awakes refreshed when the steamer is in sight of land.

The effects of this treatment are illustrated by the following details from two medical friends—the voyage of one being from Leith to Hamburg, and the voyage of the other from Glasgow to Shetland:

"Before crossing from Leith to Hamburg, I thought I would stave off my inveterate enemy—sea sickness—by following your advice and taking with me chlorobrom. I took for two nights previous to going on board a podophyllin pill, and when I embarked on board the steamer at 8 P.M., I went straight to my berth, and took a full dose of chlorobrom—one ounce. I slept soundly. I rose the next morning with a good appetite and never missed a meal although the steamer pitched a good deal. I may mention that I have crossed twice to New York, and three times to Hamburg, and without exception have been badly sick each time. I also gave some of the solution to a fellow-passenger and he writes, 'Having taken upon your recommendation two doses, I am able to declare

that, although usually unwell under similar conditions, I have escaped sea sickness, have enjoyed my food and have slept as soundly as in my own bed.'

"The supply of the solution was limited, and the bottle was empty when I returned from Hamburg three weeks afterwards. The sea was no rougher than on the previous trip yet I was very sick. I could eat nothing. I vomited a great deal of bilious matter and afterwards had severe retching.

"Having suffered severely in my passage from Glasgow to Shetland I was glad to make a trial of chlorobrom this year. Two nights before embarking I took a pill of podophyllin and mercury, and then on board 6 drachms of the solution. The tossing was sufficient to wake me several times, but on such occasions I experienced for a few minutes an exquisitely pleasurable sensation of repose, which the rocking of the steamer seemed rather to enhance and then fell asleep again. A lady who made use of chlorobrom on the same voyage, stated to me, that she positively enjoyed the rolling of the steamer. As we entered the Firth of Forth I rose, and enjoyed a substantial breakfast. On my return journey I tried the solution with equally satisfactory results."

EFFICACY OF CHLOROBROM IN CASES OF HEMORRHAGIC PHTHISIS AND IN CASES OF UNCONTROLLABLE SEA SICKNESS.

All authorities agree in stating that a tendency to hemorrhage or unconquerable sea sickness are conditions which counter-indicate a sea voyage, and in a paper read at the medico-climatological meeting in Denver, I also referred to these as serious obstacles.

But now I consider these obstacles can be overcome by prudent advice and judicious treatment. As bearing upon hemorrhage the following case is worthy of note:

A young gentleman consulted me January, 1892. There was slight dullness at the apex of the left lung, and on three occasions he had suffered from severe hemoptysis. Circumstances prevented his going to any health resort at a high altitude, but he stated he would be able to take a sea voyage of considerable length. Now before knowing how sea sickness could be done away with, I would have hesitated to recommend this, owing to the risk accruing from its occurrence, but with the experience since gained I had no difficulty in telling him his plan would be advantageous. He was told what to do and by strictly obeying the injunctions laid down, he was able to pass through the Bay of Biscay perfectly free from *mal de mer*.

Unconquerable Sea Sickness.—In the autumn of last year I was consulted by a gentleman whose dread of the sea, gained by an experience of two voyages to New York, was very great. He was obliged again to cross the Atlantic, and told me he would rather face a certain personage than endure the sufferings he had encountered, for in his two previous voyages he had never been able to leave his cabin. I assured him that he might undertake the passage with perfect confidence, provided he obeyed the injunctions I laid down. On his return to Britain he sent me the following communication:

"Previous to embarking I took two anti-bilious pills and in the evening before leaving Moxville I took 6 drachms of chlorobrom. I slept quite soundly and rose the next morning with a good appetite and with no headache. On the second night I repeated the dose and although the weather was extremely severe I suffered in no way, but enjoyed the voyage immensely. I had an opportunity in our passage out, of giving some to a lady passenger who was afflicted with headache, nausea and sleeplessness. This

secured her a refreshing sleep, and the headache and nausea disappeared.

"I used the solution on my return voyage with the same good effects. The solution is very palatable and easily taken."

THE SURGERY OF THE URETERS: A CLINICAL, LITERARY AND EXPERIMENTAL RESEARCH.

Read in the Section on Surgery and Anatomy at the Forty-fourth Annual Meeting of the American Medical Association, Chicago, 1901.

BY WELLER VAN HOOK, A.B., M.D.

PROFESSOR OF SURGICAL PATHOLOGY AND BACTERIOLOGY, COLLEGE OF PHYSICIANS AND SURGEONS, CHICAGO; PROFESSOR OF SURGERY, IN THE CHICAGO POST-GRADUATE MEDICAL SCHOOL.

(Continued from page 363.)

The Writer's Plastic Methods for Making a Vesical Diverticulum.—When the ureter has been injured in intra-abdominal operations in such a way that the duct can not be there implanted into the bladder, or when morbid processes are found to have brought about the same result, I would recommend strongly the following procedure:

1. Implant the ureter upon the skin of the abdomen in the median line as near the bladder as possible. Close the abdominal walls as usual, except for the presence of the ureter

muscles or fasciae, and the end of the ureter is closed by ligatures or by ligatures with catgut sutures which pass through the ureteral orifices, if possible, and through the muscular structures near at hand.

5. We are now in position to sew together the edges of the flap to form a tube, into the upper end of which the ureter is introduced, and to carry a similar row of eight catgut sutures down the bladder wound itself. The covering of the vesical opening would best be left open for the sake of drainage. It was in all probability caused by the method. The upper part of the skin wound together with the fasciae may be closed. Under no circumstances is it prudent to proceed as ought to be as practicable and as easy as the majority of operations daily undertaken.

I have practiced the method only upon the cadaver. Fig. 8 shows the appearance of the parts after the flap is dissected up from the bladder. In this subject, a female of medium height, the distance from the pubes to the umbilicus was 17 cm.; from the pubes to the peritoneal reflection upon the bladder, 5 cm.; from the pubes to the upper end of the vesical flap, 10 cm. *How is the flap to be fastened to the abdominal wall? The bladder is fastened to the abdominal wall by a continuous suture, with ends left long if the operation is not completed at once. The remainder of the procedure may be performed at once if the urine is aseptic, and if the peritoneum has been well fastened down to the base of the bladder. If these conditions are absent, the final steps may be deferred some days. The remainder of the operation is the same as that already described except that the peritoneum being farther back, a much larger flap can be secured. Experiment upon the cadaver convinced me that with care the bladder flap may be raised to the pubes, and the ureter*

This is not, however, the limit of such plastic procedures upon the bladder. For, if the peritoneum is opened, the flap can be considerably increased in size. The ureteral fistula

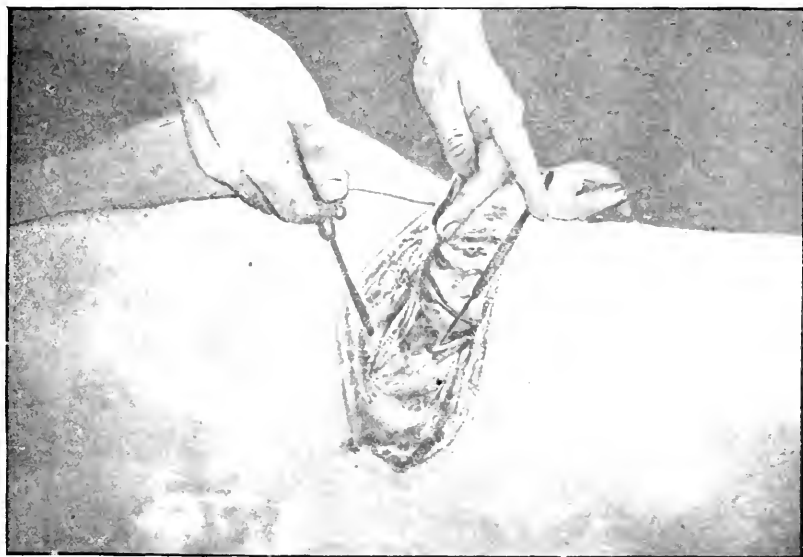


Fig. 8.—Cadaver lying on the left side. Incision made to expose the ureter, with a suture upon the skin at the right.

2. When the patient has fully recovered from the primary operation, open the structures composing the abdominal wall between the ureter and the pubes down to the peritoneum and bladder. The peritoneum must not be opened. The bladder may be distended and raised exactly as in supra-pubic cystotomy.

3. Make two incisions in the bladder parallel to the median line, beginning as near as possible to the peritoneum without prejudice to its integrity, carry them down to a distance of about 15 mm. apart towards the neck of the bladder under guidance of the finger. With scissors curved on the flat the two incisions are now united at the lowest point and hemorrhage is controlled with pressure forceps. It will be seen that we now have at our disposal a vesical flap of considerable extent hinged above by a nutrient pedicle.

4. The ureter is loosened from the skin and brought well down towards the flap which is simultaneously raised to meet it. The vesical flap is firmly fastened back in its new position by catgut sutures passing through the neighboring

having been established as before, as low down as possible the secondary operation is begun by 1. making an incision to expose the attachment of the peritoneum to bladder; 2. the peritoneum will then be opened transversely at or very near its vesical reflection, and fastened by some points of catgut suture, or by a continuous suture to the fundus of the bladder as far back as possible. In other words, the peritoneum is transplanted backward upon the bladder. The point to which the peritoneum is transplanted must be marked by a silk suture, with ends left long if the operation is not completed at once. The remainder of the procedure may be performed at once if the urine is aseptic, and if the peritoneum has been well fastened down to the base of the bladder. If these conditions are absent, the final steps may be deferred some days. The remainder of the operation is the same as that already described except that the peritoneum being farther back, a much larger flap can be secured. Experiment upon the cadaver convinced me that with care the bladder flap may be raised to the pubes, and the ureter

the ureter at least passed one inch (2.5 cm.) or more below the umbilicus.

This operation has the following advantages:

1. The normal relations of kidney and bladder are restored.
2. It is entirely safe, the technique annulling the dangers of peritonitis from the urine, if septic.
3. The bladder can be utilized by plastic procedure to make good a defect of several inches in the ureter.
4. No other viscus than those at first implicated is called upon to make good the loss.



Fig. 4.—The suture armed with two needles holding the upper end of the ureter in its loop.

Symphysiotomy for exposure of the bladder to operation naturally suggests itself, since the attention of surgeons has been called to this method of reaching pelvic organs and of increasing intra-pelvic space. It has been formally proposed as a method of gaining access to the bladder by Wickhoff.²⁶ The bladder distended with six to twelve ounces of water may be brought into view and be made easily accessible when the symphysis is divided. The harmlessness of the procedure when carefully performed would render it justifiable as a preliminary step in the writer's methods of making a vesical diverticulum to meet a shortened ureter.

Rydygier's Method.—An ingenious method of extra-peritoneal ureteroplasty was suggested by Ludwig Rydygier.²⁷ He advises that in cases of injury to the ureter during surgical operations, the two ends of the ureter be brought out through the abdominal wall and the wall be allowed to close about them. He would then prepare for the urine an artificial channel of skin by making two parallel incisions between the two openings, suturing together the edges of the isolated piece of skin so as to form a tube and depressing this tube by sewing over it the severed edges of skin drawn from each side.



Fig. 5.—The needles passed down the ureter through the slit and emerging from the ureteral wall.

The theoretical possibility of success by this method can not be doubted. For just as Rosenberg²⁸ has shown that intestinal mucous membrane is speedily replaced by bladder epithelium when the bowel is implanted into the bladder, so Bardenheuer²⁹ has shown that even very large masses of skin when transplanted into the oral cavity can speedily do full duty as mucous membrane by becoming overgrown with the epithelial cells peculiar to the oral mucous membranes. We would expect that in a comparatively short time after the turning in of the skin, according to the suggestion of Rydygier, the epithelium of the new tube would gain the essential characters of the ureteral mucous membrane. The plausibility of the plan is much diminished, however, when we remember how difficult it would be to overcome the influence of the urinary pressure at the points of desired junction. The method might be successful, however, by affording abundance of drainage at first, until healing had occurred at all points except those of junction.

In case of this description, i. e., where the two ends of an injured ureter were implanted into the abdominal wall at some distance from one another, the writer suggested the formation of a new channel by implanting into a gutter between the two openings, a labium majus from the same patient. It was suggested that if this large piece of double mucous membrane were split after being removed it might be implanted by the Thiersch method and made to serve as mucus for a new ureter. I am not aware that the suggestion was acted upon.

Plastic Method. The ureter not infrequently

opens congenitally upon the vulva or within the vagina. These cases are usually amenable to treatment by making an incision around the orifice of the duct, at a distance from the ureter sufficiently great to leave a piece of mucous membrane attached to the tube. The ureter is then dissected back to the extent necessary to enable the operator to readily insert it into the bladder through an incision made for the purpose. Such a case is that of McArthur³⁰ which was entirely cured by this method.

The paper of Secheyron³¹ upon the abnormal openings of the ureter upon the vulva and in the vagina should be mentioned in this connection.

Vaginal plastic methods, applicable when the ureter has been injured in surgical operations especially the modern kolpo-hysterectomy, have been frequently devised and put in practice. When the ureter discharges its fluid into the vagina and the duct itself can not be implanted directly into the bladder, two general plans are at our disposal:

1. The vaginal wall may be utilized to make a new channel to the bladder.
2. The vagina may be closed (kolpokleisis) particularly when the uterus has been extirpated.

The first of these plans has been repeatedly utilized and has given satisfactory results. The procedure was projected by T. A. Emmet,³² in a case in which the mouth of the ureter opened "on a line with the os uteri." Dr. Emmet formed a channel out of vaginal tissue to carry the urine from the mouth of the ureter to a point well beneath the bladder, intending to turn the new opening of urinary discharge into the bladder by a temporary vesico-vaginal fistula. The first part of the plan, the making of a new duct, was carried out without difficulty but the patient died of pneumonia in the interval between this and the final procedure.



Fig. 6.—The ends of the suture having been used to invaginate the upper in the lower fragment, are tied together.

Of course the lengthening of the ureter is unnecessary when it discharges into the vagina at a point well under the bladder. In this condition a vesico-vaginal fistula is made, and the ureteral opening is turned into the bladder. This was successfully accomplished by Dr. Wm. H. Baker of Boston, at the suggestion of Emmet, in a case in which the ureter opened congenitally into the vagina at a point near the urethral meatus.

The most interesting communication yet written upon the subject of vaginal ureteral fistule comes from Arie Geyl³³ whose work appeared in 1892. He describes minutely a case in which, after a difficult forceps delivery a woman was found to have a fistula of both ureters, on one side emptying into the vagina near the uterus; on the other side discharging into the uterus at some unknown point. To get rid of the discharge from the uretero-vaginal fistula, Geyl used a portion of the vagina to form a pouch which he caused to communicate with the bladder by means of a permanent fistula. This was readily accomplished by first making a large opening into the bladder from the vagina and then removing an oval strip of vaginal mucous membrane surrounding this opening and the end of the ureter. By approximating the denuded surfaces from side to side the uretero-vaginal fistula were made to communicate. This operation was a success. The subsequent attempt to close the uretero-uterine fistula failed and the patient declined further interference. The uretero-vaginal fistula was thus closed by a procedure easier and safer of execution and far more desirable than nephrectomy. Baum³⁴ describes an ingenious procedure by which he succeeded in closing a supernumerary ureter opening into the vagina. He opened the bladder supra-pubically; then after incising the base of the bladder freely, he closed the peripheral end of the sacculated ureter thoroughly and stitched the edges of the ureteral dilatation to the edges of the wound in the base of the bladder. In other words, he used the scrotal alia in order to turn the supernumerary ureter into that viscus.

Very interesting recent cases of uretero-vaginal fistulae have been studied by Weil.³⁵ Other cases have since been observed and operated upon, but it is not the purpose of this paper to make more than an allusion to this possibility, which readily does away with one of the commonest excuses for removing the kidney.

A ready conclusion from these considerations is to be found in the recommendation which I would unhesitatingly

and urgently make to those performing vaginal hysterectomy. When a ureter is injured during the course of the operation and the condition is realized, the ureter should be drawn down into the vagina and fastened to the vaginal wall well under the base of the bladder so that a subsequent plastic procedure may cause it to discharge normally. It should be covered by mucous membrane.

The second method of getting rid of uretero-vaginal fistula, by closing the vagina permanently and establishing a vesico-vaginal communication, has been applied in several cases. It is not objectionable after kolpo-hysterectomy except in those cases in which marital relations would be interfered with by vaginal closure.

These two methods are so easily practicable and so nearly devoid of danger in their application that they should wholly supplant the destructive operation of nephrectomy for the relief of this form of ureteral fistula.

Urine Discharged Extra-Vaginally. It is within the experience of almost every surgeon to have seen cases of ureteral fistulae discharging upon the skin. It is also easily understood that such fistulae may readily be produced at will, when the ureter has been severed, by simply splitting the

one of these he sutured both ureters into the lateral abdominal walls. On the right side the abdominal wall suppurated and a pyelonephritis arose; on the left, more than five weeks after the operation the kidney was found healthy. In the second case, the same experiment being tried, the dog showed itself after several weeks to be perfectly well, with normal urine. From the first of these experiments we must conclude that bacterial activity about the mouth of the ureter is fraught with the gravest danger—a fact to which we shall frequently have to revert. The second experiment is a demonstration that even in the case of the dog the ureters may discharge upon the skin for a time without a resulting pyelonephritis.

Implantation of the Ureters into the Small Intestine has been practiced experimentally by a number of persons, in recent years. But I am not aware that any one now seriously recommends the procedure in practical surgery. The disadvantages of the small intestine as a receptacle for the urine are so much greater than those of the rectum that they must be obvious to all. Of these the most important are the facts that the urine discharged into the small intestine would have to traverse, before extrusion, a much greater



Fig. 7.—Writer's method of lateral implantation of the ureter, illustrated upon a piece of human ureter. The upper portion is being drawn into the lower by the two threads.

ureter slightly to enlarge its external opening and suturing it carefully upon the skin. Obviously, care must be taken that the ureter is not too sharply bent upon itself at any point in bringing it out of its natural bed, and that it is not compressed by other tissues or organs. It is not necessary to mention the many disastrous consequences which might arise as a result of compression in this way. The ureter has been purposely brought out upon the abdominal wall in this way, as in the cases of LeDentu² and Pozzi.³ Trekaki⁴ goes so far as to recommend this operation in tumors of the bladder which compress the lumen of the ureter, in compression of the ureter by inoperable carcinomas and myomas of the ureters or inoperable tumors lying higher in the abdominal cavity. He regards partial lesions of the kidneys and not too extensive inflammations of these glands as by no means contra-indications for the procedure, but rather as indications, since they are more likely to recover when the urinary pressure is removed. He adds also that in complete ruptures of the ureters, after a trauma or surgical operation, suture of the ureter into the wound is indicated instead of nephrectomy. Trekaki supports his opinions by citing two experiments which he has made upon dogs. In

extent of intestine than would be the case with implantation into the rectum; and that the structure of the small intestine is still more complicated than that of the rectum.

I have made two experiments upon dogs to establish the value of the procedure. In both cases a single ureter was implanted into the bowel, about eighteen inches above the ileo-cecal valve. In both instances no serious inconvenience to the animal was observed. But upon killing the animals about ten days after the operation, the kidneys corresponding to the implanted ureters were found swollen and showed all the signs of pyelonephritis. The patency of the opening into the bowel was in both instances slightly compromised, so that there was a collection of a couple of drachms of purulent urine in the pelvis of the kidney and the ureter. As the result of these experiments does not differ from that of some of the implantations into the rectum, I would regard the upper portion of the intestine as less suitable than the rectum, solely on account of the a priori reasons already advanced.

Implantation of the Ureters into the Rectum was suggested by Roux and put in practice by John Simon in a case of exstrophy of the bladder, with an unfavorable result. Chaput

has, according to Rosenberg, recently practiced the method successfully in two cases. Morestin, according to the same writer, successfully practiced the operation in experiments upon the lower animals. Whether one or both ureters were implanted in the rectum is not stated.

Novaro,³ an Italian, published in 1887 an elaborate account of an experiment upon a dog in which both ureters were implanted in the rectum. The dog recovered from the operation and was killed about thirty days afterward. The ureters were found neatly healed into the rectum and a microscopic examination of the kidneys was made. The testimony of the pathologist who made the examination is not absolutely unequivocal as to inflammatory changes, and no bacteriologic examination of the mucous membrane of the pelves of the kidneys and the mucous membrane of the ureters was recorded.

Tuttlér⁴ describes his own experiments in this direction, and reached such unsuccessful results that he advised against the procedure.

Gluck and Zeller⁵ experimented upon this subject without success, and emphasize the importance of stricture formation with hydronephrosis.

fore does not so easily undergo decomposition, and more important still, it can not mechanically carry bacteria to the kidneys, as is the case with fluids.

2. An amply sufficient argument in itself against a comparison of the species lies in the fact that birds' ureters are supplied with a mucous membrane evolutionally accustomed, as it were, to contact with infected solids and fluids; while the ureters of man are normally accustomed to the most absolute and perfect protection from the action of injurious microbial influences. This inherited ability of specialized tissues to resist invasion by micro-parasites is termed "resisting power," and is known to vary with the situation and needs of the different tissues. The ducts of all the secretory glands are more or less capable of repelling these invaders, as for example those of the liver and pancreas which normally open into the bacterially filthy bowel; the ducts of the salivary glands similarly open into an exceedingly "septic" cavity; the Bartholinian glands open upon the septic vulva. These various ducts rarely carry back to the glands which they supply the materials for their inflammatory destruction. It is true that some of them are protected by a slightly or relatively perfect valve action of

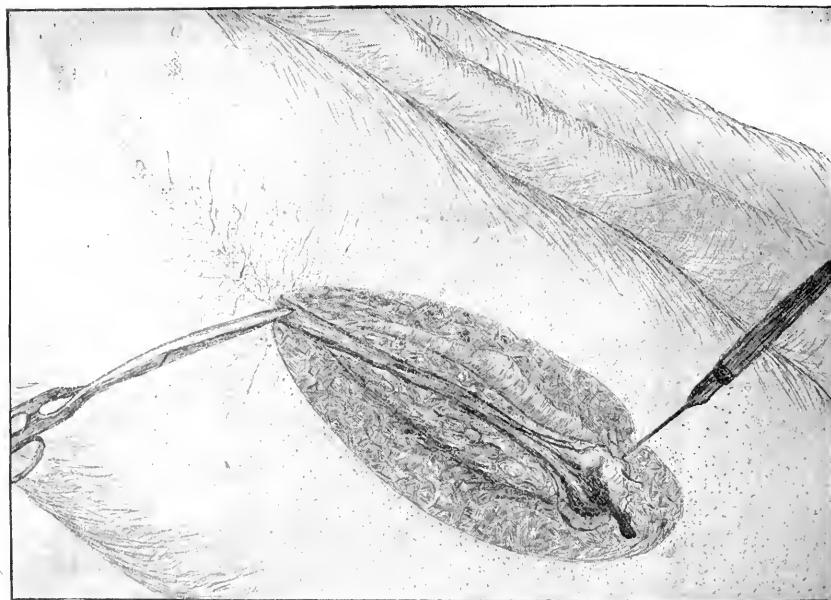


Fig. 5.—Writer's method of making a valve flap to meet the ureter when the peritoneum is opened. The flap reaches to within an inch of the umbilicus, which is not shown in the drawing.

Bardeen⁶ studied the same questions with more encouraging results. Unfortunately his original work is not accessible to me.

In our own country, Dr. Harvey Reed⁷ of Mansfield, Ohio, presented before the AMERICAN MEDICAL ASSOCIATION in 1892, a paper recording twelve experiments upon this subject. Dr. Reed recommends the implantation of a single ureter in the rectum, but thinks we are not justified in attempting the operation upon both ureters at once.

The arguments in favor of the feasibility of implantation of the ureters in the rectum begins with the fallacious *a priori* reference to the urinary apparatus of birds. The argument is: (major premiss) birds urinate through the rectum (the usual loose statement); (minor premiss) man is a featherless biped; (conclusion) man should or may upon occasion urinate through the rectum.

But, neglecting the absurdity of the conclusion, the argument of analogy may be substantially controverted by these propositions:

1. The urine of birds is very slightly moistened. If there-

fore the mucous membrane at their outlets, but their main strength in opposing microbes must lie in their resisting power, acquired by evolutionary cycles of association with their enemies. The ureters, however, are among the most perfectly protected structures in the whole human anatomy. It is true that they stand in mechanical communication with the external filth. But the commerce of fluid is all in one direction—*nullo vestigio retrorsum!* Two powerful sets of gates close after the departing urine—first, the valve-like folds of the cystic mucous membrane at the mouths of the ureters; second, the sphincter vesicæ at the exit of the bladder. Each of these barriers is effective for a long time in repelling invaders. A violent urethritis often occurs without a cystitis. A violent cystitis often occurs without a urethritis. These well-protected ducts, the ureters, are therefore guarded so carefully that they need only in pathologic circumstances to meet microorganisms, and are therefore weak and well-nigh impotent to resist such enemies. How absurd and unthinking it is, then, to thrust the ends of these delicate tubes into the filthy rectum or small

intestine, filled with not only solid but liquid and gaseous materials to distend and defile the ureters and pelvis of the kidneys.

The statement made by Dr. Reed that, in rectovesical fistula, "the rectum usually becomes reconciled to the presence of the urine, and were it not for the escape of the feces into the bladder and the production of acute cystitis, there would be little to fear from this malady except some possible inconvenience," shows a pathetic regard for the powerful rectum, but no thought or consideration for the defenseless ureters. In vesico-rectal fistula the feces might lie in contact for some time with the bladder wall without setting up inflammation of the ureters. But we all know from daily experience that the great danger in all cases of septic cystitis lies in possible uretero-pyelo-nephritis. In chronic cystitis this extension of inflammation does not always produce an immediately fatal result. The process may be slow and the patient may die months or years after the inception of the cystitis, from some acute exacerbation of the nephritis.

The arguments in favor of rectal implantation of the ureters from analogy and from pathology are therefore wholly fallacious.

Experimental evidence upon this subject has been, (1) negative, as in the work of Tuttle, one of the most reliable and accurate experimental surgeons; (2) incomplete, as in the case of Bardenheuer, Morestin and Novaro; or (3) incom-

plete and was killed, either a few weeks later, or "rendered useless by watery stimulation."

2. Dog killed twenty-four days after operation, "distended and shows evidence of acute peritonitis attributed to hydronephrosis caused by external adhesions."

3. Dog killed twenty-five days after operation, "renal congestion, and hydro-nephrosis, pelvis opened into rectum."

The first of these experiments is not to be considered as an examination of the specimen was not reported. The second is clearly demonstrative of the dangers of the procedure. The specimens of the third case, which is the most favorable, were not examined bacteriologically or even microscopically. Without these examinations we cannot form an accurate judgment. Finer changes may contradict gross appearances, and the presence of bacteria, even if the kidney were normal, would obviously be a most serious menace to the future integrity and activity of the organ.

In six bilateral implantations, Dr. Reed reports three deaths from acute general peritonitis; one death from acute nephritis; one death from abscess of the abdominal wall; and one death from peritonitis and nephritis. In one-third of these cases, nephritis was confessedly present. No bacteriologic or microscopic examination of the pelvis and kidneys of the other cases was made.

From this consideration of Dr. Reed's experiments we must conclude that, so far as the feasibility of rectal im-

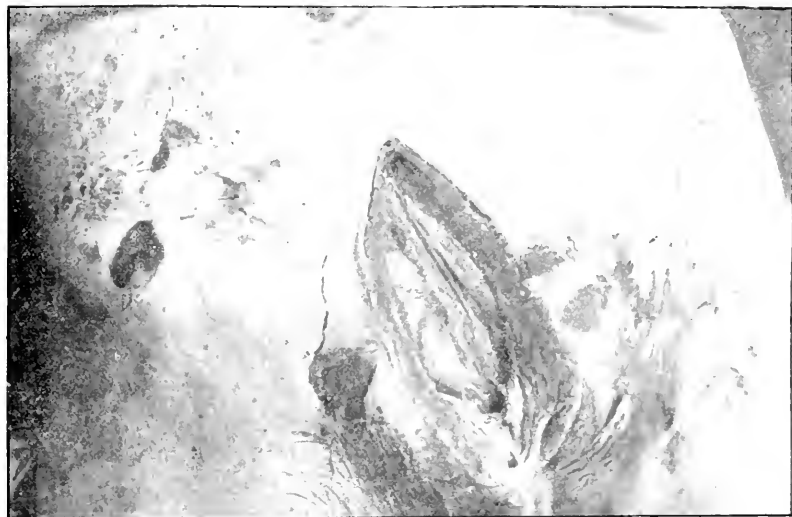


Fig. 9.—Writer's method of turning upward a vesico-urethral fistula, to permit of the ureter being inserted into the rectum, within three inches of the umbilicus, seen at the upper edge of the flap.

plete and imperfectly observed, as in the report of Dr. Reed already cited.

The first of these classes requires no discussion. The evidence of these surgeons is clearly against implantation of the ureter in the rectum.

By "incomplete evidence," I mean that while the results of these experimenters were favorable, their published trials of the procedure were too few in number to convince us that their successes were more than exceptional. We have no reason to believe that they could repeat the effort at will without disaster. Moreover, the observation of the strongest case yet recorded, that of Novaro, in which both ureters of a dog were implanted in the rectum and healing was found perfect after thirty days, is imperfect in that no bacteriologic examination of the pelvis of the kidneys was made.

Dr. Reed reaches the strange conclusion, "that the unilateral implantation of the ureter in the rectum is a possible and practicable surgical procedure." He bases this conclusion upon a priori reasoning which I have already refuted, and upon three experiments upon dogs:

(1). Unilateral implantation—dog recovered from the ope-

ration of the ureter is concerned, his researches are in part directly contradictory evidence, and in part entirely incomplete.

Tuttle's experiments gave evidence contradictory to the possibility of utilizing the bowel as a receptacle for urine.

It seems to me that the feasibility of this operation rests upon a satisfactory answer to the following inquiries:

1. Does our mechanical technique assure us of reasonable safety in opening the septic rectum and fastening into it the ureter?

2. Does the rectum tolerate the urine and satisfactorily extrude it?

3. Do the ureter and the corresponding kidney tolerate the new anatomic arrangement?

4. Does our technique insure us against stenosis of the duct at the point of junction with the rectum?

The first of these questions can be answered with a hesitating affirmative. The trials of the procedure which have thus far been made upon human subjects have not all been published; of this I am assured by personal communications to which I am at liberty to make specific reference. These unpublished failures are doubtless due to peritonitis

from infection through the rectal opening. Dr. Reed's technique is in the main good. There is no need of especial care in excluding the aseptic urine from the peritoneal cavity; it is in no such degree "irritating," as is the case with sublimate and other antiseptic solutions. The main immediate danger lies in the escape of fecal matter from the bowel. It is evidently proper, as Dr. Reed has done, to take up with the ureter a fold of peritoneum which is carried into the rectum. Dr. Reed passes a loop of thread over the end of the ureter, and by means of a needle threaded upon the loop carries the thread down the rectum a short distance and out through the rectal walls. Traction upon the thread draws the ureter well into the bowel, and after sutures are passed through the loose tissue about the ureter, the loop is released by cutting short the thread and allowing it to retract into the bowel.

Novaro's technique is very minutely described. It involves a V-shaped incision into the bowel, and seems to me unnecessarily complicated.

The method I have employed experimentally is as follows:

Raise an ample fold of peritoneum with the ureter. After severing the ureter, ligate the cystic end of the duct, and then split the opening of the renal portion of the tube with fine scissors upward for a distance equal to three times its diameter. Cause two small needles armed with a single

The second of these queries, as to the toleration of the urine by the rectum, can be quickly disposed of. Experience has amply proved that the rectum can easily maintain its integrity in the presence of the urine. And indeed, no one seems to have seriously raised the question except to answer it in the affirmative.

But the third question—involving the tolerance of the ureter and kidney for the new anatomic conditions—has not attracted the attention which it deserves, although infection has long been known to travel up the ureters with facility, as shown, for example, by Poirier.¹⁵ For in reality this is the most important of all the questions. It is not to be expected that the rectum will refuse to submit to contact with the urine; but that the ureter, with its delicate mucous membrane leading to the easily inflamed pelvis, calyces and tubules of the kidney, should be expected to withstand the effect of being suddenly implanted into a reeking culture ground of the most various bacteria, is more than I can comprehend.

The experiments of previous investigators have not been directed to a solution of this question. From Dr. Reed's paper we gather that in two out of six unilateral implantations there were marked gross evidences of nephritis. It is probable that the number would have been much greater if the animals had been allowed to live longer.

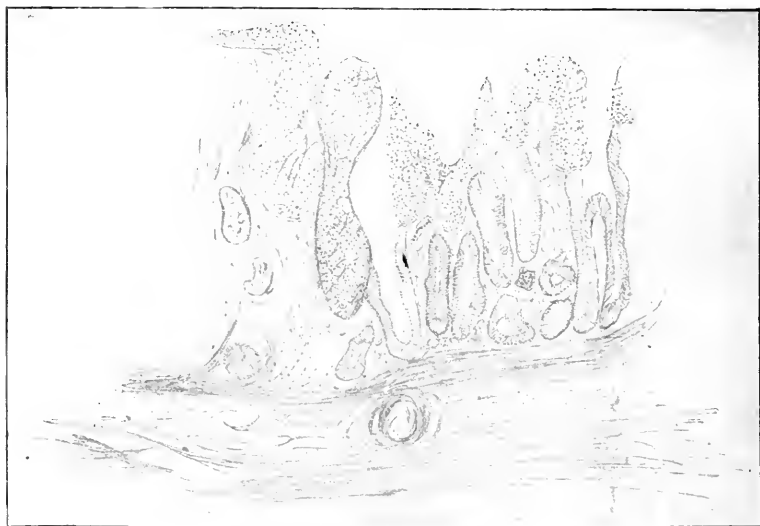


Fig. 10.—A section from the junction of a knuckle of small intestine and the bladder wall. On the right the cylindrical cells of the implanted (ureter), on the left the flat epithelial cells of the bladder displacing the cylindrical cells. (Rosenberg, Virchow's Arch., Band 131.)

fine silk or catgut thread to pass from within outward through the split end of the ureter. The ureter is thus grasped in the loop. Now pass the two needles into the bowel through a small longitudinal slit on the free border and carry them downward about one-half inch. When they are now pushed out through the rectal walls, the ends of the thread may be lightly tied together, drawing the ureter into position and permanently maintaining it there. The operation is completed by covering in the knot with two or more Lembert sutures, closing the rectal wound as well as possible without compressing the ureter, and applying a peritoneal graft. I made eight experiments by implanting a single ureter into the rectum after this manner. Three of these dogs died of general peritonitis. I have no hesitation in saying, however, that further practice would diminish this death rate. Still, it is apparent that the primary mortality from peritonitis must be high, since we are not at liberty to apply sutures tightly about the opening in the bowel, but must depend partly upon rapid peritoneal proliferation to close the wound. But even if closure could be perfectly secured at once, the escape of septic matter which almost inevitably occurs when the bowel is opened exposes the peritoneum to great risk of infection.

Of eight dogs in which I implanted one ureter in the rectum three died. In each of these three cases the kidney belonging to the implanted ureter was violently inflamed, being swollen, turgid and heavy, with muco-pus upon the mucous membrane of the pelvis. The following is a detailed account of one of the cases:

April 26.—Dog of thirty pounds weight; curly female. Following the technique already described the right ureter was implanted in the rectum. A small amount of fluid fecal matter escaped from the rectal wound, but was wiped away as carefully as possible. The operation was completed by a careful toilet of the peritoneum and closure of the abdomen. Forty-eight hours later the dog was found in a dying condition and was killed. A careful examination of the abdominal cavity showed a moderate amount of peritonitis about the site of implantation. There was no leakage from the bowel. The left kidney and ureter were normal in all particulars. The right ureter and kidney were in a state of violent inflammation. They were swollen and intensely red. In the pelvis of the kidney, which was opened with a red-hot knife, were a few drops of mucous purulent fluid with a tinge of blood in it. Cultures were made under all the indicated precautions. The patency of the ureteral canal was demonstrated by passing a small probe into the bowl. Microscopic examination shows violent hemorrhagic inflammation of the pelvis and pyramids of the kidney, as shown in the micro-photograph, cultures of staphylococcus pyogenes aureus and other bacteria grew in the gelatin tubes inoculated, in a few days.

The five remaining dogs recovered from the immediate effects of the operation and were killed between the four-

teenth and twenty-first days after the operation. In three of these dogs the kidneys corresponding to the implanted ureters were in a state of morbid suppurative inflammation, pus being found in the pelvis of the kidneys. The patency of the opening in the rectum was not so perfect in three cases as in those already described, as it required a small probe to pass into the rectum.

(Dr. Reed mentions in one case, Exp. II of the implantation of both ureters that the right ureter was somewhat obstructed, the left freely open; nevertheless, there was violent inflammation of both kidneys.)

Implantation of both ureters in the rectum simultaneously, is an unmistakable test of the tolerance of the ureters and kidneys, provided the subject escape death by peritonitis. I performed six operations for the implantation of both ureters in the rectum. All the dogs died within six days. Four deaths were due to general peritonitis alone; the two other deaths were due to nephritis without compli-

the experiments thus far recorded, *namely*, as the dogs were killed too early to admit of scar contraction taking place at the point of implantation. But when we remember that the lumen of the ureter is exceedingly small; that this lumen is diminished rather than enlarged by the act of securing it in the rectum; that scar contraction must inevitably occur at the circle of cicatrization at the opening into the rectum; and above all that during the first few days of wound healing, as well as later, the constant tendency of the muscular fibers of the rectum is to lessen the circumference of the communicating opening between the ureter and rectum, we can not feel any confidence whatever in the permanent patency of the opening after the lapse of months and years. No implantation of a single ureter into the rectum either experimentally or in the human subject, should be accepted as favorable evidence, unless an autopsy has been made a long time after the operation.

Of all these arguments the readiest and most conclusive is

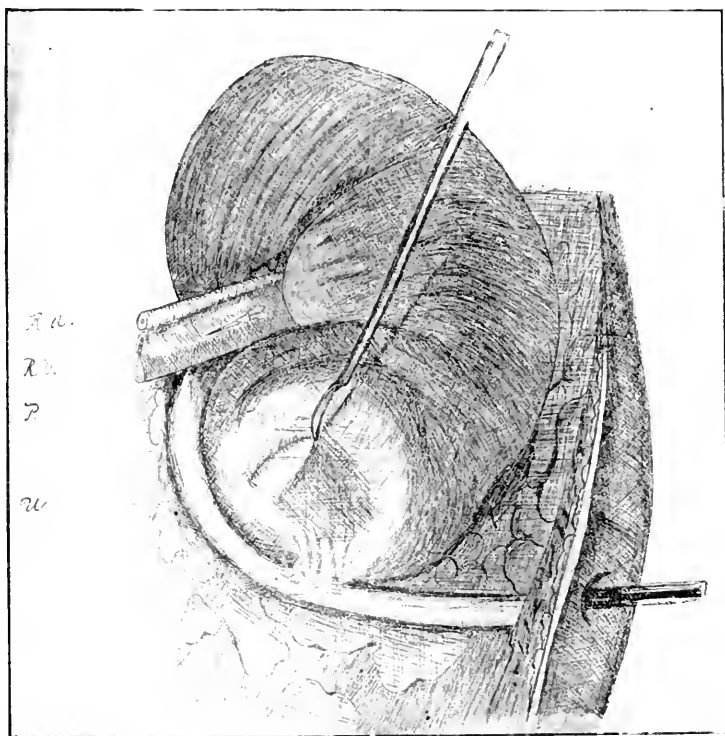


Fig. 11.—Implantation of the ureter upon the skin of the back. Le Dentu.

ating general peritonitis. In one of those dying of peritonitis and nephritis, there was moderate obstruction of the ureter causing retention of the urine in the pelvis of the kidneys. The same thing occurred in one of those dying of nephritis. In none of these cases were the kidneys in such a condition that they could be expected to regain the performance of their functions in the face of so much infection.

It will thus be seen that in no single permanent introduction of the ureter into the rectum has it been demonstrated that inflammatory reaction on the part of the kidneys was absent. On the contrary, in a large majority of the implantations indications of pyelonephritis were glaringly evident even upon gross examination. My conclusion is, therefore, that the ureters and kidneys are absolutely intolerant of this interference.

The answer to the last question can not be gained from

that the infection of the upper urinary passages is inevitable. This is proved by the observation which I have recorded, showing that in one instance violent infection of the ureter and pelvis of the kidney occurred, with hemorrhagic purulent inflammation and the presence of abundant bacteria in the bloody pus at the end of forty-eight hours.

From this study of the possibility and practicability of implantation of the ureters in the rectum, the conclusion is inevitable that intestinal or rectal implantation of the ureter is primarily and remotely an extremely dangerous procedure unjustified by reason and condemned by experiment, and second that inasmuch as the vital objections to this expedient are fundamental and not dependent upon criticism of a faulty technique, this operation must be regarded hereafter as unjustifiable in practice upon the human subject.

Stopping the Secretion of Urine may be accomplished by ligating the ureter, or by the obvious alternative of removing the kidney.

The immediate and remote consequences of complete ureteral obstruction have been the object of study by a number of physiologists as well as pathologists. Arnold Holste¹ has given some study to this subject and finds that, after ligation, the pelvis of the kidney is first dilated, then the tubuli recti and finally the remaining tubules are distended.

When obstruction is complete, secretion stops as soon as extravascular urinary pressure equals intravascular blood pressure. The kidney, as a whole, becomes larger in all cases of obstruction, and especially is this the case when the stoppage is effected gradually or when it is intermittent, as is the case with compression of the ureters in carcinoma uteri or in intermittent hydronephrosis from calculi of the bladder or pelvis. Orth² formulates the rule that the more slowly the total obstruction is reached the greater will be the saculation.

The facts that secretion stops entirely when the ureter is ligated, that saculation is slight when there is absolutely no leakage, and that atrophy of the parenchyma of the kidney occurs later on, have led some authors to recommend ligation of the ureter as an expedient to be adopted when it is incapable of performing its function and when lesions are irremediable. This recommendation has been made by one of the French writers.

The idea seems chimerical for a number of reasons. LeDentu³ counsels against it for two reasons:

1. Because of antecedent infection (which is liable to convert a simple hydronephrosis into a pyonephrosis).

2. Because "grave accidents" are liable to occur.

These grave accidents which LeDentu does not specify are indeed sufficiently grave. One readily thinks of slipping of the ligature; infection of the ligature which would allow infected pent-up urine to escape into the retro-peritoneal space if not into the abdominal cavity itself; rupture of the distended kidney, etc. Again, the sudden stoppage of the ureter in experimental animals always produces an enormous venous congestion, especially of the veins upon the capsule of the organ. Rupture of these veins with dangerous hemorrhage would not be inconceivable in patients whose vascular systems are in an abnormal condition. An entirely different problem which the suggestion brings up, is as to the ability of the remaining kidney to bear the additional burden of secreting the urine which would have been discharged from the other kidney. This danger would be equal to that which we fear in primary nephrectomy.

To me the greatest objection to the method, except of possible infection, lies in the fact that the kidney is sacrificed as completely as if removed. The kidney is an organ which has heretofore been sacrificed for ureteral disease or injury far more frequently than it should have been—more frequently than the immediate future will justify.

Nephrectomy for simple ureteral fistula has been performed many times, usually with success. It is unnecessary to refer to the many reports with which periodical medical literature abounds.

Kidneys have been sacrificed also for many other equally simple conditions, as intermittent hydronephrosis, cicatricial stenosis of the ureter, etc. But it is well-known that the process of compensatory hypertrophy of the remaining kidney always adds gravity to nephrectomy and, as one kidney is liable to many forms of disease while its fellow remains intact, it follows that the possession of two kidneys is a great safeguard to the patient. These facts are amply sufficient to make it unjustifiable to sacrifice a kidney, except when every means has been resorted to in order to repair the morbid condition. Indeed, it is just as improper to remove a kidney for remediable ureteral disease as to remove a kidney because it is movable.

CONCLUSIONS.

1. The extra-pelvic portion of the ureter is most readily and safely accessible for exploration and surgical treatment by the retro-peritoneal route.

2. Hence all operations upon the ureters above the crossing of the iliac arteries should be performed retro-peritoneally, except in those cases in which the necessity for the ureteral operation arises during laparotomy.

3. The intra-pelvic portion may be reached by incision through the ventral wall, the bladder, the rectum, the vagina in the female, the perineum in the male, or by Krasko's sacral method.

4. The ureter is not only exceptionally well protected from

injury, but by its elasticity and toughness resists violence to a remarkable degree.

5. The histology of the ureters furnishes most favorable conditions for the healing of wounds.

6. Longitudinal wounds of the ureter at any point, heal without difficulty in the absence of septic processes, under the influence of ample drainage.

7. In all injuries where the urine is septic before the operation, or where the wound is infected during the operation, drainage must be effected.

8. The chemic composition and reaction of the urine must be studied in all injuries to the ureter, the urine being rendered acid, if possible, and the specific gravity kept low.

9. The pelvis of the ureter is, *ceteris paribus*, the most favorable site for wounds of the ureter, since scar contraction is not so likely there to be productive of ill results.

10. In aseptic longitudinal wounds of the ureter occurring in the course of laparotomy, suture may be practiced and the peritoneum protected by suture.

11. Transverse wounds of the ureter involving less than one-third of the circumference of the duct, should be treated by free drainage (extra-peritoneal), and not by suture.

12. In transverse injuries in the continuity of the ureter, involving more than one-third of the circumference of the duct, stricture by subsequent scar contraction should be anticipated by converting the transverse into a longitudinal wound and introducing longitudinal sutures.

13. In complete transverse wounds of the ureter at the pelvis, sutures may be used if the line of union be made as great as possible.

14. In complete transverse injuries of the ureter in continuity, union must not be attempted by suture.

15. In complete transverse injuries of the ureter in continuity, union without subsequent scar contraction may be obtained by the writer's method of lateral implantation, as described.

16. In complete transverse injuries of the ureter very near the bladder, the duct may be implanted, but with less advantage, into the bladder directly.

17. At the pelvis of the ureter, continuity after complete transverse injury may be restored by Kuester's method of slightly loosening the severed ends can be approximated by slightly loosening the ureter from its attachments.

18. Rydygier's method of ureteroplasty, in such injuries may be tried if other methods can not be utilized. The primary operation should at least fix the ends of the tube as nearly as possible together.

19. In both transperitoneal and retroperitoneal operations the ureteral ends can be approximated by my method even after the loss of about an inch of its substance.

20. The use of tubes of glass and other materials for the production of channels to do duty in place of destroyed ureteral substance must be rarely satisfactory, and even if temporarily successful, the duct is almost sure to be choked by scar contraction.

21. The implantation of the cut ends of a ureter into an isolated knuckle of bowel is objectionable; 1, because the bowel is not aseptic; 2, because the operation is too dangerous.

22. In injuries of the portion of the ureter within the pelvis, with loss of substance, the ureter should be treated as follows; if possible, the continuity of the ureter should be restored by the writer's method.

23. If this is not possible, the ureter if injured in vaginal operations should be sutured to the base of the bladder with a covering of mucous membrane as far forward as possible, with a view to a future implantation or formation of vesico-vaginal fistula with kolpocleisis.

24. In injuries to the pelvic ureter, during laparotomy, where the continuity can not be restored, and where temporary vaginal implantation can not be effected in the female or vesical implantation in the male, the proximal extremity of the duct should be fastened to the skin at the nearest point to the bladder.

25. In ventral ureteral fistula opening near the bladder, the ureteral extremity may in some instances be planted directly into the bladder without opening the peritoneum.

26. In such cases where the ureter will not reach the bladder a flap may be raised from the anterior vesical wall and reflected upward, extra-peritoneally, to meet the ureter and form a tubular diverticulum.

27. Such a flap may be so elongated by a preliminary operation to transplant the peritoneum back of the fundus, or by accurately suturing it there at a single sitting, that median ventral fistulae of the ureter may be cured if they open at any point an inch or more below the umbilicus.

28. Symphysectomy is a valuable and justifiable preliminary step in these plastic vesical operations.

29. It is legitimate when both ends of a cut ureter open upon the abdominal wall to try Hydgier's method.

30. Implantation of one or both ureters into the rectum is absolutely unjustifiable under all circumstances because: (1) the primary risk is too great; (2) there is great liability to stenosis of the duct at the point of implantation; (3) suppurative uretero-pyelo-nephritis is almost absolutely certain to occur, either immediately or after the lapse of months or years.

31. Ligation of the ureter to cause atrophy of the kidney is unjustifiable.

32. Extirpation of a normal kidney for injury or disease of the ureter is absolutely unjustifiable, except where the ureter can not be restored in one or other of the ways cited.

BIBLIOGRAPHY.

- 1 Allingham, H. W., Brit. Med. Jour., March 28, 1891.
- 2 Assmuth, J., Zur Casuistik des Ureteren-Verschlusses, St. p. Med. Woch., 1889, XIV, 269-271.
- 3 Bacon, Jos. B., Chicago Med. Recorder, April, 1893.
- 4 Baum, Med. Bull., January, 1893. Also Rep. Centr. für Gynäkologie.
- 5 Bardeheuer, Langenbeck's Arch., Bd. 43, s. 32.
- 6 Berg, Centralblatt für Gynäk., Jan. 28, 1890.
- 7 Bird de Bordeaux, 1887, Thesis.
- 8 Boechlin, Ref. in Centr. für Chir., 1893, No. 27.
- 9 Byford, H. T., Calc. from right ureter, A. J. O., 1889, XXII, 963.
- 10 Cabot, A. T., Amer. Jour. Med. Sciences, January, 1892.
- 11 Cabot, T., Clinical Soc., London, 1890, XXII, 95-97.
- 12 Chrobak, Cent. f. Gynäkologie, 1893, p. 315.
- 13 Coe, H. C., Obstruction of ureter in pelvis, Am. Gyn. and Paed., 1890-1, IV, 61 and 67.
- 14 Collingworth, Trans. Path. Soc., London, 1884-5, Vol. XXXVI, p. 278.
- 15 Emmet, T. A., Gynecology, 1880.
- 16 Eyre, Psorospermial cysts of both ureters. London Lancet, 88, 39, XI, 44-6.
- 17 Fenger, Chr., Chicago Med. Recorder, March, 1893.
- 18 Fenwick, Section of male ureters, London Lancet, 1886, II, 529.
- 19 Galland, Chas. Paul, Contribution à l'étude des corps étrangers d'urètre. Paris, 1887.
- 20 Gargam, M. G. H., Calculs des Ureters. Thesis of Bordeaux, 1887, p. 49, 41, No. 53.
- 21 Geyl, Arle, Contribution to treatment of ureteral fistula. Volkman's Sammlung Klinische Vorträge, No. 37.
- 22 Godlee, R., Obstr. of ureter by calc. with complete suppression of urine, London Lancet, 1887, I, 625.
- 23 Hall, Case of extirp. of calc. from ureter by combined abdom. lumbar section, Med. Rec., N. Y., 1890, X, 111, 424-422.
- 24 Halpé, N., Les maladies chir. de l'urètre, son exploration, Gaz. de hôp., Paris, 1887, LX, 925-931.
- 25 Holste, Arnold, Inaugural Dissertation. Göttingen, 1888; Weber händler Universitätsbibliothek.
- 26 Kelly, H. A., Palpation in female. Tr. Amer. Gyn. Soc., 1888, 50-53.
- 27 Kelly, H. A., Johns Hopkins Rep., Baltimore, 1890, II, 231-232.
- 28 Koblak, Ein Beitrag zur path. Anat. der Ureteren. Wien, Klin. Woch., 1889, II, 917-9.
- 29 Kuester, Arch. für Klin. Chir., Bd. 44, Heft 1.
- 30 Lane, Calc. impact. in ureter for 20 yrs., removal, recovery. London Lancet, 1890, II, 967.
- 31 Leblent, Affection de l'urètre à la peau du flanc, pratique chez une femme qui avait de l'urémie de puis plusieurs jours. Rev. de chir. Par., 1889, IX, 932.
- 32 Leblent, Affections chir. des reins, des uretères, etc.
- 33 Leblent, Cong. Franc. de chir., 1890, IV, 233.
- 34 Mackenzie, S. C., Med. leg. experience in Calcutta. Edinb., 12, 1891, p. 8.
- 35 McArthur, L. L., Tr. III. Med. Soc., 1889.
- 36 Nielson, Paul, Anat. Beitr. z. path. Anat. n. z. allg. Path., Jena, 1888, III, 277-8.
- 37 Novaro, Bull. della Sezione della Scienze med. in Sienno, 1887, 53.
- 38 Nussbaum, J. N., de El Siglo Medico, 1887, 431.
- 39 Newman, David, Surgical diseases of the kidney, 1888.
- 40 Orth, Pathologische Anatomie, Bd. II, p. 335.
- 41 Pantaloni, La portion pelvienne des uretères chez la femme. Par., 1888, 42, p. 4, No. 8.
- 42 Perez, Explor. des uretères. Paris, 1888.
- 43 Paoli et Busachi, Annales des Maladies des organes genito-urin., 1888.
- 44 Pick, Impaction of stone in ureter with atrophy of kidney on other side. London Lancet, 1886, I, 325.
- 45 Poirier, Paul, Infection of ureters, Comp. Rend. Soc. de Biol. Paris, 1891-2, III.
- 46 Poirier, P., Catheterization. Comp. Rend. Acad. d. sc. Par., 1889, CXI, 409-411.
- 47 Poussan, A., Three cases of anuria followed by analysis of eight operations of ureterotomy. J. de Med. de Bordeaux, 1891-2, XXI, 15-25.
- 48 Pozzi, Ing., of ureter in laparotomy, Cong. Franc. de chir., Proc. verb., 1891, V, 60-616.
- 49 Pozzi, Gynec., 1892.
- 50 Pozzi, Ref. med. di Napoli, Nich, 1887.
- 51 Piquet, Explor. de l'urètre par le toucher vaginal et le toucher rectal. Prog. Med., 1887, IX, 375-38.
- 52 Reed, R. Harvey, Annals of Surgery, Sept. 1892.
- 53 Rosenberg, Virchow's Arch., Bd. 93, p. 158.
- 54 Ruffe and Godlee, Suppression by calc. Op. Rec., London Lancet, 1889, I, 428.
- 55 Richmond, J. M., Calc. removed from left female ureter. Tr. Med. Assn., St. Louis, 1888, 314-216.
- 56 Roehard, Dictionnaire Encyclop. 5e Serie, Article ureter.
- 57 Rydygier, Ludwig, Uretero-plasty. Oester-ungar. Centr. für Med. Wissenst., 1892.
- 58 Schultz, Exhaustive consideration of methods of exploring ureters. Nouv. Arch. d'Anat. et de Gyn., II, p. 5, 305.
- 59 Secheyron, Des abouchements anormaux de l'urètre dans la vagin, a la vulve. Arch. de Toelol. Par., 1889, XXV, 254, 335.
- 60 Schmitt, J., Nephrophthisis. Antrop. Med. Rec., 685.

- 61 Simon, G., Die Sondirung des Harnleiters. Centr. für Nerven. Heil. II, 1, 290.
- 62 Staples, G. A., Hydro-nephrosis. Jour. Am. Med. Assn., April 12, 1884.
- 63 Stanley, Berthel, Med. Times, April, 1888.
- 64 Sutton, Blaud, Poursuite de la vie en urètre. London Lancet, 1889, II, 1278.
- 65 Tarnier, A. J. M., No. 1, 75.
- 66 Thorel, P., Mémoires d'Urologie, 1892, III, 157.
- 67 Tournaud, De l'urètre et de la pelvico-urétrite. Par., 1889.
- 68 Traube, Gaz. des Hôpitals, 1892, No. 97.
- 69 Tuffier, La grande des uretères dans l'anté-signe, affections urinaires. Ann. de med. d'org. génito-urine. Par., 1889, XI, 212-23.
- 70 Tuffier, Chir. Chir., 1891, p. 2.
- 71 Tuffier, Experimental studies in surgery of kidney. Paris, 1889.
- 72 Tuffier, Calculs impacted in the ureter, removed by operation. Med. Press and Cure, London, Dec. 11, 1889.
- 73 Van Hoek, Weiler, Jour. Am. Med. Assn., March 4, 1893.
- 74 Willems, Drainage des uretères.
- 75 Will, Uretero-vaginal fistula. Centr. für Gyn., p. 11, 1889.
- 76 Wyckoff, Wiener Klinische Wochenschrift, 1893, No. 11.
- 77 Zeller and Chrobak, Abstracted by Lebent on cit.

AMPUTATION AT THE HIP-JOINT, BY
WYETH'S BLOODLESS METHOD.

Read before the Southern Surgical and Gynecological Association, at New Orleans, La., Nov. 11, 1893.

BY F. W. FARHAM, M.D.

PROFESSOR OF GENERAL AND ORTHOPEDIC SURGERY, NEW ORLEANS POLY-CLINIC; VISITING SURGEON, CHARITY HOSPITAL, NEW ORLEANS, LA.

Dr. John A. Wyeth read a paper on a "Bloodless Method of Amputation at the Hip-joint,"¹ at the meeting of the AMERICAN MEDICAL ASSOCIATION in 1890. He had previously reported two cases successfully operated on by the method, to the Section of Surgery of the New York Academy of Medicine. He again described his method at the Pan American Medical Congress in Washington.

These cases were sarcomatous tumors of the thigh. In addition to these two successful cases, he gives also in detail in the paper referred to, two cases operated on successfully by McBurney and Flührer, the first being an infiltrating sarcoma of thigh, the second an osteo-sarcoma.

As to bleeding in these four cases Wyeth reported that in his own two cases there was "no bleeding at all," in Flührer's not more than four ounces of blood was lost during the whole operation, while in McBurney's perhaps "not an ounce in all." In Flührer's the operation lasted one hour and a half, in McBurney's case the time is not stated, but the operation is said to have been finished "with great rapidity."

Since these cases were published a number of surgeons have employed the method, and some valuable contributions have been made to the literature of amputation of the hip. I have been able to collect the following cases, which I shall give without any attempt to report them in chronological sequence:

Case 5.—Case of Dr. John B. Deaver.—The patient, female, age 20, fell down stairs in 1886 and sustained an injury of the hip. In August, 1888, an abscess formed and was opened. In October, 1889, the femoral head was excised for necrosis. In September, 1890, another abscess formed. There were sinuses and manifest enlargement of femur. There was evidently a mild septicæmia in progress. Oct. 21, 1890, under ether, the limb being rendered bloodless by Esmarch's bandage, Wyeth's amputation was done. On November 30 the patient was entirely well.

Case 6.—Case of Dr. Sanger.—T. M., age 31. Patient had suffered of strumous disease of left knee-joint, which had been treated by tapping, washing and iodoform injection. Two months later another surgeon performed a supra condylar amputation using diseased tissues for his flaps. Wound did not heal, lower half of thigh becoming

Dr. Wyeth first employed the method successfully in an amputation at the shoulder joint. The hemorrhage was so well controlled that he was led to resort to the same expedient in hip amputation. Dr. J. H. Brinton has reported two cases (one successful) in which he employed the method of Wyeth in shoulder amputation (Annals of Surgery XVIII, 93, 321.)

honeycombed with tubercular sinuses. There were evidences of incipient phthisis.

Dr. Nancrede operated by Wyeth's method and patient recovered without a bad symptom.

Case 7.—Lanphear's first case.—H. M., male, colored, age 9, suffering of osteo-mylitis of femoral shaft. An operation was made Oct. 21, 1890, for the relief of the diseased tissue, but on October 24 his condition was so desperate that there could be no longer any delay. On October 24 Wyeth's amputation was made. Scarcely one ounce of blood was lost. Convalescence was rapid.

Case 8.—Lanphear's second case.—O. M., male, age 15. Osteo-mylitis of entire shaft with profound septicemia. Amputation April 19, 1892, by a modification of Wyeth's method. About two ounces of blood lost by parenchymatous oozing. Operation completed in twenty-nine minutes from beginning of anesthesia. Death by septicemia.

Case 9.—Lanphear's third case.—Miss A., age 28. Had been subjected to a series of amputations for the relief of a violent neuralgic pain. The great toe had been first amputated by the physician; no relief. A few months afterward another surgeon made a Chopart's amputation. Subsequently the leg was amputated just above the ankle and later just below the knee. Still no relief, whereupon a supra-condyloid amputation was made. No amelioration being accomplished, a sixth amputation was made through the middle of the thigh. After repeated examinations, Dr. Lanphear reluctantly, at the urgent request of her physician, amputated the seventh time, at the hip, employing his modification of Wyeth's method.

There was no loss of blood. Recovery rapid and complete. No recurrence of pain.

Case 10.—Lanphear's fourth case.—F. P., male, age 28. Some years previously amputation had been made through the thigh for injury to knee. Abscesses formed from wearing an artificial limb. When seen by Lanphear was pale, very anemic, suffering from septicemia. Amputation at hip Feb. 24, 1893, by Lanphear's modification of Wyeth's method. More blood lost than in any one of the others, owing to the profunda being overlooked, due to its high origin, until after the constrictor was removed. Patient, however, did well although recovery was somewhat retarded by suppuration of the stump.

Case 11.—Abern's case, Quebec.—Male, age 22. Operation called for by large osteo-sarcoma of the lower end of femur. About two ounces of blood lost. Although not explicitly stated, I judge from context that the patient recovered.

Case 12.—J. McFadden Gaston.—Patient, male, with very large cystic sarcoma of left thigh, involving the bone. The cyst was first evacuated, several gallons (?) of a dark brown fluid being drawn out. The cyst filled rapidly. Hip amputation was decided upon. Under the A. C. E. mixture, assisted by Drs. Price, Boland, Kenouff, Nicholson, Giddings, Earnest and Divine, Wyeth's operation was done. There was a considerable loss of blood, largely from a general oozing, which, uncontrolled by hot carbolized water, was finally stopped by sponging with a mixture of spirits of turpentine and camphor.

There was little shock, easily controlled by hypodermatic injections of ether and whisky. For twenty-four hours he did well, until there supervened a diarrhea which became colliquative and continued for ten days in spite of the most energetic measures. He died on the twenty-sixth day after the operation.

Dr. Gaston thought the lowering of the vitality from the diarrhea had much to do with the fatal termination, but, he remarks, it would appear that the failure at one time to open the stump for three days led to septic contamination, which was the immediate cause of death. But for this oversight, he thinks, the case ought to have had a favorable termination. The amputated part after two gallons of fluid had been removed weighed seventy-three pounds.

Case 13.—W. W. Keen, Philadelphia.—Patient, female, age 30, five months pregnant. Present trouble began seventeen months ago, during previous pregnancy, with swelling of both legs, especially the left. After delivery, pain and swelling diminished, but a lump remained in left popliteal space. In May 1891, this became very painful. The pains were sharp and shooting in character. The tumor increased in size until at time of operation it extended from the calf to the groin, measuring twelve and five-tenths inches in length and twenty-three inches in circumference at the lower part of the thigh. Lymphatics not enlarged.

Operation. Patient was wrapped entirely in raw cotton except diseased limb. No blood lost from stump until after

the large vessels had been secured. Thirty-three ligatures in all applied. Probably eight to ten ounces of blood were lost. Duration of operation fifty minutes. Delay caused by separation of soft parts from the bone and the securing of the numerous vessels. Two drainage tubes were used, but the operator remarked he would in future cases use but one, placing this externally, to prevent infection, since in this case suppuration occurred from infection through the inner tube. The progress of the case was, however, uninterruptedly good and the case ended in recovery.

Case 14.—J. D. Thomas of Pittsburgh, Pa.—G. S., age 18, male, injured in a rolling mill by a red-hot bar of iron, one-half inch in diameter, which was thrust into his left thigh about two and one-half inches below Poupart's ligament, going through the long saphenous vein, the femoral vein and femoral artery. The opening was funnel-shaped, admitting two fingers for a little distance, one finger only being permitted to pass beyond. This passed some distance around the inner and posterior aspects of femur. At the time of accident he lost a large quantity of blood. Although the indication for hip amputation was so clear, the parents would not permit it and he only consented five or six days later when gangrene had set in. Wyeth's operation was done successfully and the condition was at first promising until the end of the second day, when he began to fail and died at 8 P.M. Thomas very justly remarks the operation might have resulted in recovery if it had been done four days earlier, when it was strongly urged.

I have been able to obtain only brief notes of the following cases:

Case 15.—Dr. John A. Wyeth, New York; ♀ female, age 18; for sarcoma; recovered.

Case 16.—Dr. A. M. Phelps, New York; ♀ male, age 58; sarcoma; recovered.

Case 17.—Dr. A. J. McCosh; ♀ male, age 28; sarcoma; recovered.

Case 18.—Dr. J. Ewing Mears, Philadelphia; ♀ male, age 9; osteo-mylitis; recovered.

Case 19.—Dr. Archibald E. Mallock, Canada; ♀ male, age 20; osteo-mylitis; recovered.

Case 20.—Dr. G. A. Baxter, Chattanooga; ♀ male, age 17; railroad injury, causing pulpation of both lower limbs, requiring amputation through right leg and left hip. Died of shock.

In addition to these cases, which are all I could positively verify or could get a statement of the result of, I have obtained the following from a paper kindly sent me by Dr. Wyeth, for presentation to this meeting:

Case 21.—Dr. Frank Hartley, March, 1892; female, age 26; osteo-sarcoma; recovered.

Case 22.—Dr. Merrill Ricketts, 1893; female, age 23; osteo-sarcoma; recovered.

Case 23.—Dr. C. A. White, 1891; male, age 23; osteo-sarcoma; recovered.

Case 24.—Dr. J. B. Murdoch, 1892; male, age 17; osteo-sarcoma; died.

Case 25.—Dr. A. M. Phelps, 1891; male, age 24; osteo-arthritis; recovered.

Case 26.—Dr. A. M. Phelps, 1892; male, age 16; osteo-mylitis; recovered.

Case 27.—Dr. C. B. Nancrede, 1893; male, age 31; osteo-mylitis; recovered.

Case 28.—Dr. S. H. Pinkerton, Salt Lake City, 1892; male, age 17; tubercular osteitis; recovered.

Case 29.—Dr. S. H. Pinkerton, 1892; male, age 10; tubercular osteitis; recovered.

Case 30.—Dr. S. H. Pinkerton, 1892; male, age 42; necrosis; recovered.

Case 31.—Dr. S. H. Pinkerton, 1892; male, age 43; necrosis; died.

Case 32.—Dr. S. H. Pinkerton, 1892; male, age 17; osteitis; recovered.

Case 33.—Dr. R. L. Swan, Dublin, Ireland, 1892; female, age 19; chronic osteo-arthritis; recovered.

Case 34.—Dr. W. B. Johnston, 1892; male, age 39; railroad injury; died.

¹ Transactions Medical Association of Alabama, 1892, p. 415.

² Transactions Medical Association of Alabama, 1892, p. 415. [Dr. Baxter also made mention of this case in the discussion of my paper at the meeting of the Southern Surgical and Gynecological Association.]

³ Paper read by Dr. Wyeth at the meeting of the New York State Medical Association, Oct. 9, 10, 11 and 12, 1893.

Case 35.—Dr. S. H. Pinkerton, 1892; male, age 6; gunshot fracture; died.

Case 36.—Dr. H. O. Walker, 1892; male, age 14; osteosarcoma; recovered.

Case 37.—Dr. H. O. Walker, 1893; male, age 21; chronic hip disease; recovered.

Case 38.—Dr. H. O. Walker, 1893; young man; chronic hip disease; died.

Case 39.—Dr. John B. Deaver, 1893; male, age 20; osteomyelitis; recovered.

Case 40.—Dr. F. W. Parham, 1893; male, age 3; sarcoma of thigh; recovered.

McCurdy has also operated with his modification, but I have not been able to collect the data of the cases. Case No. 40 is my own and is as follows:

Case 40.—John Murdock, age 3 years, a native of New Orleans, applied for admission into children's ward of the Charity Hospital May 8, 1893, service of Dr. E. D. Fenner, to whom and to the Interne, Mr. Oechner, in charge of the ward, I am indebted for the notes of the case during his stay in the ward. On admission, there was a large growth, size of an adult heart, situated on the inner aspect of right thigh. The tumor was easily enucleated. The sciatic nerve ran posteriorly in the capsule of the tumor, and the femoral vessels were pushed to the inner side. The incision was made from a little above middle of Scarpa's triangle to a point about two and one-half inches above the internal condyle. Union was rapid and satisfactory and the little fellow was discharged, apparently cured, May 31.

He was re-admitted to the ward July 11, 1893. Three weeks previous to second admission, the mother noticed a new growth in the site of the operation. When first observed it was about the size of a pigeon's egg. It grew very rapidly; when admitted July 11 was as large as the first tumor above described. The second operation was done July 12, 1893. The tumor was not easily enucleated as in first instance, being incorporated with surrounding tissues, and had to be removed by dissection. The wound did well and patient was discharged for the second time on July 30, 1893.

Two microscopic examinations were made, in the Pathologic Department of the Hospital, of specimens of the two tumors removed. July 12, the report was returned: "Sarcoma round- and spindle-celled; cells large and plump;" July 19, the report was: "Sarcoma, spindle- and small round-celled."

On Tuesday, Oct. 3, 1893, I was asked to see the child with the attending physician, Dr. J. T. Scott. I found the little fellow rather anemic, but lively and able to go about, though rather awkwardly, without the aid of crutches. There was an immense tumor, which I here show you, occupying nearly the whole inner aspect of thigh and filling the popliteal space. The tumor was of firm consistency. Previous history good. The mother attributes the trouble to a severe fall he had sustained in the latter part of March of this year. Some time in April she noticed the swelling. It increased rapidly and she sought advice at the Hospital. Up to the time he entered the Hospital, his health was good. The history of case while in Hospital from May 8 to July 30, has been above detailed. After leaving there, the tumor soon began to show signs of return. The parents took the child East, where they consulted Dr. Deaver in Philadelphia. The Doctor advised amputation at the hip, but suggested that it might be best to do it at home in New Orleans. They returned to New Orleans and consulted their family physician, Dr. J. T. Scott. He asked me to see the case. We examined the child as above on Oct. 3, 1893. I urged amputation at once. The glands in the groin were slightly enlarged, probably not from sarcomatous infiltration, but the tumor was growing now with great rapidity. The parents readily gave consent. Accordingly, removal to the New Orleans Sanitarium was advised. On Thursday, Oct. 5, 1893, the operation was done in the operating room of that institution. Chloroform was the anesthetic. Dr. J. T. Scott administering it. I was assisted in the operation by Drs. E. D. Fenner and W. E. Parker. The Esmarch band was applied up to the lower border of the tumor, the tumor not being included for obvious reasons. The operation was conducted exactly according to the directions of Dr. Wyeth.

Ordinary mattress needles were used, one end being cut off at the eye. They were very rusty and dirty and had to be sandpapered and disinfected by boiling and carbolic

solution. In placing the outer needle, I got the posterior end out of the plane of the inner needle. I withdrew it and placed it so that the tube would touch both needles, both in front and behind. Thus I had to make three punctures. No harm resulted from this. Little blood was lost from the stump, but a good deal came from the turgid vessels of the tumor. My intention was to adopt the suggestion of Murdoch, and not to saw the bone but to disarticulate the femur entire. I found it difficult, however, to get the posterior vessels and saw that I should save time really by sawing the bone. The vessels of stump being secured, I made the longitudinal incision and had little trouble in disarticulating. I found low section of the bone a decided advantage in disarticulating.

Rather smart hemorrhage occurred during the disarticulating, the tube having been removed. I think it very advisable to place the outer pin higher, so that the bone may be entirely removed before any vessels are secured. In that case, it would be best not to saw, but to remove the extremity in its entirety. The operation lasted from beginning of anesthesia to application of dressing, one hour and a half, but a good part of the time was consumed with the anesthetic, it being at one time necessary to suspend the child head downward, in order to restore him. His condition was so bad for a time that I thought I should not be able to suture the flaps, but he finally revived sufficiently and the operation was completed, one drainage tube only being used, placed in the upper end of the lateral incision. October 6, day after operation, redressed on account of great oozing. A drop of pus oozed from one of the pin holes.

October 7. Redressed. Drainage tube removed. From this time on, almost daily dressing had to be made, owing to urine infiltration. Rubber tissue was used, which protected the line of apposition until the gauze became soaked from above. A discharge from the rectum also gave considerable trouble. October 19. The stump is closed, but the skin has opened a little, exposing a line of granulations. Rubber adhesive strips applied. October 24. Complete deep and superficial union. The temperature had risen several times above 101 degrees, but for the first two weeks marked 100 to 100.5 degrees. After this it fell to normal. Catgut was used for ligating the vessels and silkworm gut for the flaps. A liberal estimate would make the blood lost during the whole operation not over two ounces, I think much less. There was no further suppuration from the pin hole after the first twenty-four hours.

Here we have a report of forty cases, classified as follows by Dr. Wyeth:

Sarcoma, 17 cases, 2 deaths, 11.76 per cent.
Osteomyelitis, 18 cases, 3 deaths, 16.67 per cent.
Injury, 4 cases, 4 deaths, 100 per cent.
Neuralgic affections from nerve injury, 1 case, no deaths.
For disease, 36 cases, 5 deaths, 13.88 per cent.
For injury, 4 cases, 4 deaths, 100 per cent.
For both disease and injury, 40 cases, 9 deaths, 22.5 per cent.

Wyeth gives Ashhurst's statistics as follows:

64.1 per cent.
For disease, 276 cases, 49.2 per cent.
For injury, 309 cases, 82.1 per cent.
Lining gives:
Gunshot wounds, 229 cases, 98 per cent.
Disease, 153 cases, 42 per cent.

Emory Lanphar in an article on Wyeth's amputation referring to these same statistics of Luning says, "Surely this is a method which is about as successful as could well be expected, considering the gravity of the operation." Other statistics put the mortality even higher, but taking these as a guide, we find that Wyeth's operation has reduced the mortality for civil practice just one-half. It has not yet been employed in military practice. With such a reduction in mortality, we can well overlook the sneer of Treves, that, "if the after-oozing be taken into account" the operation "can not be regarded as bloodless."

Richard Davy of London, reports a series of ten amputations in nine of which he used his lever. The mortality, formerly 60 per cent., is reduced to 20 per

⁵ In this case Dr. Deaver abandoned the pins and used the tube held up by two tapes, one in front and one behind.

⁶ American Journal of Surgery and Gynecology, Kansas City, 1893, III, 182-186.

cent. "Sir Joseph Lister mentions a case in which a gentleman specially conversant with the use of the lever failed to bring it into effective action and another . . . where death resulted from mischief done by the end of the rod working in the dark." I do not think this can be compared to Wyeth's for either efficiency or safety. The method of Jordan Lloyd is effective if the tube does not slip, but is more awkward and requires a special assistant to hold the ends. Wyeth's will take care of itself, until taken off.

Ligation of the femoral artery as recommended by Baron Larrey, somewhat complicates the operation by delaying it, and does not control the posterior hemorrhage.

Lister's aortic tourniquet has been used, but is now abandoned by its author for other methods. Poppert reports one successful case in which he ligated first the common iliac. The method of Buchanan and Hardy of controlling the hemorrhage through an abdominal incision, although successfully done by Hardy, will scarcely meet with the approbation of surgeons.

The method of Pean, of catching the vessels as he proceeds is open to the serious objection of being very slow.

I come now to the skewer methods.

Trendelenburg transfixes the thigh by a single needle passed in front of the neck of the femur and beneath the vessels. Over the ends of the needle and in front of the thigh a compressing rubber cord is passed. Dr. Varick transfixed a second time behind the femur before disarticulating.

Robert John Garden of Aberdeen, writes thus in the *British Medical Journal* of Jan. 4, 1890: "I have had considerable experience of amputation at the hip-joint. The result has been uniformly successful, as in my fourteen cases I have had no death due to the operation. All my cases recovered except a child aged 9 months (whose leg was removed for a large sarcoma of thigh), who died of measles contracted after the operation. So far as cutting the flaps is concerned, I pretty much followed the plan recommended by Fumaux-Jordan, combined with the skewer securing of the vessels as suggested by Spence. My experience does not lead me to regard the risk from shock as very great. The operation as described above removes the wound well away from the anus, and by the skewer method, both when antero-posterior and lateral flaps are formed, all danger from bleeding is effectually removed."

The method of Spence seems to be the same as that now described as Myles'. Myles thrusts a stout steel skewer straight through the thigh from before backwards. The point enters an inch below Poupart's ligament and just to the outer edge of the femoral artery it passes to the inner side of the neck of the femur and emerges a little above the gluteal fold. An india rubber cord is passed around the ends in figure-of-eight manner.

I shall consider now the modifications of the Wyeth method proper. Lanphear makes the excellent suggestion to place the outer needle high enough to permit of disarticulation before removing the tube. This saves much time and the hemorrhage is diminished. In this case I would disarticulate without section of the bone.

Thomas advises to place the tube in position first and put the pins through with the tube as a guide

regardless of the position of the spine of the ilium. He advises also to clear the bone thoroughly before beginning the disarticulation. These are both good practical suggestions.

We may consider here Senn's method. This is especially applicable to those cases where an excision is first to be attempted, but is abandoned for hip amputation. Lanphear refers to one case in which the patient bled to death while on the table, Senn's method being used.

Finally, I have McCurdy's method to speak of. By this method a flap operation with immediate disarticulation may be done. A single needle is used, inserted at the most prominent point of the great trochanter, passing directly through the thigh in front of the femur to come out just below tuber ischii. This very closely resembles that of Myles' already referred to.

The most unfavorable opinion of the operation is that expressed by Nancrede. "There is," he says, "one serious objection to Wyeth's method; this is the length of time it takes, which adds greatly to the shock." After completing one serious operation, which has produced an extreme degree of shock, another major operation, that of excision is then undertaken. Where skilled assistants are not at hand he thinks the method applicable.

I believe, however, by placing the outer pin higher these objections can be overcome to a large extent. We can then do as Murdoch suggests and disarticulate without hemorrhage, rapidly and without sawing the femur.

In conclusion, I am inclined to agree with Murdoch, that the method of Wyeth is the best yet devised for amputation through the hip joint.

BOOK NOTICES.

An Analysis of Medical Ethics and Etiquette. The Code of Ethics adopted by the AMERICAN MEDICAL ASSOCIATION, with commentaries, by ARSTIN FLINT, M.D. 12mo. pp. 97. New York: D. Appleton & Co. 1893.

The following analysis of this book, which every physician should have, is intended as a special plea for the maintenance of the American Code of Medical Ethics as it now stands.

The work begins with a modest preface, characteristic of the truth-loving and guileless author who died full of years and honors, deeply regretted by all who knew him. The commentaries, which show ripe scholarship, good taste and loftiness of mind, were composed in moments snatched from his hours of rest and were truly a labor of love.

In the introductory remarks the author says: "A reader who has given to the subject little or no attention may be supposed to ask, 'wherefore the propriety of recognizing the principles of duty applied to medicine as constituting a distinct branch of ethical science? Are not the rules in ethics which would govern the practitioner of medicine the same as in other applications?' There are certain fundamental truths which, of course, underlie all possible applications of ethics; but the adaptation to different conditions of life call for a separate consideration. . . . The rules of conduct adapted to the peculiarities of medicine constitute medical ethics. These rules have a moral weight. Medical etiquette, on the other hand, consists of the forms to be observed in professional intercourse. These are conventional. They have not the binding force of ethical rules; nevertheless, they claim observance. The medical profession re-

ceives not a little ridicule for observing rules of etiquette, but their observance is a protection against not only embarrassment and confusion, but misapprehensions and dissensions, injurious alike to physicians and patients. If there be ground for a distinct system of ethics applied to medicine, the rules of conduct which the system requires should be codified. A code of ethics adopted by the profession represents the views held by the majority of its members, and is, therefore, binding on all. It is indispensable for the sake of reference whenever differences of opinion arise. It indicates the proper course to those whose moral perceptions may be defective. It may prove a safeguard against the bias of personal interests. It thus contributes to the purity and dignity of the medical profession. Much would be gained in the popular respect for the profession, were the public better acquainted than they are with the ethical rules by which its members assume to be governed. It is, perhaps, a common impression that the objects of a code of medical ethics have exclusive reference to the interests of the medical profession. So far from this, the objects are of far more importance to the public welfare than to physicians." . . . Farther on in the introduction he gives the origin of the Code, and then concludes with a statement of the arrangement proposed for the commentaries. The work is divided into three chapters, which embrace the entire Code, and to each section of the Code appropriate comments are appended.

CHAPTER I.

THE DUTIES OF PHYSICIANS TO THEIR PATIENTS, AND THE OBLIGATIONS OF PATIENTS TO THEIR PHYSICIANS.

ARTICLE I.—*Duties of Physicians to their Patients.*

SECTION 1.—Of this Article is so clearly defined and so well adapted to the instruction of young physicians, that it is difficult to conceive what could have induced any physician to suggest its suppression. That its provisions are self-evident to physicians of experience is not doubted, but they are all necessary for the information of beginners, and are as brief as consistent with distinct statement. "They antagonize," says Dr. Flint, "undue influences arising from self-conceit, an irritable temper, indolence, devotion to pleasure or to occupations which divert from professional duties, and all mercenary considerations. At the same time, they do not contravene self-respect and a proper regard for personal interests." There surely is no doubt of the necessity to tell young physicians of their obligations to obey promptly the calls of the sick; that their mission is always one of mercy; that the responsibility they incur in the discharge of their duties is great, and that since their work is generally performed in privacy, the only punishment for carelessness or neglect is through the stings of conscience and the loss of self-respect. These injunctions and all others in the Code are ennobling and serve to soften the manners and expand the affections of the young, and form them to that propriety and dignity of conduct which are essential to the character of gentlemen. (Percival.) The third sentence of this first Section is a wholesome amplification of the preceding sentences, and its appropriateness will probably be admitted by the majority of readers. The last sentence of this Section has been very harshly and unfairly criticised on various occasions. Careful examination shows that it is clear, that its words were well chosen, and that it is necessary. How merciful on the part of the physician, how comforting to the patient, when firmness is tempered with tenderness; how noble it is in the physician to be tenderly firm, and how necessary it often is for the physician to be condescending; that is, to be yielding in minor details so that his authority may be greater in important particulars for the good of the sufferer! And how can he fail to inspire gratitude, respect

and confidence, if he observe these injunctions in letter and spirit?

SEC. 2.—In the first sentence of this Section the word attention, which occurs in the third sentence of the preceding Section, is repeated, but the repetition seems justifiable. The whole sentence, indeed, is complementary to that third sentence, and gives greater force to the injunction. The second sentence is rightly placed and pertinent. Bodily infirmity often leads to mental inebility, or to unreasonable caprices, therefore young physicians are enjoined to be indulgent and to make due allowance for the whims of the afflicted. None can, with justice, object to the three sentences that relate to the observance of secrecy, which are paraphrased from the Hippocratic oath, and there is not a court of law in the United States that is likely to refuse protection to the physician in the circumstances detailed in this Section. The commentaries of Dr. Flint on this second Section fill ten pages and are well worthy of careful study.

SEC. 3—is short, incisive, explicit, self-explanatory, and necessary. It receives from the able pen of Dr. Flint an appropriate commentary which is quite sufficient to show its great utility.

SEC. 4—is the longest in the Code; it contains a little more than two hundred words in six aphoristic sentences, and is so instructive and valuable to young physicians that not a single part or word should be re-trenched. "Undue solemnity, anxiety and apprehension in the looks, manner or words of a medical attendant on the sick, are extremely unfortunate—they discourage patients; whereas, on the other hand, a cheerful mien, calmness of deportment, and verbal assurances, sometimes accomplish more than drugs." All that is embodied in this Section is self-evident and well known to experienced physicians, but is absolutely necessary for beginners.

SEC. 5—contains wholesome admonitions to young physicians who are too apt to form gloomy prognostications in cases of serious disease, and sometimes even to abandon the patient, thinking there is no hope of his recovery and being delicate respecting the demand of fees which they believed might not be honestly earned should they continue their visits. The very time of the cessation of such visits may have been the climax of a crisis which, ending soon after the arrival of another physician, is followed by rapid recovery. In such a case the retiring physician is discredited by the family, even if his successor explains the case and honestly endeavors to exonerate him. This alone gives great value to Section 5, but it contains other points of no less value. Moreover, in truly hopeless cases, the physician "can often do much toward lessening pain or discomfort—mental and physical; he can contribute to euthanasia, and he can comfort those who surround the bed of death by assurances that in the 'last agony,' as it is mis-called, these manifestations of distress are usually unattended by conscious suffering."

SEC. 6.—The perusal of Dr. Flint's commentaries will convince the most incredulous of the necessity of this section. He says in the concluding sentences: "Consultations, when their true objects are recognized by all parties, are of great comfort to an attending physician. Undoubtedly, a reason for their being distasteful to him often is a want of full confidence in the honor of the consulting physician. Hence, it is important that physicians comply conscientiously with the rules laid down in respect of consultations."

SEC. 7—is quite as important as any other Section of Article 1: "It is undoubtedly true that persons will often listen more considerably to counsels or remonstrances from a medical adviser than to those of relatives, friends and neighbors, or even to the admonitions of the clergy. It is, perhaps, true that most persons are influenced more

by considerations which have reference to life and health than to those which appeal directly to the moral nature." These two sentences show but a small part of the excellent advice compressed in less than a page of Dr. Flint's precious work.

ARTICLE II.—*Obligations of Patients to their Physicians.*

Dr. Flint prefaces this Article as follows: "There are several reasons why this portion of the Code calls for but little in the way of commentary. In the first place, the commentator being a member of the medical profession, it is a matter of delicacy not to dilate too largely on the obligations of patients to their physicians. In the second place, although in the preparation of these commentaries the hope is entertained that they will have interest for non-medical readers, there is probably little ground for the expectation that they will have an extensive popular circulation. In the third place, a large proportion of patients are fully sensible of their obligations to their physicians; and, lastly, the portion of the Code which defines the obligations of patients to their physicians is so clear and comprehensive as not to offer much scope for addition or elucidation. For these reasons, instead of making each subdivision a separate heading for comments, the entire Article will be first given, and afterward, brief remarks on the topics which it embraces, following the order in which they are presented in the Code."

SECTIONS 1 TO 10 INCLUSIVE.—Although the author says, in his prefatory note, that this Article calls for but little in the way of commentary, he nevertheless comments on its ten Sections in five pages, and in the most attractive and lucid style which can not fail to carry the fullest conviction of the necessity of every syllable contained in the Article.

CHAPTER II.

OF THE DUTIES OF PHYSICIANS TO EACH OTHER AND TO THE PROFESSION AT LARGE.

ARTICLE I.—*Duties for the Support of Professional Character.*

SECTIONS 1, 3, 4, 5.—The detractors of the Code seem to regard the first, third, fourth and fifth Sections of this Article as unnecessary. They entertain this baseless opinion, probably because they have not read the Article with sufficient attention or reflection. The following passages are therefore extracted from Dr. Flint's commentaries to show the utility of these Sections, particularly to young physicians: "It may be said that the sentiments expressed in relation to the 'duties for the support of professional character,' contained in the first two Sections under this head, are mere truisms and platitudes. This may be said with regard to any collection of ethical principles for the regulation of human conduct. Experience shows the importance of the embodiment in language of moral principles pertaining to other of the relations of life, and there is reason to believe that this portion of the Code has not an inconsiderable influence upon the character of the profession, by inciting its members to become worthy of it, and to render it still more worthy of the estimation in which it is generally held by the public."

The fourth Section must be especially disliked by the dissenters, on account of the nature of its sentiments which are so distinctly stated as to allow no chance for misunderstanding, either in letter or spirit. Dr. Flint thus comments on this important Section: "There can be no difference of opinion in the minds of worthy physicians as to the acts which in the fourth Section of this Article are specified as derogatory to the dignity of the profession. But the propriety of the interdiction of these acts by the Code is not always appreciated by the public. As a reason for their being interdicted as 'highly reprehensible in a regular physician,' it suffices to say that 'they are the ordinary

practices of empyrics.' The public should understand that these practices are criteria of irregular or unworthy practitioners. With this understanding, if persons consent to be influenced by such acts, the responsibility for consequences lies with themselves. The credulity in regard to therapeutics, which is inherent in the minds of many, will doubtless always afford encouragement for a continuance of the various meretricious methods of obtaining credit for superior medical or surgical skill."

The fifth Section, which is as concise as it is explicit, is doubtless regarded as oppressive by many offenders. Here are Dr. Flint's remarks upon its provisions: "The grounds for the injunction not to patent remedies or surgical instruments, and not to dispense secret nostrums, are not always appreciated by the public. Some appear to think that it is dictated by jealousy or professional prejudice. The reasons are concisely but clearly stated in the Code. Imagine Jenner to have applied for a patent giving exclusive property in vaccination, or keeping it a secret! How different would the names of those identified with the discovery and introduction of anesthesia in surgical and medical practice appear in history, had the attempt not been made to withhold from the profession and the public the agent employed, and to secure a proprietary interest therein! Here, as in all other instances, the restrictions of the Code of Ethics have reference to the welfare of the community, and not to the selfish interests of the medical profession."

SEC. 2—of this Article is not contained in Dr. Flint's book, probably because he took for his commentaries the original Code of 1847; this second Section having since been inserted. It explains itself and will surely not be objected to by the profession.

ARTICLE II.—*Professional Services of Physicians to Each Other.*

SECTION 1.—Only a few extracts are made from the brief but wise commentary to this Article: "From the best motives, the professional friends . . . of a sick physician are apt to call upon him, inquire into his case, proffering their opinions and advice, without any concert between them, and the result is that a medical patient may receive no systematic treatment. . . . Except in cases where close intimacy dictates a deviation from the rule, a physician should not ask to see another physician in illness until requested to do so. The manifestations of interest and sympathy should be limited to kind messages and inquiries through others. . . . Medical services rendered to members of the profession should be gratuitous. . . . A request to present a bill for services . . . should never be made. Such a request implies an expectation that it will not be complied with. Any pecuniary acknowledgment by a member of the profession for medical services should be made strictly as an honorarium."

ARTICLE III.—*Of the Duties of Physicians as Respects Vicarious Offices.*

SECTION 1.—This Article was lately objected to by a dissenting writer who wished it expunged on the ground that it "refers to a question regulated by custom," losing sight of the fact that the Code is a statement of well-established customs or ethics. The following extracts from Dr. Flint's commentary are intended to show the necessity of retaining this third Article: "The Code of Ethics defines the line of conduct in many instances of which it may be said that a proper courtesy and sense of honor should suffice without formal ethical rules. Assuming that an adequate degree of courtesy and sense of honor belong to members of the medical profession in general; to assume this for all members would be to claim for medicine, in a moral point of view, a position far above that of any other pursuit. Ethical rules, therefore, are needed for a greater or less number of physicians. But, irrespective of any question of moral delinquency, rules are useful by indicating precisely what is to be done under certain circumstances, thus preventing embarrassment and saving the trouble of discussion in particular instances. . . . Vicarious offices offer an opportunity for one deficient in a proper sense of honor to undermine the confidence of patients in their physicians. This may be done, not openly, but insidiously, by questions, expressions of surprise, over-assiduous attentions, etc. It will do much toward neutralizing such violations of honor, if the public be made acquainted with the article of the Code which relates to these offices. Patients will be led to understand the motive which prompts such dishonorable

efforts, and, so far from accomplishing the objects, they will justly react upon unworthy members who act in opposition to the spirit of the Code.

ARTICLE IV.—Of the Duties of Physicians in regard to Consultations.

SECTION 1.—This Section of the fourth Article seems to be the objective point of those who desire revision of the Code, their aim being to expunge the whole of the first Section. Dr. Flint says, "... of the entire Code this Section alone has occasioned disunion." He further says that he is "one of many who think that the Code is here open to objection; not, however, in spirit or intent, but in phraseology. The last sentence is the part concerning which an objection may fairly be raised. . . . The real objection to those whose practice is based upon an exclusive dogma is that they are opposed to the regularly organized profession and use adjectival titles as trade-marks. No therapeutic differences could exclude them from the regular profession if they were to drop their distinctive titles and abide by the laws of the profession. The most liberal explanatory declarations were made, after the publication of Dr. Flint's commentaries, by the AMERICAN MEDICAL ASSOCIATION, through a special committee of which Dr. Flint was a member, thus entirely disposing of this question.

All of Dr. Flint's comments on this first Section are well worthy of insertion, but a few extracts from them will suffice to show how temperately he has written: "It is fair to conclude that the framers of the Code had no feeling of illiberality, and no intention to interfere with the practice of medicine under any circumstances, in the cause of humanity. The Code declares explicitly that, 'in consultations the good of the patient is the sole object in view,' and enjoins against declining consultations on the score of fastidiousness. The restrictions of the Code are in no wise inconsistent with the demands of humanity in cases of emergency."

"In saying that certain practitioners are not to be considered as regular or fit associates in consultation, it is neither said nor implied that a physician should not see a patient even with these practitioners when humanity requires him to do so. The tenor and spirit of the Code throughout are opposed to any act of professional inhumanity. Moreover, in particular cases, the physician must be the judge of his duty in this regard. Practically, there need be no difficulty how to obey the dictates of humanity and, at the same time, conform to the Code, under the guidance of a conscientious regard for both. The objectionable point in the Code is that which makes 'a practice based on an exclusive dogma' the ground of a refusal to meet practitioners in consultation. This is not a valid objection. Any physician has a right either to originate or adopt an exclusive dogma, however irrational or absurd it may be. Dogmas have prevailed more or less in the past history of medicine. If in a consultation there be lack of agreement respecting either diagnosis or treatment, the Code indicates in another Article precisely the course to be pursued. The true ground for refusing fellowship in consultations, as in other respects, is a name and an organization distinct from, and opposed to the medical profession. Whenever practitioners assume a distinctive appellation, thereby assuming to represent an essentially distinct system of practice, taking an attitude of antagonism to the regular profession, seeking popular favor on the ground that they belong to a 'new school,' based on truth and productive of good, whereas the regular profession belong to an 'old school,' based on error and productive of harm—how can there be fellowship either in consultations or in other respects? If they who thus assume an attitude of antagonism to the medical profession conscientiously hold to the distinctive tenets which, as they profess, are the ground of their antagonism, how can they consistently desire to meet members of the latter in consultation; and, with opposing views of therapeutics, how could such consultations accomplish the 'sole object in view,' namely, 'the good of the patient?' If such consultations were permissible, professional fellowship would be rendered immoral on the ground of complicity in a fraud upon the public. It is hoped that the body from which the Code emanated—namely, the AMERICAN MEDICAL ASSOCIATION—will adopt such modification in the phraseology of this Section as will place restrictions on consultation, not on the ground of doctrines or forms of belief, but on separation from and avowed antagonism to the medical profession."

Dr. Flint's hope was soon realized, for the AMERICAN MEDICAL ASSOCIATION adopted the series of explanatory declarations to which reference has already been made. "Under

no circumstances can there consistently be fellowship with any class of practitioners who adopt a distinctive title as a trade-mark, and who are banded in order to impair the confidence of the public in the medical profession. To take the ground that, because the Legislature of a State has placed on an equal legal footing, different classes of practitioners, those of one class can not refuse to consult with those of another class, is as absurd as to assert that a Jewish Rabbi is bound to exchange pulpits with Christian ministers, or the latter to affiliate with Mormon elders for the reason that, in the eye of the law, in this country, all religious denominations have equal rights. The people demand of their legislators the enactment of laws for the protection of life, liberty and property, but they do not look to them for the institution or the interpretation of codes of ethics. . . .

"There are many, not of the medical profession, who have been led to believe that its members are bound to uphold antiquated traditional doctrines. Many seem to think that the 'old school practitioners,' as they are derisively called, are committed to a system of practice expressed by the term, *allopathy*. All medical men know that, so far from these popular notions being true, they are quite the reverse of the truth. . . . *Allopathy* . . . is simply a term of reproach. It has no pertinency as applied to the medical profession. As is well known by all conversant with the history of medicine, doctrines and practice undergo changes in proportion to the advancement in the several branches of medical knowledge and accumulated experience. The tendency, certainly, within the last half century has been to adopt new views too readily, not heeding sufficiently the restraints of a rational conservatism. It is desirable that the public should understand that the medical profession is in no sense a sect, as implied by the name, *allopathy*. It allows the utmost latitude of opinion. The sectarians in medicine are those who have professed faith in tenets to which they are bound, at least ostensibly, to adhere. . . . Opinions held by members of the regular profession, however at variance with those generally entertained, and however absurd, may fairly give rise to criticism and ridicule, but they can not be made occasions for professional discipline. With a proper understanding of the reasons which actuate members of the medical profession in declining to meet irregular practitioners, their action can not be attributed to either jealousy or prejudice. Their action, indeed, may involve the sacrifice of personal interests, and it concerns the public welfare no less than the dignity and honor of the profession. Let the statement be repeated, until no longer necessary for the information of the public, that there are no *allopathic* practitioners of medicine. A regular member of the medical profession should never even tacitly admit the propriety for this designation. Let it be understood by the public, as well as by the profession, that there is no necessity for a schismatic separation from the regular profession on account of any peculiarity of doctrine. Such a separation is not from necessity but for the purpose of obtaining practice."

SECTIONS 2, 3, 4.—These three Sections of Article IV, although not occurring consecutively in the Code, are here collocated because they contain ethical rules which have reference to the relations of consulting with attending physicians." The following passages in the commentaries on these three Sections serve to show what are some of the popular errors respecting consultations of physicians: "One of these errors is that a consultation, when requested by patients or their friends, implies, as a matter of course, dissatisfaction with the services of the physician in attendance. The request should never be considered in that light. Connected with this error is another, namely, that it is the office of a consulting physician to pronounce a judicial decision respecting the treatment which has been pursued, or which is being pursued, by the physician with whom he is requested to consult. This is not the office of a consulting physician. He should be reserved in forming an opinion as to past treatment, inasmuch as the case was not under his observation, and it would be unfair to judge of circumstances which he had not observed; hence, an opinion unfavorable to the past treatment, if indiscreetly formed and still more indiscreetly uttered to any but the attending physician, might do the latter great injustice. . . . Still another error is to assume that a physician in consultation has more knowledge or skill than the attending physician, and that, consequently, the latter is to be subordinate to the former in the management of a case. A consulting physician may or may not be the superior in knowledge or skill. . . . These errors, prevailing somewhat in the profession, have a much greater popular prevalence. It is owing to their prevalence that medi-

cal consultations are not more frequent. Patients and their friends often hesitate to propose a consultation from a desire not to imply want of confidence in the attending physician. . . . The true ground for a medical consultation is the benefit which may be derived by bringing the judgment of two or more minds to bear upon a case. There are few things in human life which are generally considered more precious than health, and there are few calamities which, in the minds of most persons, it is more desirable to postpone than death. It is, therefore, a singular anomaly that conferences on matters of far less importance than those relating to health and life, such as business interests, politics, social life, etc., are more frequent than medical consultations. In cases of disease, these are frequently delayed until the condition of the patient is hopeless, and when no real benefit can possibly be derived from them. Not only should they be had earlier, but they should not be limited to cases in which there is more or less immediate danger. The fact that they are apt to be thus limited renders them a source of apprehension to patients, and, for this reason, they are sometimes delayed."

SECS. 3, 4 AND 5.—The rules given in these three Sections relate to the etiquette to be observed in consultations. Dr. Flint's comments, of five pages, on these Sections are well worthy of careful study, and show how important it is, in a system of medical morals, to set down rules of etiquette as well as of ethics.

SEC. 6—was accidentally omitted in Dr. Flint's book, but is commented on with Sections 3, 4 and 5.

SECS. 8 AND 9.—After a very judicious commentary on the eighth and ninth sections, Dr. Flint adds: "There are some points relating to the ethics and etiquette of consultations which are not touched upon in the Code. One of these is the duty of a consulting physician who may be asked to take the place of the attending physician in a case while it is in progress. It may happen that there is dissatisfaction with the services of the attending physician, of which the consulting physician may not have been aware, and it is proposed that the former relinquish the case into the hands of the latter. This transfer of a case is justifiable on but one ground—namely, that it is in accordance with the wishes of the attending physician. The consulting physician should satisfy himself on this score. It is not enough that the attending physician consent. He will, of course, do so if requested. If not in accordance with his wishes, the transfer should be positively declined by the consulting physician."

"Another point relates to subsequent attendance by the consulting physician. After a case is ended, in another illness the patient may request his services as attending physician. There may be exceptional instances, but, as a rule, such a request should be declined. If accepted, it should be after a full understanding with the physician previously in attendance. This and the preceding rule are essential, in order that consultations may be held without risk of injury to the feelings and interests of the attending physicians. A physician in consultation, if actuated by proper delicacy and a sense of honor, will, of course, sedulously guard against the possibility of his services being preferred to those of the attending physician."

"Another point may be referred to. It sometimes happens that a change of an attending physician is made while another physician is associated in consultation. Shall the latter remain in consultation with the successor of the former? As a rule certainly not. If the change has been made on account of dissatisfaction with the medical treatment, the consulting physician is as responsible for this as the attending physician, and he should decline to remain in consultation. If other reasons have led to the change, there are obligations of courtesy which are not to be ignored. There should be a full understanding with the attending physician who is superseded. The 'good of the patient' is, of course, a primary consideration. The action must be determined by the circumstances proper to each case."

"There may be circumstances which should properly lead a consulting physician to decline further association with an attending physician, although no disagreement in consultation had occurred. If the attending physician fail to carry out measures agreed upon, either intentionally or from inefficiency, it is not just for the consulting physician to be held to an equal responsibility in the case. It is the duty of an attending physician to carry out faithfully the course of treatment decided upon, and, if he persistently fail in so doing, the consulting physician is justified in declining to be longer associated with him."

Not a word can, with propriety or consistency, be re-

trenched from Article IV relating to the ethics and etiquette of consultations.

ARTICLE V.—*Duties of Physicians in Cases of Interference.*

SECTIONS 1 TO 8 AND SECTION 10.—The two extracts made from the commentaries on these Sections will suffice to show their import:

"The foregoing Sections of the Code embrace points in ethics and etiquette, the propriety and importance of which no member of the medical profession will undertake to deny. Their observance is essential to the harmony, good fellowship and mutual cooperation of practitioners of medicine, thereby contributing to the honorable character of the profession, to the public confidence in regard to it, and to its usefulness in the cause of humanity. The question, however, may be raised, Is it necessary to embody these points in ethics and etiquette in formal rules; that is, would not physicians regulate their conduct equally well without the latter? The affirmative answer to this question would imply that all those admitted to the ranks of the medical profession found 'their expectations of practice upon the extent of their qualifications and not on intrigue or artifice.' No one will venture to claim for all members of the profession that purity and high moral tone which are implied in the affirmative answer to the question. It must be admitted that these rules are not infrequently violated. Does it follow that the rules are useless? Certainly not. The fact only proves that knowledge of rules does not always secure their observance. This is true, not alone in medical ethics, but in theology, law and every department of morals. That prescribed rules of medical ethics influence more or less the conduct of physicians can not be doubted. This is true as regards other duties, else wherefore the propriety of such rules applied, not only to the higher moral relations of human life, but to those of minor importance, and even the trivialities of social intercourse. To do away with ethical rules for the reason that they are not always observed would be in opposition to human experience and conducive to anarchy. Prescribed rules of conduct are of use by giving distinctness and force to popular sentiment. Moreover, the knowledge of rules affects the conduct of those who, not devoid of rectitude, pursue the wrong because they do not know the right. Rules thus tend to nullify the temptations and the specious pleadings of apparent self-interest."

"It has been argued for the inutility of rules in medical ethics, that penalties for their non-observance are with difficulty instituted and enforced. This argument is as illogical as in its application to all moral duties. It is a feature of the Code of Medical Ethics that it takes no cognizance of penalties for violations of its requirements. It appeals solely to the judgment and conscience. Measures for the enforcement of its rules are left entirely to the discretion of local associations."

SEC. 9—is commented on by the author with the same judicial ability as the other Sections of this and all of the Articles of the Code.

ARTICLE VI.—*Of Differences Between Physicians.*

SECTIONS 1 AND 2.—The following, among the comments on these two Sections, are well worthy of reproduction in this place to refresh, in the minds of physicians, the salutary maxims set forth in this part of the Code and in the commentaries:

"Harmony among physicians is most desirable, not alone for the comfort of those concerned, but as conducive to the honor and usefulness of the medical profession. It is essential to cooperation in medical consultations, in measures for public health, etc. For the maintenance of harmonious relations, local associations are important. In places of small or moderate size, these associations should embrace all the members of the profession of the community who are in good standing. In this way are avoided the evils of cliques, which are to be deprecated. The local associations should have more or less of a social character. They afford opportunities for intimate acquaintance, for the explanation of misunderstandings and for their prompt adjustment. Observation will show that, in the places in which such associations exist, much more harmony and good fellowship prevail than in places in which physicians are not brought together in social intercourse. Controversies and contentions, however, can not always be avoided. They will be terminated with the more difficulty the longer they continue. The Code of Ethics, therefore, judiciously instructs that, if not terminated immediately, they are to be adjusted by arbitration."

ARTICLE VII.—Of *Pecuniary Acknowledgments*.

SECTION 1.—This short but important article receives a full commentary of a character such as could have been given only by a physician of the long and extensive experience of the venerable author. The following extracts give some idea of the nature of the comments: "By no process of distortion can this Article of the Code be made to inculcate a combination, after the manner of trades unions, to establish and enforce a certain rate of wages for medical services. . . . It is plainly important, for the convenience of patients, that in every community there should be an understanding as to the customary fees for the different kinds of service which medical men are expected to render. . . . Exclusive of exceptional instances, . . . the adoption of some general rules, and their recognition within and without the profession, obviate the necessity of questions, explanations, and discussions, which are often embarrassing and disagreeable."

"The poor policy of under-bidding other physicians, for the sake of gaining practice, would probably deter those from pursuing it who might be so inclined. . . . Few patients are disposed to select a medical adviser because he places a low pecuniary valuation on his services. . . . The Code by no means interdicts deviations from the general rules according to varying circumstances. It is to the honor of the profession that the circumstances are few in which efforts for the relief of suffering and the preservation of life are withheld on account of the inability to make an adequate pecuniary acknowledgment. The circumstances which lead physicians from sympathy to deviate from the general rules are often not apparent to others. Few persons outside of the medical profession are aware of the extent to which the services of its members are freely rendered, with but little or no compensation; hence, one reason for an exaggerated estimate of the incomes of those largely engaged in practice, and for the fact that the majority of practitioners, after a long professional career, leave but little property. . . ."

"Extraordinary services rightfully claim deviations from the general rules in respect of fees. Detentions or constant attendance, involving sacrifice of interests, unusual fatigue, or impairment of comfort, and visits requiring traveling and absence from home, are in this category. No one but the physician himself can place a valuation on such services, and it is his right to do this, provided there be an understanding before the services are rendered."

CHAPTER III.

OF THE DUTIES OF THE PROFESSION TO THE PUBLIC, AND OF THE OBLIGATIONS OF THE PUBLIC TO THE PROFESSION.

ARTICLE I.—*Duties of the Profession to the Public*.

SECTIONS 1, 2 AND 3.—The commentaries on the several Articles and Sections of this chapter are of the same high order as those of the first and second chapters. They appeal to the noblest sentiments of the ideal physician and sanitarian; they point out most distinctly the reciprocal relations and duties of the profession and public; and they expose the fallacious reasoning of those who assert that the public has nothing to do with, and should neither know of, nor care about, the laws governing the conduct of physicians. The following extracts from the comments on the first three Sections of Article I will serve to exemplify their tone:

"The more physicians are led to regard medicine in its humane and noble aspects, the more they are reconciled to its hardships, and the more they are incited to do all in their power to maintain its character and usefulness. The feeling that honor is reflected by membership of a profession which professes to be governed by the Code of Medical Ethics conduces to a high moral tone, and it is in this way that the Code is of great service. It is a beautiful feature of the Code that it aims solely at the influence of its ethical rules on the mind irrespective of any penalties. It is based on the principle that moral rectitude is promoted more by fostering upright sentiments than by the punishment of offenses."

"The profession is entitled to whatever of praise belongs to courage in the performance of professional duty, albeit the courage has no recompense beyond the satisfaction of having followed the dictates of duty. The physicians' roll of honor is the list of those who have died in the performance of professional duty. The history of every epidemic disease furnishes such a list. The risk of life was simply a duty, but who will refuse to accord to it nobleness? Who would remove from the Code that portion which enjoins

upon physicians that, when pestilence prevails, it is their duty to face the danger, and to continue their labor for the alleviation of suffering, even at the jeopardy of their own lives?"

"A broad distinction, in respect of pecuniary acknowledgments, exists between the duties which every physician owes to the public in behalf of matters embraced in preventive medicine and the duties connected with legal administration of justice. Whenever called upon by legally constituted authorities to give advice or expert testimony at coroners' inquests or in courts of justice, in relation to medical questions, physicians should be paid for their services. In view of the services rendered to the public without compensation, for those just referred to there should be adequate pecuniary acknowledgments. Investigations in cases of supposed insanity, of homicide by poisons or other means, etc., and postmortem examinations, made under instruction by authorities, claim ample remuneration. There is no good reason for physicians being expected to perform these duties gratuitously. Much injustice is often done to the medical profession in regard to these duties. Physicians should not fail, from a sense of delicacy, to assert their rights in this regard, and they should endeavor to lead the public to recognize the propriety of so doing."

Sec. 4.—The commentator treats the subject of this Section with his wonted skill and sound judgment, tells many solemn truths in a simple style, without the least semblance of magisterial assumption, touching the sundry forms of charity and their dupes, and comments briefly, but with energy, upon the evils of proprietary medicines and the no less evil effect of physicians' certificates indorsing these and other advertised medicinal agents.

ARTICLE II.—*Obligations of the Public to Physicians*.

SECTION 1.—It is no fault of the public if there still exist many errors respecting the characteristics and moral status of regular physicians and the nature of the professional relations they bear to individuals and to the community, for, little if any information thereon has appeared in lay magazines. The time seems to have come to furnish the American people with this much needed information which they have every right to demand of the profession; and until it is given, the people will likely continue to look upon the regular profession as illiberal and unprogressive, and upon medicine as kept, by its devotees "for their own selfish ends," in a state of occultation to the great injury of the public.

"A just appreciation of medical qualifications by the public is desirable as an incentive to members of the profession to aim at these, and as a reward for their possession. In these points of view, it is discouraging to the votaries of true science for the assumption of ignorance and empiricism to be successful in obtaining popular distinction. The public can not be expected always to judge correctly between real qualifications and false assumptions. True distinction in medicine, therefore, must be based on the opinions of unbiased medical men."

"The apathy and indifference on the part of the public to medical education is a singular incongruity, in view of the immense importance of well-educated physicians to every community. The interests of medical education are left almost wholly to physicians, whereas these interests concern the public vastly more than the medical profession. If the public could be made to see this subject in a proper light, there would be no lack of accommodations, provisions and appliances for all the departments of medical instruction."

In his concluding remarks the commentator says: "The proposal to write commentaries on our National Code of Ethics may have conveyed to the minds of many an idea of presumption. The writer of the foregoing commentaries indulges the hope that their perusal has not sustained this idea, inasmuch as he has not ventured to take issue with the Code on any important point except one—namely the ground for refusing medical consultations. Nor has he assumed to be an expounder of the Code, but only to supplement comments in conformity with the spirit which pervades it. In fact, a leading motive has been to excite the attention of medical, and, perhaps, also, to the same extent, non-medical readers, to the Code itself. There are many members of the medical profession who have never read the Code with that degree of interest which it claims, and there are some who have never read it. These assertions are based on information obtained by personal inquiries. It is safe to say of the public that not one in a thousand knows anything of its character and provisions."

Finally, the author made, in vain, the following appeal to those who wished to abolish the Code: "The action which substituted a new code for our time-honored National Code of Ethics has brought upon the profession of the State of New York a great disaster. It substituted for harmony, dissension, with all the evils dawning therefrom—evils affecting not only the profession, but communities. Has this result been sufficiently considered? Granting honesty of purpose to those who originated and who have carried on with persistent efforts the movements against the National Code, is it not the part of wisdom to pause and reflect upon these evils? Should not a measure fraught with such consequences command, to say the least, a large majority in its favor? Would it not be becoming in the ardent advocates of the measure to recognize the propriety of some approach to unanimity of opinion, and for this end be content to await the result of a fuller discussion and a longer period of deliberation?"

The appointment, in 1847, by the AMERICAN MEDICAL ASSOCIATION, of a committee of wise and learned men to frame a code which might serve as a guide for professional conduct, was a boon to the profession and to the public. This committee consisted of Drs. Isaac Hays, Emerson and Bell of Pennsylvania; Dr. Alonzo Clark of New York, and Dr. Arnold of Georgia, who, after examining many codes of medical ethics, adopted by local societies, and finding that they bore a close resemblance to each other and that they were derived from Percival's code, abbreviated the English code and adapted it to the use of the American medical profession. The adoption of this code has had the much desired effect of raising the standard of medical morals and thought in the United States. Those least familiar with its provisions are its worst detractors who wish to destroy this monument of wisdom and justice which, with Dr. Flint's commentaries, is worthy of being translated into every foreign language, and of being published in every newspaper in the world, in order that all men, who can read, may know what scientific medicine means, and what are the reciprocal obligations of physicians and the public. This would operate more effectively than anything else toward the extinction of medical charlatanism and of the many kinds of irregularities practiced under the guise of beneficent humanity.

NECROLOGY.

Dr. T. J. Fentress of Princess Anne County, Maryland.

Dr. Lucius F. Billings, for nearly fifty years in medical practice in Barre, Mass., recently died at the age of 72 years.

Dr. D. V. Durand died at his home at Newington Junction, Conn., December 5. Dr. Durand has lived in this place about fifteen or twenty years.

Dr. James S. Conover, aged 45, died at Red Bank, N. J., of Bright's disease. He was a well-known practitioner throughout the country. He leaves a widow.

Dr. John Robbins of Norridgewick, Me., died at his home November 29, after a long illness, aged about 70 years. He has been a member of the Maine Legislature and a member of the United States Examining Board of Pension Physicians.

Dr. N. G. H. Pulsifer of Waterville, Me., died December 2 of pneumonia, aged 69 years. He had been in practice forty-one years. He was for many years President of the People's National Bank and an active Republican. He leaves a widow, two sons, who are physicians, and two daughters.

Dr. William Notson died at Philadelphia on December 9, aged 87 years. He was one of the oldest practicing physicians in Philadelphia, and was a native of that city and a graduate of Jefferson Medical College, class of 1832. When the cholera was prevalent, Dr. Notson was District Physician of Southwark, and during the last yellow fever epidemic rendered valuable assistance in the same district. Three married daughters survive him. The late Major William M. Notson, of the United States Army, one of the Surgeons who made the autopsy on the body of President Lincoln, and the late Charles B. Notson a leading druggist of St. Louis, Mo., were his sons.

Dr. Joseph H. Baker, one of the most eminent physicians of Lafayette, Ind., was run down by a locomotive three miles south of Lafayette Saturday, December 6. The base of the skull was fractured and he died one hour afterward. He was in the neighborhood of thirty-seven, and was giving his attention to gynecology as a specialty. His father, Dr. Moses Baker, died several years ago, being at the time of his death one of Indiana's most eminent surgeons. He made the second Cesarean section ever made in America. Dr. Joseph Baker was a man of sterling worth and upright moral and Christian character. He graduated at Jefferson Medical College in 1877, and commenced practice with his father at Stockwell, Ind. Desiring to give his attention to the surgery and diseases of women, he removed to Lafayette less than a year ago. At the time of his death he was President of the Tippecanoe County Medical Society, and a consistent and active member of Trinity M. E. Church. Ten years ago he married Miss Belle Miller, who survives him, with a son 9 years old.

Dr. William F. Hutchinson. At a meeting of the Executive Council of the American Electro-Therapeutic Association, the following resolutions on the death of Dr. William F. Hutchinson of Providence, R.I., were unanimously adopted:

WHEREAS, It becomes our painful duty to announce the death of Dr. William F. Hutchinson, one of the Foundation Fellows of the American Electro-Therapeutic Association, as well as the First Vice-President of the same; and

WHEREAS, In his death we lose a warm and faithful friend, a valued associate and an accomplished member of the profession; therefore be it

Resolved, That this Association desires to place on record its appreciation of his genial spirit, his active coöperation in the work of the Association, and of his deep interest in the scientific questions relative to his chosen profession.

Resolved, That we express our sincere regret and heartfelt sorrow at his death.

Resolved, That we tender to his sorrowing family an expression of our profound sympathy in their great loss.

Resolved, That a copy of these resolutions be sent to the bereaved family, to the medical journals and that they be spread upon the minutes of the Association.

Augustin H. Goelet, M.D.

W. J. Morton, M.D.

G. Betton Massey, M.D.

Robert Newman, M.D.

Charles R. Dickson, M.D.

} Executive Council.

WM. J. HERDMAN, M.D., President.

MARGARET A. CLEAVES, M.D., Secretary.

New York, N. Y., Dec. 13, 1893.

Dr. Joseph B. Browning died December 10 at St. Joseph, Mo., where he had gone several weeks ago for medical treatment. The immediate cause of his death was pneumonia. Dr. Browning was about forty-five years old. He was born in New York, and came to Kansas City from Central Illinois in 1882. For several years he was editor-in-chief of the *Medical Lancer*. During the same time he practiced the profession of medicine and was Professor of Diseases of the Senses in the University Medical School of Kansas City. Of late years he had abandoned his profession of medicine and had devoted himself to teaching. For four years he was Professor of Ancient Languages in the Kansas City High School. He had been in poor health for some time, and one year ago resigned his position and went to Michigan, hoping that rest and change of climate would help him. He returned here in June apparently better, and was reelected to his place in the schools, but resigned and went to Mexico before the fall term began. He returned from Mexico about five weeks ago and immediately went to St. Joseph, where he entered a sanitarium. Dr. Browning was one of the most accomplished scholars in the city. He was a graduate of Harvard College and Rush Medical College. He traveled in Europe ten years studying medicine and languages. He devoted several years to the study of medicine in Vienna and Paris, and in the latter place was a student under the celebrated Charcot. He was a splendid linguist, being master of French, German, Spanish and Italian, as well as the ancient languages. He was one of the best Greek scholars in the country, and one year ago was tendered the Greek chair in the Chicago University. He declined the offer on account of his health.

[III]
Journal of the American Medical Association
 PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE
 PER ANNUM, IN ADVANCE, \$5.00
 SINGLE COPIES, 10 CENTS

Subscriptions may begin at any time and are sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
 NO. 68 WABASH AVENUE, CHICAGO, ILLINOIS.

F. J. REBMAN, LONDON AGENT, 11 ABING STREET, ST. PANCRAS, LONDON.

W. R. LOWDERMILK & CO., WASHINGTON, AGENTS.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION

This is obtainable, at any time, by a member of any state or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Donnellson, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues and subscription for THE JOURNAL. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

All members of the Association should send their Annual Dues to the Treasurer, RICHARD J. DONNELLSON, M.D., Lock Box 1274, Philadelphia, Pa.

SATURDAY, DECEMBER 23, 1893.

VIVISECTION.

Persons who take extreme views of questions are said to have their uses. They present their side of the question with a terse vigor which compels attention to their ideas. This has its advantages, because, like rocks in the bed of a stream, they serve to stir up the current of thought and prevent its running on with too great uniformity and also prevent the possibility of stagnation. But, they are rarely, if ever, right. They build a Chinese wall of exclusiveness and positivism about themselves and refuse to listen to the evidence of others. This seems to be especially true of the Antivivisection Society and their methods and exhibit at the World's Fair, together with their so-called arguments, better termed indefensible statements and unjustifiable inferences relative to the cruelty and barbarous practices of vivisectionists, and its want of gain to the profession and the world. One of the editors of one of our best daily papers, in a recent article says: "No physician or surgeon maintains that any appreciable gain in the art of healing has yet been made by vivisection." He further says: "For my own part, I am more than willing to forego, as to myself and those dear to me, any possible prolongation of life, and any relief of its ills, which might come from the fiendish, degrading, shameful practice of inflicting on lower animals, pangs to which those of the rack, the boot, the thumbscrew, and even the stake itself could show no parallel." "Life and ease are not worth the having at such a price."

Before discussing the question of vivisection, let us first remind him that, as was long since so forcibly pointed out by DR. TOXER of Washington: "*The assumption that any one has the right to neglect his own health at pleasure, is false in morals, and equally in opposition to social and statutory laws.*"

To decide this question rationally, we should ask, and answer, the following questions:

What is vivisection? How is it performed? What has been gained by it? Before defining vivisection, we should carefully distinguish between vivisection, and "cruelty to animals," as recognized by the law. Vivisection literally means the dissection of living animals, but is a term usually employed to denote all those operations or experiments on living animals or organisms for the purpose of physiologic investigation. Every operation on the living human body is a vivisection. Every operation on the lower animals, whether a cutting operation, the injection of a drug to study its physiologic operation, the injection of, or inoculation or vaccination with any germ or its product is a vivisection. The slaughter of animals for food and the destruction of other useless harmful animals or organisms, is a vivisection. Every investigation in bacteriology which involves the destruction of microorganisms is a vivisection. Either this, or else we must accept the other horn of the dilemma and say that consciousness has its seat in the cerebrum. Our reply to this is that if this is true, then all those organisms devoid of a cerebrum are incapable of feeling pain, and, therefore all experiments upon them are not cruel, and cause no pain.

There are but three States in the Union in which the statutes contain any reference to vivisection. These are New York, New Jersey and California. The law of New York is as follows:

"If any person shall torture, torment, deprive of necessary substance, or needlessly mutilate or kill, or cause or procure the same to be done, to any living creature, every such offender shall, for every such offence be guilty of a misdemeanor." Then follows this Section in regard to vivisection:

"Nothing in this Act contained shall be construed to prohibit, or interfere with, any properly conducted scientific experiments or investigations, which experiments or investigations shall be performed only under the authority of the faculty of some regularly incorporated medical college or university of the State of New York."

In New Jersey and California, the laws are similar. Nearly all the other States have laws in regard to cruelty to animals.

Thus vivisection is lawful under the authority mentioned, and when "properly conducted."

This brings us to the question. How is vivisection performed? Under all circumstances when mutilation and cutting is resorted to, anesthetics are used.

Where drugs are given for the purpose of studying their physiologic effects, and where the germs of disease are used to vaccinate or to inoculate the animal, anesthetics are not employed. The physiologist and physician is not a fiend incarnate, delighting to revel in blood and torture, as the antivivisectionist would have us believe.

Let us now consider the third question: What are the results of vivisection? What is the gain to humanity? Leaving out the question of the slaughter of animals for food, and the destruction of useless or harmful animals and organisms, we have the following:

Vivisection made possible the discovery of the circulation of the blood, this being the most important discovery in the whole range of biologic science, and without the knowledge of which, physiology would have advanced but little; the old theory of humoral pathology could never have been replaced by the modern, rational theory of cellular pathology of VIRCHOW; the physiologic action of drugs would have been a matter of empiricism, and rational therapeutics impossible.

Vaccination next attracts our attention. This is one of the crowning triumphs of vivisection. The first, and all subsequent vaccinations were vivisections, and the preparation of every "point" of non-humanized vaccine virus is the result of a vivisection on one of the lower animals. The most remarkable vivisection of modern times was conducted at Milton, Mass., in the year 1809. Twelve children were vaccinated, and afterward taken to a hospital and inoculated with smallpox. They were quarantined at the hospital from July until October, and not one of them was affected by the inoculation of the smallpox virus. The committee in its report says, after speaking of the efficacy of vaccination: "That it is a blessing as great as it is singular in its kind, whereby the hearts of men should be elevated in praise to the Almighty Giver."

It remained for Dr. CORY of England, to prove by a vivisection upon himself, that syphilis may be transmitted with the vaccine virus, thus proving the advisability of using only the bovine virus. Against the use of the bovine virus it is urged that the heifer is prone to tuberculosis, but she is immune against syphilis, and it *has never been proved that tuberculosis has been transmitted by vaccination*. It is estimated that at the present time, there are twenty millions of people vaccinated annually, and that the death rate per thousand from smallpox is only one-twentieth what it was before vaccination was introduced.

And yet, the antivivisectionists, while denying the beneficent results of vivisection, and while claiming to be willing to forego any benefits to be derived from it, are loud in their insistence on having vaccination performed, and that their children be vaccinated with bovine virus.

The great progress made in the surgery of the brain, by means of which much knowledge has been gained, suffering averted and lives saved, has been made possible by vivisections upon dogs and monkeys and by operations on the human being.

The same is true of abdominal surgery, where it

was shown by PARKES, as the result of operations upon dogs, that wounds of the intestine are operable, and by SENX that by means of the hydrogen test we may know whether the intestine is perforated or not.

Hydrophobia has been robbed of its terrors, chicken cholera and anthrax lessened in virulence and mortality, and our knowledge of the etiology of all the germ diseases greatly increased; the cause of sepsis made known and the advantages of asepsis demonstrated beyond the question of doubt; and lastly, the most important question which can concern the human mind in a physical way, the question of immunity has been raised, much knowledge obtained and with a fair prospect that it will sometime be answered, thus lessening human suffering, preventing disease and lengthening the average of human life. The antivivisectionist says he is willing to forego these benefits and advantages. We are still thoughtless enough to believe that vivisection is a necessary part of the medical college curriculum.

Vivisection is a part of the law of nature. The greatest good of the greatest number of the highest order of animals, demands the sacrifice of the comfort or even the life of those of the lower orders of animals and organisms, whether it be that they are useless or harmful, that they are needed as food or that they may be so utilized as to aid in teaching or learning truths which enable us to cure disease, lessen suffering or prolong life. It is one of the inexorable, immutable laws of our existence, the "survival of the fittest." This maudlin sentimentalism and antivivisection anguish over the sufferings of these creatures affects neither the law nor the results. It is regrettable that men well qualified to discuss other subjects, men of ability and influence in other lines of human thought, should thus attack a subject in such manner as to show either a lamentable want of knowledge of the subject, or else that they are willing to sacrifice truth to either sentiment, prejudice or ambition.

The benefits from vivisection have cost pain and blood and even the life of some of the lower animals, and yet we believe that it is better that any number of frogs and worthless curs should be sacrificed on the altar of science than that one innocent babe should suffer an untimely, preventable death. Not that we love animals less, but humanity more.

SMALLPOX.

The health officers of the country are much exercised over the prevalence of smallpox. For a number of years there has not been many cases, and as a necessary consequence there are a great many persons unprotected by vaccination. The two most noted outbreaks that have occurred during the last six months are those of Muncie, Ind., and Reading,

Pa., the result of mistaken diagnosis, and municipal neglect. To these two localities and the mildness of the disease may be attributed nearly all the other cases. The most marked features with regard to both cities was the low death rate; in fact it may be said the mortality was lower than any recorded. In a few instances the disease was contracted from immigrants, but owing to the great care exercised by the Marine Hospital Inspectors at foreign ports since May and at the ports of entrance, there were fewer cases from this source than have occurred for many years, and then only when the disease was not prevalent in Europe, in the countries from whence the bulk of immigrants come.

More cases of smallpox have been reported in the city of Chicago during the past month than for the same time for the last two years. The control of the disease since 1883 has been very effective, and there have been years when not a single death occurred. This immunity from the disease resulted in neglect of vaccination, which with the great increase of population and of visitors to the World's Fair, are no doubt the cause of the present increase. It is fortunate that this increase did not occur during the Exposition, as if it had smallpox would have been distributed throughout the United States. So far we have only learned of one instance in which a visitor contracted the disease, from which the group of cases near Mascoutah, Ill., resulted. Every effort is being made to control the disease.

Cases have recently been reported in Illinois, Indiana, Ohio, West Virginia, Tennessee, Pennsylvania, New Jersey, New York and Massachusetts. Opposition to vaccination is occasionally noted. Some of the negroes of West Virginia and Tennessee became alarmed, having conceived the idea that vaccination would kill them. This feeling, however, soon disappeared in localities where it existed. In Ohio a religious sect called the Amish, are opposed to vaccination for the reason that it is an attempt to interfere with Providence. An Anti-vaccination Convention was called to meet at Indianapolis in December 20, but so far we have seen no account of the meeting. This is the first attempt of this character in this country, and is no doubt the result of the effort now being made to secure the vaccinal protection of all. Fortunately there is but little opposition to vaccination in the United States.

Smallpox was found last week in an almshouse in Massachusetts and a jail in New York. Why not vaccinate all tramps and inmates of public institutions and also the temporary recipients of charity? In this way much of the floating population would be protected, and thus prevented from spreading the infection. On December 14 three cases of parties indicted for resisting the enforcement of vaccination were found guilty at Reading, Pa. Sentence was

deferred. This is probably the first time in this country that a suit of this character has been brought.

The Ohio State Board of Health has issued an order that no pupils should be admitted to the public schools unless protected by vaccination, and on the 14th inst., the New York Board of Health made vaccination compulsory. It is clearly the duty of all medical men to encourage vaccination and to promptly report all and even suspicious cases that come under their observation to the health authorities. Prompt isolation, vaccination and re-vaccination of all exposed, and the thorough disinfection of the surroundings is the only way to control the contagion.

CHOLERA.

Cholera is still prevailing at Constantinople, and the expert who was sent from Paris at the request of the Sultan to assist in controlling the epidemic has died. Deaths still occur in the Island of Teneriffe. This outbreak was caused by the Italian steamer that had cholera on board and was not allowed to land at Rio Janeiro. Upon her return she stopped at the Island for water and provisions. What recompense can this steamship company make to these unfortunate people? More care should have been taken at Genoa before the steamer started. Salonica in Spain is the latest point where cholera is reported.

SHOULD AN EXCEPTION BE MADE AS TO ERGOT?

The New Jersey State Board of Medical Examiners have authority to regulate the practice of midwives in that State. Among their regulations is the following:

"That you shall not prescribe, advise or give any drug or medicine, or other agency—excepting possibly *some preparation of ergot* which, however, must never be given before the birth of the head of the infant or a cathartic on the second or third day after delivery—to a lying-in woman or to the infant, or to any other person or persons, under penalty of not only losing this license but also of prosecution under this Midwifery Law as well as under the Medical Law of 1890."

The possible exception of some form of ergot, we judge, be a hazardous experiment with the midwives of New Jersey unless they are much better than those found elsewhere. If those midwives may be intrusted with ergot, why not let them have the right to use opiates and "soothing syrups" containing morphia?

HIGHER MEDICAL EDUCATION.

We noticed last week in our news columns that Rush Medical College of Chicago, had decided to require a four years' course from students matriculating from and after 1894. This school has heretofore enacted that its annual courses should consist of eight months, so

that hereafter students must attend four full courses of eight months each as preliminary to graduation.

This advance in medical education will alike gratify the members of the AMERICAN MEDICAL ASSOCIATION, the Alumni of the College, and friends of higher medical education everywhere.

OPINION EVIDENCE BASED ON CONDITION OF BROKEN BONES.

A somewhat novel application of the rules governing the admissibility of expert testimony, arose in a case where a man was injured by what was claimed to be the negligent condition of the landing place under a fire escape. A surgeon, presumably having a knowledge of the anatomy of the human body, the strength and position of the bones of the leg, not common to laymen, and having the advantage of a personal examination of a leg after it has been injured, is properly entitled to give his opinion as an expert, holds the General Term of the Supreme Court of New York in the case of *Johnson v. Steam-Gauge & Lantern Co.*, decided Oct. 20, 1893, that, judging from the condition of the broken bones, the foot of the broken leg struck upon a sloping object and that the heel of the foot struck the object first, before the ball of the foot struck, and that the body of the person was in an upright position when he fell.

REQUIRING PRODUCTION OF PRESCRIPTIONS BEFORE GRAND JURIES.

A law which provides that druggists shall carefully preserve all prescriptions compounded by them or those in their employ; numbering, dating and filing them in the order in which they are compounded, and shall produce the same in court or before any grand jury whenever thereto lawfully required, and on failing, neglecting or refusing to do shall be deemed to be guilty of a misdemeanor and on conviction shall be punished by a fine, the Supreme Court of Missouri for the second time pronounced constitutional in the case of *State v. Davis*, decided Nov. 9, 1893. But what is of even more interest, is the holding that under such a statute druggists can not be required to produce all of the prescriptions compounded by them or filed by them during any specified length of time, however short, to be inspected and inquired into by the grand jury, no matter what ailments they may have been prescribed for, or for whom, as that would be an intrusion upon their private affairs and business, and without warrant of law. A subpoena to compel the production of prescriptions, even in a proper case, should describe them with some kind of particularity.

Blank Applications for membership in the ASSOCIATION, at the JOURNAL office.

ASSOCIATION NEWS.

Arrangements are being made by the JOURNAL for an ASSOCIATION train from Chicago to San Francisco. Details will be published later.

Section on Dermatology.—We regret that repeated search has not enabled us to find the papers relating to the Section on Dermatology, among the other papers of the ASSOCIATION. Gentlemen who contributed to this Section at the Milwaukee meeting having duplicates of their papers, or abstracts of them, are respectfully requested to forward them to the JOURNAL without delay.

The American Medical Association.—After a lapse of twenty-four years the AMERICAN MEDICAL ASSOCIATION will again honor San Francisco with its annual meeting next June.

The attendance from the Eastern States will no doubt be many times larger than at the former meeting. The medical profession of this Northwest region should unite with our California brethren so that our visitors will feel that they are being welcomed by the physicians of the whole Pacific coast.

We can show our interest in the ASSOCIATION by becoming members in advance of the coming meeting, and then our greeting to our brothers from across the continent will be more cordial for we will feel that we have a double interest in them.

Any member in good and regular standing of any State or county society can become a member of the AMERICAN MEDICAL ASSOCIATION by application to the treasurer, accompanied by a certificate from his local society.

Each member will receive the JOURNAL OF THE ASSOCIATION, which the trustees aim to make the best medical weekly in the country.

Application blanks may be obtained by sending address to Dr. J. B. Eagleson, Burke Building, Seattle, Wash.—*Medical Scientist*, Portland, Oregon.

Change of Date of Meeting—Official Notice.—The following notice appears in the ASSOCIATION JOURNAL over the signatures of the President and Secretary: "In order to enable the State Medical Societies to send instructions as to their action in the matter referred to them by the AMERICAN MEDICAL ASSOCIATION at its recent meeting at Milwaukee, and for other reasons, the time of meeting of the ASSOCIATION at San Francisco has been changed from the first Tuesday in May to the first Tuesday in June, 1894." As we have already stated, a change in the date of the meeting had been urged, but it was supposed that this would still be in May. The date now announced is rather later than we would have selected for seeing California to advantage. Unless the season be a late one the green refreshing garb of spring will have faded to the sunburnt tints of our rainless summer, and in the interior hot days may be encountered. Sacramento, however, will be looking her very best, for in no month more than in "the month of roses" does the Capital show to such advantage. As for San Francisco, the months or seasons make no difference there. The climate, or rather weather, is much the same at all times. It is a good, hard working vigorous and stimulating atmosphere; but more than this it would not be truthful to state.—*Occidental Medical Times*.

SOCIETY NEWS.

THE ELEVENTH INTERNATIONAL MEDICAL CONGRESS, ROME, MARCH 29—APRIL 5, 1894.

ROME, Nov. 16, 1893.

My Dear Sir and Esteemed Colleague:—I have the honor to inform you, that the Executive Committee, in its session of the 12th inst., has established, that the XI International Medical Congress, which had been postponed by deliberation of the 2d August, 1893, until April, 1894, shall take place in Rome from the 29th March until the 5th April, 1894

The Committee is very glad to have been able to satisfy thus the wish of the majority of those foreign colleagues, who had been requested to give their opinion on this purpose.

Having thus had the pleasure to give you officially this information, I beg your leave to request you to render it public in the manner which you will judge best for the interest of the meeting; and to ascertain in the meanwhile the number of colleagues of your country, who will attend in consequence of the steps taken by the Committee; for each of them convenient accommodation at usual prices will be provided.

The circumstances beyond our control, which had forced us to postpone the meeting, existing no more, the organizing action for the Congress enters on a period of renewed activity, and the Organizing Committee flatters itself to find you, my dear Sir, as well as the colleagues of your country, its zealous collaborators, now and in the future, as you have been, but with so much success, for the past.

Yours faithfully,

PROF. E. MARAGLIANO, M.D., Sec'y General.

To Augustus P. Clarke, A.M., M.D.,

Cambridge, Mass., U.S.A.

In consequence of the adjournment of the Congress, the Articles 1 and 2 of the statute have been altered as follows:

ARTICLE 1. The XI International Medical Congress will be inaugurated in Rome on the 29th March, 1894, and will close on the next following 5th April.

ART. 2. Papers to be read before the Congress should be announced not later than the 31st January, 1894. The title should be accompanied by a very short précis of the paper and by the conclusions; the latter will be printed by care of the Board and distributed among the members.

Papers announced after the 31st August, 1893, will be marked in the provisional program with an asterisk.

The provisional program will contain also those previously announced papers, which have been published in scientific papers after the adjournment.

The railway companies have established, that the reduction of fares should be available from the 1st of March till the 30th of April, 1894.

The traveling tickets of membership and railway passes will be sent by the Secretary General's office to each member enrolled before the 14th of February, 1894.

After this date the said papers should be applied for to the following gentlemen:

In Austria to Prof. H. Nothnagel, Vienna.
In Belgium to Prof. Thiry, Bruxelles.
In Bulgaria to Dr. A. Puscoulleff, Sophia.
In Denmark to Prof. C. Lange, Copenhagen.
In Egypt to Dr. Hassan Abba Mahmoud, Cairo.
In Egypt to Dr. Onofrio Abbate Pacha, Cairo.
In France to Dr. Marcel Pauloin, Paris.
In Germany to Dr. Carl Posner, Berlin.
In Great Britain to Dr. G. H. Jenkins, London.
In Great Britain to Dr. A. Gibson, Edinburgh.
In Great Britain to Prof. Sir William Stokes, Dublin.
In Luxembourg to Dr. Paul Koch, Luxembourg.
In Malta to Dr. G. Galea, La Valletta.
In Norway to Prof. S. Laache, Christiania.
In Netherlands to Prof. B. L. Stokvis, Amsterdam.
In Poland to Prof. Cybulski, Krakau.
In Portugal to Prof. J. T. de Sousa Martins, Lisbon.
In Roumania to Dr. C. L. Severeanu, Bucarest.
In Russia to Prof. V. Pachoutine, St. Petersburg.
In Servia to Dr. V. Subboticz, Belgrade.
In Spain to Prof. J. Calleja y Sanchez, Madrid.
In Spain to Dr. A. Espina y Capó, Madrid.
In Sweden to Prof. F. Holmgren, Upsala.
In Switzerland to Prof. Th. Koelher, Bern.
In Switzerland to Prof. D'Espine, Geneva.
In Turkey to Dr. van Millingen, Constantinople.
In Turkey to Dr. H. Perera, Salonik.
In Hungary to Dr. L. Csáthy de Csáth, Buda-Pesth.
In Tunis to Dr. C. Funaro, Tunis.

The first edition of the provisional program is to be printed and will contain details concerning the Congress, and a list of all the papers announced till Nov. 15, 1893.

It should be well to remember the following Articles of the statute:

ARTICLE 2. All physicians are admitted to have a part in the work of the Congress, provided they have satisfied the conditions of inscription, and obtained the required ticket of membership.

ART. 3. The doctors of other sciences who, for their special studies, should have an interest in the work of the Congress may be enrolled with the duties and rights of the members of the Congress who are doctors of medicine, being entitled to partake in the work, either by reading papers or by having a part in the discussion.

ART. 4. The admission fee to the Congress is fixed at twenty-five francs— one pound sterling; it entitles to a copy of the Report of the Congress, which will be forwarded to the members as soon as it is published.

ART. 17. The persons who, not being comprised in the Article 3, are interested in the work of a Section, may obtain admission by consent of the President of the Congress.

Such persons will receive a special ticket and will pay the admission fee like the other members, being entitled, however, to a copy of the Report of the Congress.

The persons thus admitted to the Congress may speak neither in the general sittings nor in the sittings of the Sections to which they are not enrolled.

ART. 18. The students of medicine may be invited or admitted by the President to attend the sittings, but only as hearers.

They must obtain a special ticket which will be granted them without payment.

Members may apply to the Secretary General's office for railway passes for their wives and adult members of their families; the latter may be enrolled on payment of a fee of ten francs.

Medical gentlemen and all persons who wish to take part in the Congress are requested to give their names as soon as possible, writing for this purpose to the Secretary General of the XI International Medical Congress, Genoa.

Fees should be paid by post order or draft to the order of the Treasurer, Prof. L. Pagliani, M.D., Director General to the Office of Public Health, Home Department, Rome, Italy.

College of Physicians of Philadelphia.

SECTION ON ORTHOPEDIC SURGERY.

Meeting held on November 17, 1893.

Read and discussed:

RESECTION OF A RIB FOR EMPHYSEMA FOLLOWED BY LATERAL CURVATURE OF THE SPINE.

DR. G. G. DAVIS exhibited a boy in which two ribs had been resected and there was resultant lateral curvature. He showed an apparatus which had been adjusted for the purpose of reducing the projection arising therefrom. The jacket was adjusted so that it made pressure on the pelvis, in the axillary fold, and counter pressure on the opposite side by the pad.

DR. DEFOREST WILLARD—I should like to ask Dr. Davis whether I understood him to say that the deformity would probably grow worse as time goes on? My experience is that such deformities tend to improvement. I had occasion a few weeks ago to examine a case upon whom I operated in 1872 for emphysema, a girl then five years of age. Suppuration continued for six months and there was great deformity at the time; yet the patient has become absolutely straight and I had difficulty in determining upon which side the operation had been performed. In a number of other cases, the same result has been obtained, and the improvement has been very marked under exercise and expansion of the lung, which probably is the most important element. In regard to the use of apparatus I have to say that I have never seen the deformity following emphysema benefited by any form of appliance. I rather look upon it as injurious by interfering with expansion of the lungs. I have always used some form of exercise with marked benefit.

DR. H. AUGUSTUS WILSON—I would like to say that it appears to me that this case has reached the stage in which there are present all the conditions of idiopathic lateral curvature and marked rotation with the usual distortion of the thorax. It is a question whether apparatus does not tend to still further produce muscular atrophy, and whether the chest will not decrease in size, the lateral curvature and rotation becoming more pronounced. The question is not

settled in my mind whether most of the muscular atrophy is produced by scoliosis or by apparatus. This particular apparatus has, in my judgment, one serious objection; the straps passing over the shoulders. The shoulders are brought into line by simple downward pressure, even when there is a crutch resting upon the hips. Mothers will loosen the straps around the waist to give the child comfort and the apparatus is therefore sure to drag still further upon the shoulder straps. The shoulder straps prevent a displacement of the apparatus, even when the lower bands are loose, and therefore they should be dispensed with. It is my experience that apparatus too often only conceals the deformity beneath, but does very little in the way of correction.

DR. T. S. K. MORTON—I do not think I have had a case which improved under apparatus. I have obtained good results from the application of head extension at night with suspension at times during the day. In regard to the use of a bicycle, of which Dr. Taylor speaks, it is a question in my mind whether this is wise, as already we are noticing in literature, reference to a condition of kyphosis to which this kind of exercise gives rise.

DR. J. B. DEWEY—My experience fully accords with Dr. Wilson's. I have operated upon a large number of cases, many of them tuberculous; others resulting from pleurisy. Relative to the lateral curvature which follows, I would say that most cases recover. I advise against appliances under the circumstances; I believe it to be a serious matter to interfere with chest expansion. Ordinary appliances are misleading and, to my mind, do harm, often resulting in paraplegia. If support is required, my plan is to use plaster-of-paris bandage the length of the spine, and at the end of a month to replace it by another and the patient is thus straightened every time the bandage is altered. Those of us who are familiar with Dr. Adams' dissertations, know that he lays great stress upon this point, unless there is actual disease of the vertebral column.

DR. G. G. DAVIS—The deformity in the case shown to-night has been more marked lately than it was a few weeks ago. I do not think that it will increase as time goes on, after sound healing has taken place and the lung begins to expand, but I am of the opinion that an apparatus for the resultant curvature is of marked benefit in the treatment for the condition as now present. Some of the remarks made to-night apply to cases of pure lateral curvature and not to such a condition as that of the case exhibited. Dr. Dewey refers to paraplegia following the use of apparatus. To this I would say that perhaps paraplegia may follow lateral curvature, but I have never seen it as such a result. As to the question of the use of a plaster jacket or brace, that is largely a matter of opinion; I do not think that this question has been definitely settled yet. When we find such men as Bradford of Boston, and others, describing them, one can not regard apparatus as always out of place.

In regard to this special case I do not see that healing would be delayed by an appliance. There is a projection on one side which is quite marked. I can see how expansion would be hindered by having the chest encircled by bandages, but in this jacket there is no constriction of the chest. It is the pelvis which is embraced, and pressure is made over the projecting side and not the constricted one. Dr. Wilson's suggestion in regard to the shoulder straps is a good and practical one, and I will watch the case to see that displacement does not occur. I would not, by any means, urge the continual use of such apparatus, but in the early period of recovery where the sinus has not healed, or just healed, I think it is good treatment; as without it, I think, in a comparatively short space of time, the deformity becomes more marked. I do not believe in substituting for exercise any mechanical appliance because I think nothing can take its place. Where an apparatus is supported from the hips, and where there is no pressure made on the contracted chest, and when apparatus is capable of removal, if so desired, for exercise, I do not think it would at all hinder the recovery of a case.

DR. W. J. HARRIS reported a case of sequestration of knee-joint that he operated upon by free incision and washed out with 1-2000 bichlorid of mercury solution. The patient made a rapid and complete recovery, ultimately obtaining full usefulness of the joint. Dr. Harris advocated early and free incision for exploratory purposes, because it enabled the surgeon to effectually evacuate the contents of sinus, an abscess, and prevent its rapid destruction of the joint.

DR. J. B. DEWEY opened the discussion.—This case is particularly interesting for the reason that last winter I saw, with Dr. Lloyd, a case of middle ear disease in which there

was pronounced sepsis. I opened the abscess and removed pus; this Dr. Abbott examined for micrococci, but without finding such bacilli. I should rather take exception to Dr. Hearn's remarks that he thinks this treatment wise in all cases. I scarcely think that in all cases it would give good results.

DR. T. S. K. MORTON—I hardly agree with Dr. Hearn in advocating the use of so strong a solution as 1-2000 bichlorid of mercury. My experience is, in using antiseptics in joints, that they are a source of danger; that it is not possible to use such a strong solution without producing adhesions. Iodoform appears to me to be the best antiseptic to use; in fact I do not use bichlorid for washing out joints, as I find simple boiled water to be quite effective and without danger of doing harm. In using strong antiseptics there is a possibility of producing synovitis.

DR. R. S. CRICKE—In May, 1892, I saw a case of a girl age 3 years who had a suppurative knee-joint. She had been taken to the University and to the Children's Hospitals and had been told that nothing could be done except to amputate the limb. I opened the joint, passed a probe through to the opposite side and then injected the joint with peroxid of hydrogen twice a day. At the end of thirty days the wound closed and I applied a splint. I did not see the case again until September when the child was running about and appeared perfectly healthy. There was perfect motion in the joint.

CORRESPONDENCE.

How to Manage Criminals.

To the Editor:—There are symptoms of a "fad" becoming universal in this country. This fad is based on the false conclusion that "crime is a result of disease." Men becoming sober and orderly after taking the so-called Keeley cure is apparent evidence that the vice, drunkenness, can be cured with medicine, and people who believe in this will say, if one vice can be cured by remedies administered to the criminal, why can not others be cured in the same way? Perhaps ere long it will be fashionable and also legal to send the horse-thief and murderer to the hospital instead of the pen and gallows. To enter my objections to this fad is the object of this paper.

In evidence that crime is not a result of disease, I will mention the fact that crimes are not so prevalent among the sick as among the healthy. The hungry man may steal, not because he is sick but because he is hungry. The murderer may slay his fellow-man, not so much because he is sick and seeking relief, but because he is angry and thinks his act justifiable. There is a vast difference between *hunger, anger and disease*. A sick man may commit crime but this is not proof that the sickness was the cause of the crime. If sickness was a factor in crime, more people would commit crime when sick than when well, but the opposite of this is true.

Nine-tenths of the crimes are committed by people who are healthy. I do not forget that insane people often commit murder and steal, but this is oftener an accident or concomitant than cause of crime. The list of criminals will show a small per cent. of insane people. Many criminals plead insanity because (if proved) it will protect them from punishment. That there is a great majority of healthy criminals goes to show that sickness has little to do with crime. Evil associations and prison-life are not calculated to improve a man's moral character. The object in sending a man to prison is not so much to improve his morals as it is to punish him for crime committed. Schools, good society and religious training assist in the way of morality but these are not a part of the penitentiary code. The fear of punishment is a great factor in preventing crime, but once let the people understand that the penalty for crime is, to be sent to the hospital where they can have good food, good books to read and a general good time, then Texas would not be large enough to hold the hospitals that would be required for the sick. *Kindness to a criminal is a premium on crime.* No. Don't

learn too much suddenly. The criminal in this country is getting all he deserves in the way of kindness; perhaps too much. I once heard a noted cow thief say he was going to plead guilty because the county jail in which he was confined was not comfortable as his old quarters at the "Pen." I heard a returned convict say that the penitentiary at Jefferson City, Mo., was a much preferable place to his county jail.

Philanthropy and charity are well enough in their place, but to treat criminals on the theory that they are only sick people is a dangerous unholy fad, and I hope the medical profession will not assist in promulgating this fraud. The Ruler of the Universe if the Bible be true says that the wicked deserve punishment and the sick deserve help. Let us not get these two degrees mixed. Let the criminal stay in his own proper place. Care for the sick as heretofore, but please do not "gush over" in behalf of an underserving law-breaker. The way to manage a criminal is to punish him for his crimes, and this is the right and only safe way to manage him. To put him on the list of sick people and treat him as such, would impoverish any nation on the globe. Down with the fad that crime is a result of disease. The idea that the human family has become so sick (or good either) that it deserves only charity is dangerous in the extreme. Vice is prevalent and can not be cured by hospitals, kind nurses and learned physicians. We, of the medical profession, are entirely out of place when we undertake the care of criminals who are as healthy and strong as we are. Let the police, judge and lawyers have their share of work. We have finished our work when we have instructed the people how to prevent disease, and have cared for the sick. Let us stay in our proper place. There is a class of people elected to take charge of the criminals, and we should not meddle when we are not called.

W. P. HOWLE, M.D.

Oran, Scott County, Mo.

Treatment of Uterine Fibroids.

To the Editor:—In a recent editorial of the JOURNAL, Dec. 9, 1893, on the above subject, three methods of cure were presented: "The application of electricity to the growth; the induction of premature menopause by removal of the ovaries and tubes; and the removal of the tumor, either with or without the removal of the uterus and its appendages." While the writer of the editorial took a conservative course in presenting the above methods as old established treatments, it seems to me it would not have made his authority any less comprehensive if he had mentioned the new operations of promise which are now on trial in this country and in Europe, for the difficulty under consideration. Ignorance of the subject can not be gracefully advanced by an editorial writer, who of all writers must be abreast of the literature of his subject. Therefore I must take it for granted, that the writer simply exercised his editorial prerogative and used his discretionary power in deciding that the subject is not yet ripe for editorial recognition.

As a correspondent, however, may I take the liberty of calling your readers' attention to the following facts about the new operations for fibroids of the uterus?

December, 1892, I read a paper before the Chicago Gynecological Society on "A New Operation—Vaginal Ligation of a Portion of the Broad Ligament for Uterine Tumors or Hemorrhage." At that time I read the report of the first two cases operated on. This paper was published in the *American Journal of Obstetrics* for April, 1893. At the Milwaukee meeting of the Association, I read another paper on the same subject, in which I reported five cases upon which I had operated. This report appeared in the JOURNAL of the Association for Sept. 2, 1893. These articles have been quite extensively quoted in several of our best journals.

In the *Archiv f. Gynäkologie*, xliii. iii Hft., p. 534, will be found an article by Sigmund Gottschalk, in which he discusses the "Histogenese und Etiologie der Uterus Myo-

met" and in concluding advises the bilateral ligation of the uterine arteries for persistent myoma.

In the *Archiv f. Gynäkologie*, No. 33, April 10, 1892, Kustner reports having operated on two cases of fibroids, which he ligated both uterine arteries from the vagina with good results—the tumors having rapidly decreased in size and the hemorrhage in each case ceasing. He refers to Gottschalk's recommendation of the procedure, and criticizes him for not describing a technique.

In the *Archiv f. Gynäkologie*, No. 33, Sept. 10, 1892, Gottschalk replies to Kustner, and gives a more detailed description of technique. This writer has treated seven cases, two of which had been treated so recently that their evidence for good could not go further than to show the immediate beneficial effect on hemorrhage, which was favorable. In the other five cases the tumors have diminished perceptibly in size, and the menstruation has markedly decreased in quantity.

My operation differs from that described by the above writers in that besides ligating the uterine arteries, I also include the whole of the base of the broad ligament in such a manner as to include as much of its nerve supply as possible, in order to get a powerful trophic influence. Besides including in the ligatures the nerves in all cases, in *simple* and in *deep* cases the ovarian artery of one side is also tied.

The importance of cutting off the nerve supply I do not think can be over-estimated. Every operator of much experience is aware how a small shock will frequently cause fibroids of the uterus to diminish in size or to disappear entirely. A simple exploratory incision, has frequently produced this effect. Add to this the severing of their nerve supply and the trophic disturbance can but be great, especially when this is combined with a procedure which suddenly deprives the uterus of two-thirds of its blood supply. Then, too, by severing the nerve supply, the apparatus by which a blood draught would ordinarily be made known to distant parts and collateral circulation established, is rendered inoperative. For these reasons I insist upon the ligation of all the contents of the broad ligament.

I have performed my operation in eight cases. All bleeding fibroids, varying in size from the proportions of a three months pregnant uterus to one which extended above the umbilicus. In every case, except two, the hemorrhage has ceased promptly after the operation; in these two the cessation was only partial, because the operations were incomplete. In all cases the menorrhagia has finally been permanently relieved.

In the six cases in which time enough has elapsed to judge of results, the tumors have decidedly diminished in size. The one which extended above the umbilicus, operated on in January, is now but little larger than a normal uterus. These brilliant results have been accomplished too, without the long train of distressing sequelae which follow the more severe operations of removal of the appendages or hysterectomy.

For more detailed accounts of this operation, and the history of the cases, the reader must refer to the literature given in this letter.

In the editorials of the future, it seems to me probable that this new operation will occupy about the following relative position in the operative procedures for fibroids: 1, hysterectomy; 2, vaginal ligation of the broad ligament; 3, removal of the appendages.

Yours very truly,

Chicago, Dec. 13, 1893.

FRANKLIN H. MARTIN.

What Is Amblyopia Exanopsia?

To the Editor:—Having devoted considerable attention to the study of cases presenting typical and indisputable illustrations of amblyopia exanopsia, I am disposed to respond to your query in an editorial in a recent issue of the JOURNAL. Is there an amblyopia exanopsia? and place myself on record as being decidedly of the opinion that many cases of obtunded vision are properly ascribable to non-use of the eye in question, and can not justly be attributed to other causes. In order to induce us to accept such a condition, it seems that it is only requisite for us to revert to the fact that the process of seeing is virtually an educational one at the outset, and

that while all of the requisite anatomic arrangements may be present in any given case, which are known to be essential for the visual performance, such as transparent optical media, physiologic accommodation, normal refraction, normal retina, together with normal optic nerves, and finally, physiologic visual cortices, yet unless the eye is stimulated to the proper extent at the beginning of the individual's career, the condition known as amblyopia exanopsia can and does ensue in a certain percentage of cases. It has been advanced as an explanation of this class of cases, that there is back of all other factors an inferior mental perceptivity, but this must be largely discountenanced by the undeniable fact that, after correction of any and all refractive and muscular errors, the individual's visual acuity rises to a marked extent if the corrective measures are instituted timely enough. Thus, it has been almost my invariable experience to note that in those cases of amblyopia exanopsia, occurring in youth in which the refractive and muscular errors have been overcome, the sight of the amblyopic eye soon rises to a perceptible extent, and ultimately vies with its fellow in visual acuity.

The case referred to in your editorial comments, quoted by Dr. W. B. Johnson, is but one out of many in which the amblyopic eye has assumed a marked visual improvement, when necessity compelled it so to do by the accidental loss of the good eye, and, as stated by you, is strongly suggestive of the probability of the occurrence of amblyopia as a sequence of disuse. Many good authorities are wavering in the balance with respect to this question; but it seems to me that the preponderance of evidence is in favor of the occurrence of amblyopia consequent upon disuse. It is, of course, not difficult to collaborate a series of cases in which enter complicating elements serving to obscure the diagnosis. Time and again, after tenotomizing the contracted internus for convergent strabismus in youthful cases and applying proper optical correction to the hyperopia present, I have noticed an eye that was prior to such measures decidedly amblyopic, assume a degree of useful vision, which progressively advanced in power, and to my mind is strongly conclusive that the amblyopia followed disuse.

Now, it must be fully understood that the retina once educated to the full appreciation of images formed by the dioptric system are not comparable to the primitive untrained retina, for it is conceded that when the retina have acquired their maximum development, images may be excluded for protracted periods without impairing their sensitive, impressionable nerve elements, as is palpably demonstrated by cases in which the removal of hyper-mature cataracts serve to restore fairly acute vision. And again, microscopists, engravers and others, compelled in their work to exclude the object perceived with one eye, do not necessarily impair their vision by so doing. So, too, with cases of opaque cornea in which an iridectomy restores vision. Squint in cases of opaque cornea is explicable on the ground that there is in all cases a tendency towards binocular fusion, and if there is an opacity in an isolated part of the cornea, there is a strong desire on the part of the individual to direct his eyes in such a manner that the clear part of the cornea will be brought into use, and thus enable him to bring the most sensitive part of his retina, the fovea centralis, into play, thus taxing the muscular mechanism to an extreme degree, which is ultimately followed by a yielding of the weaker muscle and rotation of the eye towards the preponderating muscle.

One of the strongest arguments against the acceptance of a cortical defect lying at the bottom of amblyopia, is the fully accepted fact of semi-decussation of the optic nerves in the higher vertebrates, for in view of this anatomic provision it would be necessary that both cortices should be

seriously impaired, which would cause either complete obscuration of vision of both eyes, or double hemiopia instead of an amblyopia of the one side, as is so frequently found; and it seems to me that a better and more plausible explanation of amblyopia, granting the retina is normally perceptive, would be defective conduction of the optic nerve fibers, and especially of that portion of the nerve styled the papillo-macular bundle, which is formed of separate nerve filaments connecting the macula lutea with the brain. Assuming that these cases of amblyopia reveal no marked pathologic changes ophthalmoscopically, our knowledge of the distribution of the optic nerve fibers enables us to determine with a certain positiveness the site of the lesion in the optic tract, providing the same is due to a break in the conduction. Thus in every case in which the defect is in one eye, or in asymmetrically placed defects of both eyes, the lesion lies in the optic nerve anteriorly to the chiasm, inasmuch as all breaks in the conduction posteriorly to the chiasm result in symmetrical visual defects, and for the same reason complete blindness of one eye, the other being normal, must be referred to a disturbance in front of the chiasm.

This and much more might be stated in support of the theory that amblyopia exanopsia should be classed in the same category with cases of hemiopia, either total or incomplete. Very respectfully,

JAMES A. LYSTON, Ph.D., M.D.

Chicago Dec. 11, 1893.

Abdominal Dropsy.—Sixty-seven Tapping Operations on One Patient.

MARION, OHIO, Dec. 15, 1893.

To the Editor:—The following interesting case is worthy of report, I think:

Mrs. B., aged 80, from disturbed hepatic circulation has been afflicted with abdominal dropsy for the past eleven years. During the summer and fall of 1882 the abdominal cavity became so distended with the fluid that the lady was unable to walk, nor could she lie down, but was compelled to get what rest she could in an easy rocking chair. Drugs for carrying off fluids were tried with negative results. She finally consented to be tapped, and the operation was performed Dec. 23, 1882, for the first time. Great relief followed, and the patient was able to be up and around, but the fluid re-accumulated and she was again tapped seven weeks from the first operation. From that time until her death Dec. 3, 1893, she was tapped on an average of six times a year, in all sixty-seven times. The average amount of fluid obtained each time was six gallons, by measurement, making in all 402 gallons. The operations were performed with an ordinary trocar and canula.

Taking into consideration the age of the patient, and the number of years added to her life, the case presented is one of encouragement for the operation in abdominal dropsy. Although the fluid re-accumulated, after being tapped the patient was able to do considerable housework, and at times had taken walks of one and two miles. During the eleven years the lady was under my care, no attempt was made at systematic medication for her troubles, because of an irritable stomach that revolted at the use of medicine. It is difficult to tell how long she would have held out, as she was never confined to the bed but for a few days at a time, and death was caused by an attack of la grippe lasting about one week.

Postmortem examination revealed a liver enlarged to about twice its natural size, with shrunken and distorted vessels, and a small ovarian tumor attached by a pedicle to the left ovary.

F. W. THOMAS, M.D.

Smallpox in Pennsylvania.

PHILADELPHIA, Dec. 11, 1893.

To the Editors:—The Board of Health of the city of Reading, Berks County, reports that for the two weeks ending Dec. 4, 1893, 36 new cases of smallpox occurred in that city, with 1 death, making a total of 678 cases to date, with 5 deaths.

Thirty-six cases were discharged from hospital and homes, forty-nine cases were treated at their own homes, fifty-five cases remain under treatment in hospital and homes, and thirteen houses remain marked as infected.

One additional case of smallpox is reported from Mechanicsburg, Cumberland County. One fatal case of smallpox is reported from Jeannette, Westmoreland County. Origin, Homeopathic Hospital, Pittsburg. Eight additional cases of smallpox are reported from Homeopathic Hospital, Pittsburg. The first case at this Hospital was that of James Bennett, recently arrived from Washington County, Virginia. One case of smallpox is reported in Philadelphia. Origin, not known.

The eight cases of supposed smallpox at Altoona, Blair County, were afterwards found to be chickenpox.

Eight cases of beri-beri are isolated in the Quarantine Station Hospital, Chester County, and six convalescents from this disease have been discharged. No deaths. All these cases are Lascars. Very truly yours,

BENJAMIN LEE, M.D., Secretary.

MISCELLANY.

The Minnesota Valley Medical Society held its thirteenth annual meeting December 7 at Mankato.

Back Numbers Wanted.—Will pay a fair price for copies of the JOURNAL of January 1 and 16, 1892. Address this office.

Goos to Russia.—Dr. Wassail of Chicago, has been appointed court dentist at St. Petersburg, and will go in February to his new post. With him will go his young wife, who writes cleverly and is a musician.

New Contagious Disease Hospitals.—The papers of Oshkosh, Wis., and Indianapolis, Ind., inspired by their Boards of Health urge upon their respective cities the establishment of contagious disease hospitals.

New Hospital.—The Baptists of Boston, under the leadership of Rev. Everett D. Burr, and Dr. Francis F. Whittier have determined to establish a hospital under the auspices of that denomination.

Changed its Name.—The *Pacific Medical Record* has been rechristened the *Medical Sentinel*, by which name it will hereafter be known. It will be as bright and aggressive as ever under its new name, and we trust that the *Sentinel* may always be found guarding the interests of legitimate medicine in the Northwest.

While hunting on the battle-field of Chancellorsville, Virginia, Dr. Sylvus of Jersey City, recently captured a small snake with two perfectly formed heads, of equal size. When stopping in Washington on his way home he took the snake to the Smithsonian Institute where it created much interest.

Monument to the Physician-Explorer.—Dr. Schnitzer, better known as Emin Pasha, the Governor of Eastern Soudan, having been admitted by his surviving relatives to be dead and buried in Central Africa, is to be honored by a memorial in Neissen, Germany, his natal town. In this town there now resides his only surviving sister and his little daughter, Frida. All Germany will be invited to unite in contributing to this memorial.

A Judicial Dogberry.—Dr. Gibbs of Omaha, was recently fined by a Judge for being absent from the court room when subpoenaed as a witness. The Doctor pleaded in extenuation that he had been called to attend a patient who was very ill, and could not reach the court room at the time. The Judge asserted that the Doctor should have notified the Court, as the case was on trial, and refusing to accept his excuse fined him \$10. Dr. Gibbs said that in the same circumstances he would do the same, whereupon the Judge made the fine \$25 and refused to remit it.

Sir William Jenner, the distinguished English physician, used to tell with great gusto a tale of a footman of Sir Andrew Clark, that other great English physician who has recently died. Sir Andrew was well known for his kindness to his servants, who regarded their master as the greatest man in the world. One day a gentleman in urgent need of Sir Andrew's services learned from James that it was impossible to see the eminent physician except by appointment. "But, it is most urgent," cried the caller, in dismay. "Quite impossible, sir." "Well, can you tell me, then, of some one else near at hand?" "Well, sir," replied James, reflectively, "there is a very respectable practitioner named Jenner on the other side of the street. I think I may recommend him."

Slates and Pencils a Means of the Spread of School Diseases.—Dr. Cyrus Edson, of the New York City Board of Health, is reported as pointing out the new fact that many cases of communicable disease are the result of a practice among school children of exchanging their slates and pencils, while at their studies. The Board of Education will be requested to interdict the passing of slates and pencils from hand to hand. The Inspectors of the Board have reported cases where, in their opinion, measles and scarlatina have been spread among the pupils of the public school by a too free interchange of articles from the sick to the well.

Spider-web Styptic and Tetanus.—It is a popular notion in France and elsewhere, that spider-webs are "good for hemorrhage from cuts in the scalp and other wounds." A French paper states that a young man was wounded on the head with a eudgel, whereby a copious loss of blood was caused. The webs were used to check the blood-loss; symptoms of tetanus soon after appeared and a fatal issue followed. An examination of the cobwebs revealed the presence of the bacillus of tetanus, and the theory was formed that an inoculation into the open wound had taken place of this germ. This experience, if verified, tends to put another of the alleged "Nature's remedies" on the shelf. A good clean antiseptic (made so artificially) dressing will have the preference every time in the treatment of scalp-wounds and the like.

New Dispensary Law Proposed.—In South Carolina the administration substitute dispensary bill introduced in the Senate is a drastic iron-bound measure. Under it no drink containing a trace of alcohol is allowed to be sold, given away, held in possession, taken from a depot, etc., unless it has the stamp of the dispensary on it. Violation of this is made punishable by thirty days' imprisonment or \$100 fine, together with confiscation of the liquor.

Railroads are prohibited from handling liquors and the latter are seizable by constables without warrant. There may be dispensaries in every county, but a majority of ten freeholders in any township can prevent the establishment of a dispensary. In places where liquor-selling is prohibited previous to July 1, 1893, one-fourth of the voters can call an election, which a majority vote shall decide.

Dry counties must pay for constables to enforce the law.

In such counties citizens may have liquor from dispensaries shipped to them. Any person can make wine for his own use and can sell the same through dispensaries by paying a commission of 10 per cent. The payment of a United States tax or any placard indicating that liquors are sold is evidence that the law is being violated. Hotels, where tourists stop, are exempted from the "nuisance" provision and may be agents or dispensers on giving \$3,000 bond. All penalties are under trial justices' jurisdiction and warrants are issuable upon the oath of any person who swears upon information and belief.

Distilleries must report quarterly to the State dispenser as to their product and its disposition. Constables may search depots, etc., without warrants. Any person who seizes any constable or officer who attempts to seize liquor sold is made guilty of a misdemeanor. Dispensaries are allowed to sell beer by the glass, but no loading on the premises is allowed.

An Uncontrolled Controller.—The City Controller of Indianapolis has been raising so many objections to the bills of the City Hospital, that the authorities of that institution are growing weary.

The Controller refuses to allow bills for medical books of reference, or for necessary repairs of the building.

The Controller's office was recently stirred to its inmost depths on account of a bill for young shade trees, purchased by the Superintendent, to ornament the barren grounds, with a view of making them attractive, and of use to convalescents.

The Controller's cheese-paring ability rose to its highest pitch, when he returned the bill to the Hospital with the following statement:

"I find that the bill for trees is not an obligation incurred in an emergency, but a cold blooded reach for the city treasury."

If the doctors of Indianapolis have the "nerve" with which they are generally credited, they will make a "cold blooded reach" for the City Controller's official scalp at the very first opportunity.

A Report on Tuberculosis.—Recommendations to the Health Board made by Dr. Biggs, the Chief Inspector of Pathology Bacteriology and Disinfection in the Health Department, who sent to the Health Board a long statement regarding the contagiousness of tuberculosis, accompanied by a number of recommendations. His explanations regarding the nature of the disease were thus summarized:

"First, tuberculosis is a contagious disease and is distinctly preventable.

"Second, it is acquired by the direct transmission of the tubercle bacilli from the sick to the well, usually by means of the dried and pulverized sputum floating as dust in the air.

"Third, it can be largely prevented by simple and easily applied measures of cleanliness and disinfection."

Dr. Biggs, in the report, refers to tuberculosis as "the most common and fatal disease which prevails in New York," and makes the following statements: "In 1892 more than six thousand deaths were reported to the New York City Health Department as due to tuberculosis. While this condition of affairs and its great significance have long been recognized by the Board of Health, owing to various considerations well known to those familiar with tuberculosis, this disease has not up to this time come under the official sanitary surveillance of the department."

His recommendations are appended in part:

"First, that there be systematically disseminated among the people by means of circulars, publications, etc., the knowledge that every tubercular person may be a source of

actual danger to his associates and his own chances of recovery diminished if the discharges from the lungs are not immediately destroyed or rendered harmless.

"Second, that all public institutions, such as asylums, homes, hospitals, dispensaries, etc., be required to transmit to the Board of Health the names and addresses of all persons suffering from pulmonary tuberculosis.

"Third, that special inspectors be assigned to duty for the investigation of this disease.

"Fourth, that the Board urge upon hospital authorities the importance of separation, so far as possible, in the hospitals of this city, of persons suffering from pulmonary tuberculosis from those affected with other diseases.

"Fifth, that the Department of Charities and Correction of this city be requested to set apart one of the hospitals under its charge, to be known as 'The Consumptive Hospital,' to be used for the exclusive treatment of this disease.

"Sixth, that the Board undertake the bacteriological examination of the sputum for diagnosis in every case of pulmonary disease of doubtful character in hospitals or private dwellings or tenement houses where the physician in attendance desires that this should be done.

"Seventh, that all physicians practicing their profession in this city be requested to notify this Board of all cases of pulmonary tuberculosis coming under their professional care."—*New York Tribune*.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from December 9, 1893, to December 15, 1893.

Major JOHN BROOKE, Surgeon U. S. A., is granted leave of absence until Feb. 22, 1894.

First Lieut. BENJAMIN L. TEN EYCK, Asst. Surgeon, is assigned to station at Ft. McIntosh, Texas, for field duty in the Department of Texas.

First Lieut. ALLEN M. SMITH, Asst. Surgeon, granted leave of absence for four months, to take effect on or about Jan. 4, 1894.

Major PETER J. A. CLEARY, Surgeon, leave of absence granted on surgeon's certificate of disability is extended four months on surgeon's certificate of disability, on condition that he report in person to the commanding officer, Army and Navy General Hospital, Hot Springs, Ark., on or before Dec. 11, 1893, for treatment therein.

Major ALFRED C. GIBARD, Surgeon U. S. A., is granted leave of absence for four months, to take effect about Jan. 6, 1894, with permission to go beyond sea.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending December 16, 1893.

Surgeon C. A. STEPHENSON, detached from U. S. T. S. "Richmond," and granted four months' leave.

Surgeon J. A. HAWKE, detached from Widow's Island Hospital and special duty, Portsmouth, N. H., and to the U. S. T. S. "Richmond."

Surgeon M. H. SIMONS, ordered to Widow's Island Hospital and to special duty at Portsmouth, N. H.

Medical Director R. C. DEAN, ordered as President Board of Medical Examiners, Washington, D. C.

Medical Director A. A. ROEHLING, detached from Board of Medical Examiners, and as President Board of Medical Examiners.

Medical Director MICHAEL BRADLEY, relieved as President of Board of Medical Examiners, and ordered as member of the Board.

Dr. John S. Fryer of Kansas City, son of Dr. B. E. Fryer, U. S. A., has been appointed Third Assistant Surgeon at the Soldiers Home. The appointments are made by the National Board of Managers, who act on the recommendation of the surgeon in charge and the Governor of the Home.

LETTERS RECEIVED.

- (A) Ashmead, A. S., New York, N. Y.; Allen, Ulamer, Jersey City Heights, N. J.; Archer, F. S., St. Louis, Mo.
- (B) Byrne, J. H., Chicago, Ill.; Beck, Carl, New York, N. Y.; Batten, J. M., Pittsburg, Pa.; Blodgett, F. J., New York, N. Y.; Brainerd, I. N., Alma, Mich.; Bryant, W. Cullen, Pittsburg, Pa.; Brown, E. M., New York, N. Y.; Brucker, C. M., Tell City, Ind.; Baxter, W. E., Bangor, Me.; Burnett, C. H., Philadelphia, Pa.
- (C) Devilbiss, A., Toledo, Ohio.
- (E) Earle, Frank B., Chicago, Ill.
- (G) Geaner, F. A., Washington, D. C.
- (H) Hill, R. J., Minneapolis, Minn.; Hoch, W. R., Philadelphia, Pa.; Harsh, W. M., Chicago, Ill.
- (J) Jensen, P. C., Manistee, Mich.; Johnson, L. O., Bellevue, Mich.; Judson, A. L., New York, N. Y.
- (K) Keiper, Geo. F., Lafayette, Ind.; King, A. F. A., Washington, D. C.
- (L) Lawless, Jas., Chicago, Ill.; Lyon, H. J., Chicago, Ill.; Lautenbach, L. J., Philadelphia, Pa.
- (M) Melville, C. B., Easton, Pa.; Magruder, G. L., Washington, D. C.; Marsh, J. M., Mussey, Texas.
- (P) Pottinger, Charles, Philadelphia, Pa.
- (R) Reind, J. C. B., Houston, Texas.
- (S) Seymour, F. E., Dodge, Iowa; Shields, W. B., St. Francis, Ark.; Stafford, H. E., New York, N. Y.
- (T) Tyrell, G. G., Jr., Sacramento, Cal.
- (W) Westmann, B. & Co., New York, N. Y.; Whisler, H. C., New Brighton, Pa.; Whitehouse, H. H., New York, N. Y.

The Journal of the American Medical Association

Vol. XXI.

CHICAGO, DECEMBER 30, 1893.

No. 27.

ADDRESS.

CHAIRMAN'S ADDRESS.

Read in the Section on Dental and Oral Surgery, at the Forty-fourth Annual Meeting of the American Medical Association.

A. E. BALDWIN, M.D., D.D.S.

CHICAGO, ILL.

The Chairman of this Section is supposed each year to write a paper upon notable events of interest occurring in the bounds of our specialty during the past year.

While in a general way there has been a move forward during the year, there has been little in the progress that can be specially mentioned, and the writer must satisfy you as far as possible by bringing before you, to elaborate by discussion, a few thoughts and opinions only.

We can not help having noticed that since the last meeting of our Association at Detroit last year, the subject of the so-called "Code of Ethics" has been very largely discussed in our Association Journal. This Code is a matter that does not interest us as specialists as much perhaps as it does the general practitioner. But the writer can not let this opportunity pass without suggesting that, in his opinion, the nearer we get to the ideal professional man, in the broad meaning of the term, the less we will need a code to govern our actions.

So the only real use of a code is for those who are not disposed to do just the right thing, and for those so disposed it can be said that no code can possibly be framed that he can not render inert in spirit while observing the letter, and in the opinion of the writer in the vast majority of cases, those who are the most strenuous about the strict observation of the letter of the Code, are usually the ones who apparently, persistently and intentionally violate the spirit of it.

It seems to me that the query must arise in all fair minded people, Is not the spirit of the Code, *the code*, rather than the mere letter thereof.

We think in this matter of recognition, that homeopathy and other "pathies" owe more of their standing to-day to the persecution and persistent attacks of our brethren, than to any other one thing. There is nothing that will give the professional person in any profession, position and employment quicker with the laity, than the persistent and bitter personal attacks of those who should be brethren. And we also think if matters were properly understood, there would be found less of difference between the practices of the so-called schools, than we imagine.

As intelligent practitioners we should realize that the interests of those placed under our professional care, imperatively demand that we look primarily and only to the possibilities of good to *them*, with very little, if any, special consideration as to "pathy" or creed, previous or present belief of the consultant;

for a reputation that has to be built upon the ruins of another's, would be far better unbuild.

The demand for a more thorough education in all departments of medicine, stimulates us to action to keep abreast of the times, and we must exercise great wisdom and judgment to always know what new ideas are worthy of fostering and adoption, and what are unworthy of our serious attention. A great danger at present in all walks of life, is to fadism, and with us there is danger that in our enthusiastic adoption of some new theory, we do *not* make use of, or realize, the sterling worth of the old, approved and established ideas. We are reminded of this in the now all absorbing fad of laying the guilt of every ill to microorganisms, and perhaps in using agents destructive of these, when instead we should use the greatest of all healing and healthful agents, alone, and that is cleanliness.

We are further reminded of this in our specialty, when we say there is great danger that in formulating and exemplifying theories of the causes of decay, and germ destroying methods, we may forget that *whatever* the cause of decay, when it is present in the tooth, it should be removed, so that at least in the external walls there be nothing left save that which is healthy, and then by proper adaptation, our work will be as secure from failure as is possible. We do not mean that broad and thorough work and research should be discouraged, but instead, heartily recommended; but what should be discouraged and condemned is the so-called research, which is rather intended to fortify or prove some pre-conceived idea. The greatest danger in our special field is to narrowness and the lack of patient and earnest search after wisdom in the broader fields. The broader we become as students, the less need will there be of any hampering or stiff boundary lines of rules of ethics, and the more surely the golden rule of "doing as we would be done by" will prevail, and that spontaneously. When we realize how broad the world of wisdom is, we will cease to even imagine great learning in ourselves. We think the attention of the general practitioner should with great emphasis be directed to the necessity of preserving the temporary teeth, especially the temporary molars, for they are not usually replaced by the permanent until the tenth to the twelfth year. The importance of this will be realized, when attention is called to the fact that the child needs well masticated nutriment much more than does the adult, for their system needs not only material to supply the waste, but also for the rapid growth and development of the whole physical organization. *Again*, if these teeth are neglected, they soon become sensitive, and then the child will not properly masticate the food, but forms the habit of bolting his food, thus introducing the whole train of dyspeptic troubles. *Again*, children's teeth, whether sound or decayed, should only be extracted

when the new or permanent tooth to take its place is ready to come in; then only the *one tooth* should be extracted, for in the writer's opinion, one of the most fruitful causes for irregularity in the permanent teeth, is the extraction of more than the one temporary tooth to allow the larger permanent tooth room to come in, forgetting that while coming in apparently with much irregularity oftentimes, they will as a rule regulate themselves by expanding the jaw, before the age of twelve or fourteen years, and this expansion of the jaw is a necessity to the physiologic development of the normal face. And that, recognizing the fact of the natural tendency of the teeth to move forward, or toward the mesial line, the natural sequence of the extraction of a temporary tooth, before the time for the eruption of the corresponding permanent tooth, will be the partial or complete closure of the space, so the permanent tooth when it comes in will have such a restricted space that an irregularity must result.

Another thing is the failure of the general practitioner in not recognizing that, in the great majority of cases, an abscessed tooth may, by proper treatment, be made so that it will give satisfactory service for many years, being almost universally amenable to treatment and filling. So that the field for the judicious extraction of the teeth has been narrowed to a very meager number. And in this connection, the writer expresses the opinion that the persistent, often repeated and long continued treatment of these pulpless teeth is most often needless, and entailing unnecessary expense and trouble to the patient; and that the end may be attained usually in one sitting, *provided*, that the roots can be and are cleaned out and made perfectly dry, and a non-irritable and complete filling placed therein. And if any irritation follows, this can be better treated from without than through the small and often tortuous root canals. In fact, it is extremely rare that with careful and thorough work, the pericemental irritation, if present at all, will be more than so very slight as to be scarcely noticed.

This year is made prominent in our specialty by not only the regular Association meetings, but in addition the Pan-American Congress in Washington, in September, with a Dental Section which, from all we can learn, promises to be a valuable meeting; and, in addition, the meeting of the Columbian Dental Congress, which convenes in Chicago in August, which in its conception was to be a broad, cosmopolitan meeting, but under the management seems, by what we can learn and by the official list of officers elect and appointive, to have come down to the cheapest political methods of distributing the official honors among the committee of fifteen and their immediate friends. All it needs is a careful examination of the published list of officers to see that the *principal* officers have been named from their own number, and in some cases distributing to themselves several of the most prominent positions. The writer believes that there are men in this country who would have been a credit to the positions so distributed, had they been named, and to have made the appointments outside of their own number would have freed them from the suspicion of intriguing themselves into the most prominent places. It makes one humiliated to see men of eminence, when appointed to positions of prominence, arrogate to themselves positions as they have done, for it is an excellent unwritten law that

positions should seek the man, and not the man the position. In the writer's opinion, the action of the committee in the whole management so far, has been such as to work great injury to our professional standing, and will work more harm to the so-called Congress than they realize, even though in point of numbers the meeting is a success. This is not written to be personal, for we are sure some of the committee were not actuated by such a spirit, but all committees are blamed for the action of the majority. Such things are of great harm to the general good feeling and esprit de corps of the profession at large.

In closing these brief remarks, I can not forbear to notice the absence of one who has very seldom, if ever, been absent from our meetings since this Section was organized, and in fact who was very instrumental, with Dr. Talbot and others, in forming it; one of the greatest minds, if not the greatest, in our specialty. We note his absence with sorrow. I refer to our friend, Dr. Walter Webb Allport, who March 21, 1893, passed from earth. His memory will long survive as an inspiration to the younger members of the profession, and in the annals of our work, even in the future, few names will shine with the luster of his—always standing for that which was ennobling, elevating and broadening; that which he conceived was for the best interests of the work he loved and served so well.

I would suggest that this Section take such action in his memory as they may deem wise.

Thanking you for your kindness, I leave the proceedings of this Section in your hands.

ORIGINAL ARTICLES.

DISEASES OF THE MAXILLARY BONES AND THEIR PERIOSTEUM.

Read in the Section on Dental and Oral Surgery, at the Forty-fourth Annual Meeting of the American Medical Association.

BY VIDA A. LATHAM, F.R.M.S., D.D.S.

CHICAGO, ILL.

IN CHARGE OF THE MICROSCOPIC LABORATORIES AND CURATOR OF THE MUSEUM, NORTHWESTERN UNIVERSITY WOMAN'S MEDICAL SCHOOL; LATE PROFESSOR OF HISTOLOGY, BACTERIOLOGY, ETC., AMERICAN COLLEGE OF DENTAL SURGERY.

Under this heading we will notice some points of interest connected with dental surgery and pathology, although the cause and history of these diseases are so numerous that it will be almost impossible to do more than briefly allude to some of the most common forms met with by dental surgeons, every one of whom ought to have such a knowledge of the affections of the oral cavity that they might, with some degree of certainty, determine what the causes are, their pathology, diagnosis, and their treatment. Especially should we know the morbid growths which can occur, whether benign or malignant, so that we may early diagnose the case, and if we do not care to take such cases for treatment, to warn our patient to consult a surgeon.

Unhappily, the question as to whether dentistry is a specialty of medicine still exists. Even such a man as Prof. Norman W. Kingsley says in the *Medical Record*, Nov. 20, 1886: "Oral surgery, even in its most comprehensive sense, is not dentistry, any more than dentistry in its most comprehensive sense is not oral surgery." But whether it is or not, every one is well aware that one department can not do

without the other, and the more we can learn of the sciences the better professional men and women shall we become. The position of dentistry as a specialty of general surgery is justified to a greater degree than in the case of any other specialty. "Surgery," as defined by one of our surgeons, "is that branch of the healing art which takes charge of all those diseases and injuries which require in their treatment the use of instruments and mechanical appliances, operations or especial manual dexterity." To no other specialty does this definition so apply as to our own, and with reference to general surgery as a specialty of medical science, we know that a specialty should be the outgrowth of a liberal professional education—in short, that a specialist should be a man who "knows something of everything and everything of something."

The standard of a profession is raised or lowered by the character and work of its representatives. It rests entirely with them whether they will assert and maintain their claims to their true position, or allow the public to estimate them as it pleases. Better times, however, are coming, better men coming to the front, better thinkers and workers are banding themselves together, resolved to show that dentistry is not beneath, even if it is not above, the medical profession, but that it is a large and distinct branch of medical science, requiring not only the same studies but its own special ones as well, and must be recognized and honored as such.

Medical men know too little dentistry, and the dentist too little of general medicine, to be able to examine thoroughly these diseases of the jaws and to treat them as is necessary, seeing that they depend for cure on the attention given by both professions. We, of all people, should know thoroughly the healthy normal appearance of the oral activity, all it contains, and should therefore be immediately able to detect any pathologic condition. Cultivate thoroughness as early as possible; make a methodical examination, beginning at one tooth, say the left superior third molar, and continue around the arch, and then do the same with the inferior maxilla. Note the condition of the mucous membrane, which shows much of the condition of the roots of the teeth; the tongue, which indicates the state of the alimentary canal; the secretions of the mouth, which aid us in telling the nature of the calcific deposits upon the teeth, and whether the sensitiveness is due to acidity; and then note the color of the lips, and finally the general condition of the patients themselves. If any abnormality be present, examine for the cause with every care, then decide on the treatment and remedy, noting at the same time the idiosyncrasy of the patient. Many of these affections we, as dentists, are called upon to treat, and others, after they are diagnosed, we should hand over to the care of the physician. With these cases, whether simple or serious, we should be well acquainted, as we are more likely to see them in their early stages, and by immediate interference we may warn our patient and thus induce him to obtain medical or surgical attention, and thereby save him from long and serious, yes, and often fatal illness.

We are all aware of the difficulty in diagnosing oral tumors. For example, in epithelioma it is far better to urge early surgical interference than to wait until extension by the lymphatics places the patient beyond help. Hence make an early diagnosis: exam-

ine every suspicious spot, and if you find a tumor, excise it promptly, and you will save the patient and your life.

For the most part, the diseases of the maxillary bones are often discussed, but not treated, for the physician often tries to treat them, and the dentist is called upon to do so. In the treatment of these diseases of the maxillary bones, dentistry is called upon to treat the diseases of the maxillary bones. It is a matter of some difficulty to do so, but it is necessary to do so. Perhaps the best way will be to discuss first the periosteum and its diseases, and then the close relation it bears to the bone itself will explain how the latter becomes affected.

The alveolo-dental membrane intervenes between the tooth and the bony socket, or alveolus. It was formerly supposed to consist of two layers, but the idea has been abandoned since it has been demonstrated that fibers could be traced continuously from the bone to the cementum. The membrane, periosteum or ligament, as it is variously called, consists of connective tissue, between the bundles of which run groups of vessels and nerves, but it contains only a few yellow elastic fibers, and therefore can not be stretched much. It is, however, necessary that the tooth should be capable of some degree of movement in its alveolus, for every temporary inflammation by increasing, for the time being, the blood supply of the part, causes the partial extrusion of the tooth which is so well known to patients as being "longer than the rest." Now, then, if we have so few elastic fibers, is movement of the tooth, without tearing the unyielding membrane, rendered possible unless it be by a special disposition of the fibers? The bony attachment of each band of fibers is nearer the neck than the cemental portion of the tooth, and may be looked upon as suspending the tooth in the alveolus by fasciculi of the periosteum, rather than as resting upon the membrane, and therefore some play is allowed, as the tooth can be raised or lowered until the cemental fibers are visible or lost to view beneath the gum. The fibers are continuous, but there is a slight difference between the portion nearest the bone and that nearest the cementum. At the former place the fibers are larger, while at the latter they become a fine network and more cellular. Again, age affects the tissue, for specimens show it to be thinner, especially the cemental portion, but it is not entirely obliterated. The periosteal blood supply is very complex, being derived from the pulp artery, branching off just before it enters the foramen, and the terminal filaments anastomosing with the arteries that supply the gums. Just at the rim of the alveolus there is a rich plexus formed by union with the arteries of the periosteum and gums, the "gingival plexus," and near the cement there is a capillary plexus. The blood vessels are most numerous midway between the bone and cementum, or rather nearer the latter. (Toms.) Thus we may conclude that the teeth have three sources of nourishment, viz.: through the pulp, and through the periodontal membrane in its two sources.

The exact nature of the membrane is still far from satisfactorily explained. Malassez (*Journal of British Dental Association*, 1885, p. 484) says it is a ligament for these reasons: *a*, if true periosteum existed in such a situation, mastication would be a very painful process, owing to the abundance of nerves; *b*, microscopically the tissue is more ligamentous than periosteal in structure; *c*, mastication produces traction,

not pressure; *d*, the attachment to the bone and cementum is precisely like a tendinous insertion; *e*, the distribution of the vessels and nerves in the interstices between bundles of fibers suggests ligament and not periosteum. Ranvier and Kolliker take a similar stand regarding its structure. And yet we know it is true that the membrane is directly continuous with the periosteum covering the rest of the maxilla; that the shock of mastication can be borne on periosteum, as, for instance, in edentulous ridges of the jaw-bone; and again it is certainly not quite a typical ligament, but a typical periosteum, with a specially modified function.

The alveolar walls develop at the same time as the root. Proceeding from the base of the follicle is a line of cells, the formative point of cementum, and another line, the formative organ of the alveolar walls; one develops down to form the socket, the other forms the cementum, the two layers being continuous. Whether the membrane is single or double is a question. Analogy from anatomy, etc., would make us think the true membrane would be in two layers. Demonstration proves it, for on extraction, the root of a tooth is covered by a membrane and the alveolus is lined with a membrane. The alveolar lining is from the bone, and so it must be referred to the osseous system. The formative organ of the cement, can it be the same as that which forms the alveolar walls? Some say it can not, and yet the cementum is like true bone except for the perfection of the Haversian canal, and the lacunae are irregular in shape, size and distribution. The canaliculi are more numerous from the periosteal side of the lacunae, fewer run inward toward the dental surface, and they contain the remains of the formative "osteoblasts" as we find in bone. The cementum contains "fibers of Sharpey," developed from the formative periosteum, which are calcified bundles of fibrous tissue like those in bone, and therefore why can we not call the cementum a modified bone? Toes says the cemental organ and that which forms the alveolar walls are not the same; they are closely united but distinct and separable, the external formed from connective tissue with blood vessels, the inner a layer of cells. Dr. Ingersoll says he saw some of Dr. Black's specimens, and one of them was perfect in showing the histologic difference of the two layers. None of the straight lines of the periodontal membrane were found in the alveolar membrane. If the membrane is double, two sources of vascular and mineral supply would be expected, from the pulp and from the sub-mucous tissues. Pathology aids us by revealing the difference in exostosis and hypercementosis. Irritation follows the blood vessels, and under the influence of irritants the root may take on an abnormal action; this is one form of exostosis, which latter term should be properly named either ex- or hypercementosis. If the nerves and blood-vessels follow the course of the membrane and it is not double, why are not both layers affected? Why do we not have both true exostosis or enlargement of the socket and also hypercementosis or enlargement of the roots, consequently tooth-ankylosis? When two roots are exostosed they grow together by impingement, but never the alveolus and root, hence there is no osseous union. Yet again, how often do we find periodontitis go on to periostitis, one being usually primary to the other? Would this not imply they were connected, if inflammation can so readily

pass on from one to another? The conclusions I have arrived at by reading and specimens are:

1. The periosteum and the periodontal membrane are identical. I prefer the term, periosteum.

2. It is divided into two layers, internal and external or osteo-genetic and fibrous; the internal, or osteo-genetic, forms the alveolar layer and the external, or fibrous, forms the cemental layer.

3. The alveolar and cemental membranes are not identical.

4. The two layers have different functions; one forming and lining the alveolus, the other surrounding, and holding the root.

5. The cement appears to be developed from the periosteum, and not from the dentine or odontoblast cells, as under the microscope it has the same appearance as bone, except that the lacunae and canaliculi are not so perfectly developed.

When cementum is required to be very thick, as in herbivorous animals, where it is destined to cover the whole tooth, Magitot says, it first becomes the seat of a formation of hyaline cartilage, which ossifies like any other bone developed after the intra-cartilaginous method. Where it is to be thin and only cover the crown, as Nasmyth's membrane, it is the seat of ordinary intra-membranous ossification.

6. Pathology shows the same fact; there is no union between the root and the alveolus.

7. The rapid mineral absorption of the root without exfoliation, is due to the special nature of the cemental membrane as distinct from the membrane of the socket, and has been microscopically proved.

8. It is a great deal better to consider the periodontal membrane as periosteum divided into two layers.

Periosteum	{	External (fibrous) layer, continued as the	} periodontal
		Internal (osteo-genetic) layer, continued as the alveolar layer.	

The structure: white, fibrous tissue, cells, blood vessels, nerves, little elastic tissue and no fat. Thicker at the neck than at the root. Fibers of periosteum run downward and inward to the root, so the more pressure on the tooth the more tense the fibers. Structurally, there is one common periosteum for tooth and alveolus, the fibers at the cemental surface being looser than near the bone. The fibers attached to the bone are arranged into bundles; thus some parts are seen to be denser than others. In the reticular or cemental fibers, cells or osteoblasts are seen, and also at the bone surface. Corpuscles are also dotted all throughout the periosteum. The fibers of the periosteum at the neck blend with the fibrous tissue of the gum, and with the periosteum of the alveolar border. Pulpitis leads to periodontitis or periostitis by free communication from vessels of the gum.

Diseases of the Alveolar Dental Periosteum.—The principal one is inflammation (periodontitis), and its causes number at least seventeen, viz.: want of occlusion; malocclusion; tartar; looseness of teeth; induration of tooth-tissue; cavities of decay impinging on cementum; excess of filling material; pulpitis; extraction of pulp without hemorrhage; external irritation by forcible removal of pulp; enlarged foramen; putrescent pulp; previous periodontitis; action of medicines locally; contact with arsenic; morphin; action of medicines systemically; action of syphilis, fever, diphtheria, gout, rheumatism. Inflammation here is no different, pathologically, from

any other, but it has special symptoms because of its position. Rheumatic periostitis is acutely painful, does not lead to suppuration, and varies with the weather. In mercurial periodontitis the breath is very foul, and if mercury is continued the whole surface sloughs away, together with much of the alveoli. Strumous periodontitis tends to rapid suppuration, swelling and abscess, and is less painful. Periodontitis due to phosphorus fumes is apt to end in necrosis of the entire jaw-bone.

The varieties of periodontitis are:

1. Acute, sub-acute and chronic.
 2. Traumatic.
 3. Absorption of roots in diseased condition of the membrane and after injuries, transplantations, re-plantations, etc. When the membrane is healthy, no absorption of roots of permanent teeth takes place.
 4. Apical. Confined to the end of the root, following death of pulp.
 5. Gingivitis. Inflammation of peridental membrane at border from constitutional causes, as pyæmia.
 6. Calcic inflammation.
 7. Phagedenic. A specific infectious inflammation having its beginning in the gingival border, and accompanied by destruction of the periodontium and alveolar walls. Rigg's disease. Periodontitis may be local or general, the majority of cases being the latter.
- Repair of the peridental membrane is said never to take place by first intention, but always by granulation, which may begin in the tissue overlying the parts of the root, but the re-attachment creeps in from the injury where the peridental membrane is intact or from the extremity of the pocket above, and slowly covers over the denuded portions of a tooth. Sponge-grafting has been suggested to renew the gingival and lower border of the peridental membrane when lost from phagedenic periodontitis.

Periostitis, both acute and chronic, affects the jaws. The acute form is a dangerous one, as it so often runs into suppuration with consequent necrosis. It is only in the early stage that it can be recognized. The more chronic form is commonly connected with syphilis, and leads to the formation of nodes about the palate and enlargement of portions of the inferior maxilla, and it may be well to mention that many cases of persistent facial neuralgia, which are unrelieved by quinin, etc., yield to potassium iodid, and may be said to depend upon chronic periostitis or osteitis with, probably, pressure on the dental nerves.

Necrosis. This disease affects the inferior much more commonly than the superior maxilla, probably in consequence of its being less vascular. (Heath.) Beginning as periostitis from dental irritation, injury, action of specific poisons, the symptoms generally are, pain with pyrexia; part swollen, ingested; teeth raised and unable to bear any pressure. If immediately relieved by leeches, free incision, hot poultices, etc., the symptoms may subside and no further injury result; but usually pus will be found beneath the periosteum before the patient comes to you, and even then, though evacuated instantly, necrosis is usually the result. Luckily, necrosis sometimes only affects the external plate of the alveolus, so you get the teeth supported by the internal plate and you can keep them in situ; but when the entire alveolus is involved, the teeth loosened and

possibly useless, they had better be removed, as they only stop up the discharge. Do not attempt to remove sequestra unless you are sure they are completely loosened, or you may inflict injury on the surrounding parts and interfere with the process of repair, and this is especially the case with children in whom the second teeth are still undeveloped. The time of separation is difficult to decide on, for we must depend on the strength of the patient, and the extent and position of sequestrum. It takes usually about six weeks to three months before large sequestra can be safely removed.

Another form of necrosis is the exanthematous, so named by Salter. This name is applied to the diseases found in young children, usually after attacks of specific fevers, especially scarlet fever and small-pox. Necrosis of portions of the alveolus of either maxilla which usually occurs on both sides alike, or even when it involves the whole thickness of the lower jaw, is now taken as one of the sequelæ of these diseases; and possibly many cases in years gone by, thought to be due to calomel were solely due to the action of the specific poison. The repair of bone in necrosis of the upper jaw is a little different from that of the lower. No reproduction of bone takes place, the gap left in adults being permanent, though in children, the subjects of exanthematous necrosis, the granulation tissue is slowly converted into fibrous tissue, which does not as a rule ossify. In the inferior maxilla abundant new bone is formed by the periosteum, and for a time, at least, most extensive losses are repaired. It is certain, however, that in the course of years, a great, if not a complete re-absorption of new bone thus formed takes place, the patient being left finally with very little if any, support for artificial teeth. Prof. Salter has suggested that the early application of artificial teeth would tend, by use, to strengthen and maintain the permanence of the new bone; but I believe there are no facts to support this view.

The action of the fumes of phosphorus is well known to cause necrosis, but is less common now than formerly, on account of the substitution of red amorphous phosphorus for the yellow variety. It only occurs when the teeth are carious and the jaws in an unhealthy state. Those with carious teeth who work with phosphorus are always affected, and the necrosis is violent and rapid. The disease may begin as osteo-periostitis which rapidly ends in necrosis, or it may begin by osteo-plastic inflammation, swelling, profuse and offensive suppuration of the soft parts, attended with pyrexia. These symptoms are sometimes followed by gangrene, erysipelas and death. Sometimes the removal of the sequestrum is followed by recovery. The whole jaw is usually involved, the callus lying between the sequestra. The notable point to be observed in phosphorus necrosis is the peculiar deposit of pumice-like bone, which takes place upon the sequestra. This no doubt comes from the periosteum, although so closely adjoining the sequestrum as to be almost always brought away with it; and though resembling true bone in some particulars it is a little lower developed form of bone. A deposit closely allied to this, however, has been noticed in cases in which there was no phosphorus involved, and it would appear that, in some instances, possibly of rheumatic origin, the deposit of new bone partakes of this character.

The action of mercury can be briefly mentioned

here: it injures the teeth in two ways: by salivation and by the graver injury, the production of honey-combed teeth, which is often confused with the effects of inherited syphilis. Honeycombed teeth are the result of mercurial treatment during the period when the enamel is being calcified (*J. Hutchinson, Path. Soc. Trans.*, Vol. XXVI, 1875, pp. 235 et seq.). The two affections have been discussed by Mr. Hutchinson together, and because they are coincident with ophthalmic changes and the question of mercury occurs in both, much confusion has arisen. Below is briefly contrasted and tabulated these conditions:

HONEYCOMBED.

1. Are peculiar only in the latest formed tissue, the last layer of enamel.
2. Perfect at birth, become affected after a year or so.
3. Are coincident with lacerated, carious, indurated pits, and mercurial treatment.
4. The teeth that suffer most are the first permanent molars.
5. The general form of the teeth is unaltered.

SYPHILITIC.

- Are most peculiar in the earliest formed tissue, the last formed enamel being usually perfect.
- Are imperfect from earliest germ stage.
- Are coincident with interstitial keratitis, inherited syphilis, and have nothing to do with mercurial treatment.
- The teeth that suffer most are upper incisors.
- The form of the teeth is profoundly modified.

Mercury, as a rule, on the deciduous teeth is a lasting injury, but on the periosteum in adult life it is transient unless long continued. In mild cases, in addition to periostitis, there is a profuse flow of saliva, a mercurial fetor of the breath, with later on swelling and sloughing of the alveolus and gums, upon which in severe cases a whitish membrane appears; this is at first lightly attached, but later is adherent, and it is *underneath this* that ulceration of the gums takes place. The teeth soon loosen and are lost, and in very bad and neglected cases the whole surface sloughs away, together with much of the alveoli, and necrosis of the whole jaw may result and we have mercurial stomatitis.

Periostitis due to rheumatism will very likely pass away, especially if much affected by the weather, but it is often difficult to persuade a patient to retain a dead tooth which keeps up this periodical irritation. For these cases, what treatment can be given other than systemic remedies, counter-irritation, warmth, and patience?

Periostitis due to syphilis or struma is not so easily disposed of, for it usually progresses to the worst degree. Salivary calculus, if removed in time, will scarcely ever cause dangerous periostitis, but the seroma is a great deal more likely to set up and prolong irritation to such a degree as to cause exostosis and its concomitants; and as we can seldom remove it unless by extracting the tooth and scraping the deposit from the ends of the roots and replanting, the prognosis is not at all favorable. When due to the last stages of pulpitis, misapplication of arsenic, the chances of recovery for the tooth are smaller.

Before noting the diseases of the maxilla, it will be well to allude briefly to a disease of the alveoli, pyorrhea alveolaris or Riggs' disease. We are all very well aware of how little is known on this subject, and of the theories advanced. Why should we classify this as a special disease all by itself, instead of following a more logical course and regarding it as a pure periosteal one, for its pathology can be best understood if it is regarded as a form of osteo-periostitis, even though it is confined to the alveolus—in fact a final stage of periostitis, as the effect upon the teeth is entirely secondary and consequent upon their separation from the soft parts. In its symptoms and characters, both macroscopically and mi-

croscopically, the course it follows and its amenability to various forms of treatment, it presents no special phenomena to distinguish it from simple caries of bone, save that the latter disease is almost always associated with an impaired condition of the general health. In this respect, and in the absence of fever, pyorrhea alveolaris more closely resembles Sir James Paget's osteitis deformans, concerning which I quote the following: "The surrounding gum becomes spongy, deep red, and sometimes tender; it separates from the neck of the tooth, while at the same time the periosteum suppurates and discharges pus, which is continually oozing out around the necks of the teeth and can be generally pressed out in great quantities. It is extremely chronic, begins generally in early middle age, and may continue for an indefinite time without influencing the general health. The early stages of the disease are sometimes attended with pain varying widely in severity. The breath is usually foul, the roots covered with irregular granular masses of greenish or blackish tartar, the discharge offensive and the whole mouth tender." The causes are not easy to find in all cases, but they are similar to those which cause periostitis. Injury of any sort to the periosteum, as cold, a blow, or excessive bite; a strumous or syphilitic diathesis seems often to coexist.

The treatment should be based on surgical and medical principles, allowing for location, exactly like caries of bone, where the use of steel instruments is usually contra-indicated on account of the further injury which is likely to ensue. Unfortunately, our knowledge has been handicapped thus far by regarding this disease as a purely dental one, confined to dental tissues, instead of a surgical bone disease. The more the disease was regarded as dental, the more did we forget that the alveolus was only ordinary bone, subject to the same changes as any other bone, and having just as unsatisfactory treatment as caries has wherever it occurs.

NECROSIS CONTRASTED WITH CARIES.

NECROSIS.

1. *Path. of Compact Tissue.*—Blood vessels are better supported in compact bone and less liable to passive congestion, but from the narrowness of the canals they are quickly strangled by the pressure of the exudation and so the bone is rapidly and completely deprived of vitality.
2. *Refract of Probe.*—A probe is suddenly arrested by striking against hard bone, without giving rise to pain.
3. *Nature of the Discharge.*—Is mostly purulent.
4. *General Effects on the System.*—Are comparatively healthy often febrile and florid.
5. *Cause.*—The more acute, local injury or constitutional is acute specific fever, the more likely is inflammation to end in necrosis.
6. *In Syphilis.*—Both are frequent.

CARIES.

1. Most common in cancellous tissue. Here is room for dilatation and exudation without their causing a sudden stasis in the vessels.
2. It is felt to pass through soft inflamed bone and this is quite sensitive.
3. More watery or serous and has a greater amount of lactic acid.
4. Small; or large, pale and edematous.
5. In serofula, caries is most common.

Under the head of hyperostosis we will group cases in which general enlargement of the maxillary bones occurs, without any tumor which could be properly placed among the osteomata. Enlargements of the angles of the inferior maxilla quite apart from the development of the teeth, and giving a peculiarly broad appearance to the face, occur in otherwise healthy subjects of about twenty, and they appear to be stationary. In true hyperostosis, however, there are always large nodules of bone, often symmetrical, thrown out by the bones of the face and cranium, which slowly but steadily increase in size, producing

hideous deformity and finally causing death. Heath has operated on some cases where the disease was unilateral, with good success.

Cysts occur in both jaws, either single or multiple. Their origin is probably in the cancelli of the bone, and is in many cases due to irritation caused by neighboring teeth; a cancellous being filled with fluids, expands, and produces a gradual absorption and obliteration of neighboring cancelli until a cyst of considerable size is formed.

The multilocular cysts of the inferior maxilla appear to be more closely connected with the teeth than the single cysts, since in many cases the extraction of teeth or stumps gives exit to a quantity of glairy discharge. Distension and absorption of the alveoli go on as the cysts increase in size, so that the walls at length become membranous and the macerated bone shows great gaps in outline. A remarkable point is the length of time over which they may extend without injuring the patient except by inconvenience.

Tumors, Neoplasms, Non-Malignant.—Fibromata of the jaws resemble fibromata of other parts, but they have two origins; the periosteal, springing generally from the alveolus, and indistinguishable except by its size from epulis, and the endosteal, which springs from the interior of the bone and in the upper jaw, generally makes its way into the antrum and nasal cavities, or in the lower jaw expands the inner and outer plates of compact bone. Fibromata seem to owe their origin, in many cases, to the irritation of decayed teeth, which may sometimes be found embedded in the growth or displaced by it. The growths produce absorption by pressure, and may in this way destroy a great deal of structure.

Epulides are of two kinds, fibrous and sarcomatous. The fibrous epulis starts from the periosteum of the jaw, and is covered by the epithelium of the gum. The growth consists of long fasciculi of white fibrous tissue, which have a radiating arrangement, in many cases, from the point of growth; the most noticeable feature is the length and slenderness of the fibrous fasciculi and their loose felted arrangement. Epulides depend for their hardness on the amount of fibrous tissue they contain.

Angiomata may also occur, and I know of one case growing from the posterior wall of the antrum, which was diagnosed as osteo-sarcoma by a most competent physician and surgeon. The true nature of the growth is shown here by two microphotographs, taken from the specimen before it was hardened, and it will easily classify itself into a fibro-angioma showing two distinct kinds of structure, the fibrous and the angiomatous, thus accounting for the excessive hemorrhage which occurred during the operation. It is well to remember that we may have both simple, cavernous, lymphangioma and angio-sarcoma.

Enchondromata are less frequent in occurrence in the jaws than fibromata, and like them may for convenience be divided into periosteal and endosteal. The disease usually appears early in life, springing from the surface of either jaw or from the antrum or the interior of the lower jaw, and has a more steady and rapid growth than fibromata. In the case of the superior maxilla the growth is more tuberos, and is apt to send off processes into the fissures and cavities of the skull, giving rise to great deformity. Enchondromata as regards their micro-

structure vary greatly, and we must prepare for many enigmas in studying them. Whenever chondroma is associated with sarcoma it seems to take an erratic course; when, however, a pure chondroma is found, it is always more near the normal type of cartilage. All the chondromata are very liable to calcification, and they sometimes undergo a softening process and small cysts form in them.

Osteomata are a further step in the development described under chondromata. They are formed from newly-developed connective tissue, and it is a fact which distinguishes them from so-called ossified inflammatory products. After decalcification under the microscope they resemble true bone, and like it, can be divided into hard and cancellous. Many, however, vary a good deal from the normal type, especially the hard variety, which is sometimes extremely dense.

Osteomata have been described as primary growths, but are extremely rare. True bone is sometimes found in cartilaginous and fibrous tumors, and also in sarcoma, as the myeloid variety. The cancellous osteoma is the simplest form, and due usually to a misplaced tooth; and the fact that numerous serious operations have been performed in these cases, should make every one extremely careful in their diagnosis. The growth is slow and reaches a large size, but when removed by section of the healthy bone it shows no tendency to recur.

Under the term, cystic sarcoma, many varieties of growths were classed and by some authors termed a variety of epithelioma (see Mr. Eve, in Erasmus Wilson Lectures for 1882), but they differ so completely from the ordinary form, as to rapidly and recurrence after removal, that as yet further observations must be made before any decision can be arrived at.

The largest and most dangerous class of growths met with are the *sarcomata*, divided into three classes by the shape of their cells; *a*, round; *b*, spindle; *c*, myeloid. And these have again a number of modifications and varieties. As the general features are so well known, little or no description will be given beyond a few points of interest which may occur in them. The spindle-celled sarcoma is quite frequent, forming many of the specimens so indiscriminately named "osteosarcoma." A point worthy of notice in the recurrent growths is the tendency to become softer with each recurrence, and the patient dies, worn out, with rarely secondary deposits in internal organs.

Round-celled sarcoma has unfortunately not been clearly defined in oral surgery until the progress in pathology became so marked, and even now it is often named wrong. It is still called encephaloid sarcoma of Cornil and Ranvier and others, when we to-day usually regard encephaloid not as of the sarcoma but of the carcinoma group, as it originates from glandular epithelium. Many of the cases called "medullary" cancer of the jaw belong to the class of round-celled sarcoma. Myeloid sarcoma, originally described by Paget, is very common, and found in connection with the alveolus, forming the so-called myeloid epulis, and also in the interior of the lower jaw. The growths vary enormously histologically. In the first place, they are named from the large cells they contain, which are called myeloid cells, found in the marrow of bone, and usually are known by their red color, resembling raw beef, and are named by Butlin

a mixed-celled sarcoma. In connection with the pure form of myeloid sarcoma we have myxomatous tissue and bony formation or ossification closely combined. The ossification is usually a peculiar shape, the material formed resembles decalcified bone, and contains no lime-salts. By using double and triple staining processes the different reactions in the normal formation can be made out very nicely, and the lime deposited by each individual cell, but in the sarcomatous form of ossification it so far has not been shown. The ossifying process must not be confounded with cases where the growing sarcoma has decalcified the bone in its immediate neighborhood; this is sometimes the case, especially in bones like the scapula, and portions of this in the middle of a sarcomatous growth will cut like fibrous tissue without any decalcifying process. Under the microscope this can readily be made out; the lacunae in them are larger and often empty, and there are no osteoblasts on their free edges. That sarcoma has a decalcifying power is seen in China, where the jaws of horses are often attacked and so softened that you can cut through them with an ordinary knife, just like cutting a piece of cheese. Myeloid sarcoma also forms one kind of epulis, and care must be taken in making a diagnosis.

Besides these forms, we have alveolar sarcoma, which is a rare and unsatisfactorily described growth. By Wedl it is called "a fibrous form of cancer arising from bone," and should be included under cases hitherto given as scirrhus of bone, which is not strictly correct.

Fibro-sarcoma grows beneath the periosteum, and closely resembles fibroma.

Chondro-sarcoma is a mixed growth, and occurs in both jaws, and frequently leads to secondary deposits in the lungs.

Ossifying sarcoma has been classed for greater convenience under the enchondromata and osteomata and myeloid sarcoma.

Finally, we have to consider carcinoma, which for convenience has been classed as follows into two groups, according to the character of the cells from which they are formed:

Superficial epithelioma; squamous epithelioma.

Glandular epithelium; *a*, columnar epithelioma; *b*, scirrhus carcinoma; *c*, encephaloid carcinoma.

Carcinoma affecting the jaws is only epithelioma of the squamous and columnar form. The first variety developing primarily in the mucous membrane of the palate and gums; the columnar form beginning in the antrum or nose. The two forms rapidly invade all the tissues, even to the bones. When squamous epithelioma begins in the palate or gums it is very often not noticed, and its nature is often mistaken at first. Beginning as a small ragged ulcer, it is often attributed to decayed roots or secondary syphilis, etc., and only locally treated. Ulcer of the palate of an epitheliomatous character is more frequently attributed to tertiary syphilis, and even large gaps in the hard palate caused by epithelioma are supposed to be the result of a broken-down gumma. By involving the subjacent bone, necrosis is induced in the course of an epithelioma, and here again error may arise if the presence of bare bone be regarded as pathognomonic of necrosis, without considering the cause.

Much information and profit can be gained by consulting the following works, to which I owe much

information, especially the valuable works of Prof. C. Heath:

BIBLIOGRAPHY.

- Heath, C., *Injuries and Diseases of the Jaws*.
 Heath, C., *Lectures on Two Certain Diseases of the Jaws*.
 Heath, C., *Dictionary of Surgery*.
 Butlin, *On the Tongue*.
 Paget, *Surgical Pathology*.
 Paget, *Surgical Pathology*.
 Ziegler, *Pathological Anatomy*.
 Eyr, Erasmus Wilson Lectures, 1882.
 Sutton, J. Bland, *Principles of Pathology*.
 Garrison, *Oral Surgery*.
 Tomes, *Dental Surgery*.
 Tomes, *Comparative Anatomy*.
 Sutton, J. B., *Trans. Odont. Soc.*, 1884, etc.
 Wedl, *Pathology of the Teeth*.
 Adams, *Path. Soc. Trans.*, Vol. XII.
 Hutchinson, *Path. Soc. Trans.*, Vol. VIII, p. 380.
 Salter, *Dental Pathology and Surgery*.
 Salter, *Toy's Hospital Reports*, 1886.
 Journal, Brit. Dent. Assoc. (Malassez),
 Dental Cosmos.
 American Text-Book of Surgery.
 Black, J. V., *Dental Periosteum*.

DR. J. S. MARSHALL said the paper was an excellent one, and the author deserved the thanks of the profession for preparing it. Discussing the paper he said that it was often difficult to distinguish certainly malignant growths in the jaws, but he thought it best in cases where there was any real doubt to cut away tissue, though it may be benign, rather than take the chance of letting a malignant growth increase and so endanger the life of the patient.

The tumors most frequently seen are called epuloid, and he thought the one described by the essayist to have been of that character. These are not usually malignant, but they sometimes take on a malignant character. He could not account for the great swelling in connection with a tumor of this size. Dr. Latham had asked him about it and he had told her he had not seen such a case; however, she had been informed by other dentists that it was common. His treatment would be the immediate and thorough removal of such a tumor for fear it would take on a malignant growth.

DR. TAFT asked how long it had been since the tooth was removed?

DR. LATHAM answered: "In February; no other tissue was removed, the tooth came away quite easily, and the cavity healed up very nicely."

DR. TAFT said this emphasizes the danger of making more of a case than belongs to it. If the parts returned to a healthy state it would eliminate any idea of malignancy. In diagnosing and treating such cases, much attention should be paid to the physical characteristics of the patient. If his condition is generally good, it is safe to consider that the tumor is of a benign character, while a tumor of the same appearance and character in one whose system was diseased would probably take on a malignant character. He had been called upon to assist a physician to remove what the physicians called an epulis. To his surprise, the physician removed the cuspid and bicuspid teeth, then took a saw and cut out a notch including the sockets of the two teeth. His own treatment would have been to have considered the growth a little insignificant benign epulis, and he would have removed it with a pair of scissors. He spoke of several cases in his own practice of the kind, and said it was well not to be too hasty in pronouncing a growth of this character malignant. The growth, origin and causes should be studied, and the case kept under careful observation for some time.

DR. MARSHALL said the only positive way to diagnose a tumor is by the microscope. When the tumor is large enough and of such a character that a piece can be cut from it with the scissors he examines it himself, and has it examined by some one in whom he has confidence, and if it is pronounced malignant then he removes it, going deep enough to be sure to remove all the affected tissue. By prompt and thorough removal the life of the patient may

he saved, but if operation is deferred until the disease has invaded the glands the growths will return at the same, or at some other place, and the life of the patient will not be for long. He related the case of a patient, a man about sixty years of age, with an epuloid tumor between the first and second bicuspsids on the right lower side. There was considerable ulceration, involving gums and cheek, almost to the corner of the mouth. On examination it was pronounced an epithelioma. He made a most thorough operation, removing three teeth, the alveolus down to the dental canal, and part of the cheek. The parts healed nicely; the wound in the cheek by first intention, and fifteen months having passed since the operation, there has been no recurrence of the growth. He, however, expected that if the man lived a few years it would recur, either where it was before or in some other place.

DR. TAFT said that the class of patients operated upon in general hospitals was so far below the class that a dentist or physician would have in his private practice, that it was not safe to accept what was true of one class as applying to the other. Hospital patients were to a very large extent little more than wrecks, their whole system broken down by poverty, vice and disease, no vigor or recuperative power, and a disease which could be safely handled and cured under better circumstances was well nigh hopeless with them.

He spoke of a case in his practice, of a girl with a tumor on her jaw as large as a pigeon's egg. Relief was sought because of the rapidity of the growth. Upon examination Dr. Taft thought it not malignant. Two surgeons were consulted. The first one after a careful examination said he could not decide; the second after looking at it two minutes said it was malignant and unless the whole side of the jaw was removed the girl would die of it. The decision arrived at, however, was to merely remove the tumor and carefully watch the case. Some time after the tumor returned and electrolysis was used, and it entirely healed up and never returned. If the advice of the surgeon number two had been taken and the girl's jaw sawed away, she would have been mutilated for life. He spoke of the great importance of the dentist being able to judge of the characters of such growths. They came under the notice of the general practitioner. The best manner of removing them when small and of a favorable shape was by a ligature. This is painless and saves what sometimes would be an alarming loss of blood. The patient should be carefully treated before and after the operation so as to get and keep the system in the best possible condition.

DR. E. S. TALBOT spoke of the growth of secondary dentine as shown in the case of which Dr. Latham spoke. These growths were difficult to diagnose and they produce periostitis and neuralgia. They are most frequent in the pulp chamber and root canal, and neuralgia results. The only treatment is the removal of the tooth.

DR. J. S. MARSHALL spoke of the formation of calcific deposits in the pulp chamber, and said that, at a rule, peripheral calcifications do not give any trouble, but the interstitial form always makes trouble. One reason that they are difficult to diagnose is that the patient can not place the seat of the trouble, though sometimes the tooth feels big.

DR. A. E. BALDWIN said that it was best when in doubt to treat an epuloid growth as if it was malignant, as it was better to go too deep than by taking the other course to endanger the life of the patient. We should, however, take advantage of the knowledge of other physicians when attainable, and above all other things fit ourselves to be able to discriminate by a wider and deeper course of study and research. The whole field of microscopy is opened by such a subject as this, and it is only the intense and rapid

student that can take advantage of the facilities for learning that come to our hands. He spoke of a case of "crown which he thought was a simple harmless growth, but took advantage of the offer of a friendly microscopist to examine it when it was found to be malignant, and so he operated accordingly.

DR. LATHAM in closing the discussion, said that there were some dentists who never looked further than the tooth, they were working on, and she thought they should be more careful to examine the whole mouth and note every appearance of disease, thereby serving their patients better. She spoke of a case in her own practice where she had discovered an epithelioma, which would be removed by a surgeon. She thought that it was dangerous, however, for a dentist to undertake the treatment, by means of caustics or other remedies, of growths in the mouth unless they had sufficient knowledge to discriminate between harmless and malignant tumors.

SOME SUGGESTIONS AS TO THE RELATION OF THE TEETH TO EMPYEMA OF THE MAXILLARY SINUS.

Read in the Section of Dental and Oral Surgery, at the Forty-fourth Annual Meeting of the American Medical Association.

BY M. H. FLETCHER, M.S., M.D., D.D.S.

CINCINNATI, OHIO.

In this paper the anatomy, pathology and treatment as usually given by authors on disease of the antrum of Highmore will be largely omitted, since the disease of this cavity is a subject much written upon and consequently these points must be familiar to all who have given the subject any considerable attention. It is desired, however, to deal principally with the etiology, believing that if the cause of the disease is correctly diagnosed, the treatment is comparatively easy.

Authors and practitioners seem to be divided into two classes viz., those who believe that diseases of the maxillary sinuses are most frequently caused by dental lesions, and those who believe that they are more largely due to intra-nasal disorders. The latter view is held by Zuckerkandl, Schifflert, Chatallier, Krause and Bosworth.

Those who look more largely to the teeth as a cause of trouble are Lewis, Baratoux, Noquet, Boucheron, Garel, Gele, Beverly Robinson, Lennox Browne, Garretson and Tiffany. In "American System of Dentistry" (page 562) Tiffany says in regard to disease of the antrum: "It is not met with as an idiopathic affection; it occurs as the result of injury, and as an extension from a diseased tooth. The first and second molars are the most likely to act as the inciting causes, as their fangs project into the floor of the antrum."

In treating of the diseases of the antrum, Lennox Browne says: "The cause is almost invariably an alveolar abscess, which has extended into the antrum through a natural connection with that cavity. As in the case of the first molar tooth or breaking down of the slight bony partition in some of the other upper teeth."

Bryant in his last edition says: "Suppuration of this cavity is often due, doubtless, to the extension of inflammation from the teeth."

These quotations are a fair sample of the words of most of those men who claim that antral troubles come largely from the teeth, and it would seem that they copy largely one from another. This I deem to

be a defect in many of our text-books; many men copy from previous writers or write for experience instead of *from* experience thus leaving us without additional knowledge.

Those writers of contrary opinion cite many pathologic conditions of the intra-nasal tissues as the more frequent cause. Among these causes are new growths, catarrhal inflammation, acute and chronic, and stenosis of the osseum maxillare.

It is not proposed to go largely into the etiology of the intra-nasal troubles, but give attention more especially to the claims of those who blame the teeth for these disorders. The writer's views coincide with those of Zuckerkandl, Schifflert and others who believe these antral troubles are more largely caused by intra-nasal disorders, and I wish herewith to present evidence for such an opinion.

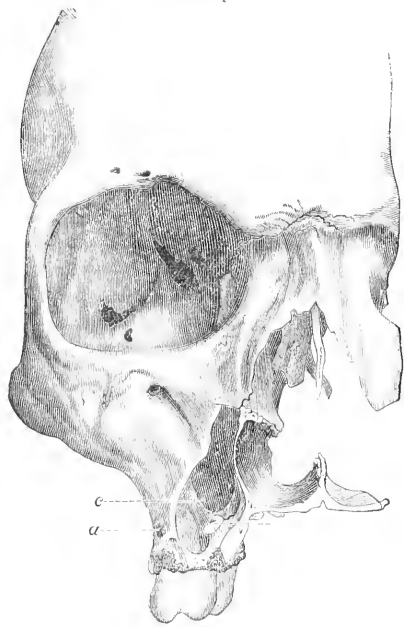


Fig. 1.

This opinion has been arrived at after some years of experience, in addition to the examination of *one hundred skulls*. These skulls were examined with special reference to the relation of diseases of the teeth to the antrum. It is known that the anatomy of the antra of the superior maxillary bones and their nervous supply is such that there can be no disease by reflex action from one to the other as occurs, for instance, in sympathetic ophthalmia, consequently these cavities are dealt with as separate organs. The statistics then would show two hundred antra, instead of one hundred. These skulls were examined for five particular points, viz.: 1, for abscessed teeth; 2, for septa; 3, for conical protrusion of the roots of the teeth into the antrum; 4, for perforation by the roots of the teeth without protrusion; 5, for perforation of the antrum from ulcerated teeth.

1. As to abscessed teeth and the connection of such abscesses with the antrum. Only such teeth are mentioned as might most easily produce antral

trouble, viz., the three upper molar teeth, the bicuspid and canine teeth being too far forward to be counted in these statistics. I might say, however, that in a number of these skulls evidence of ulceration was found in the bicuspids and canine, with no apparent connection whatever with the antra, save in one case. As to the molar teeth, ulceration was found in more than 25 per cent of the cases; there being in these two hundred examinations, fifty-seven ulcerated teeth, and out of these *fifty-seven possible cases* of perforation by inflammation and its results, we found such to be the case *only four times*; all other cases having perforated the alveolar border and discharged the pus into the mouth, two of them discharging both in the mouth and in the antrum, as is evidenced by the specimen No. 1 (See Fig. 1-b)¹

This does not show a very large proportion of cases

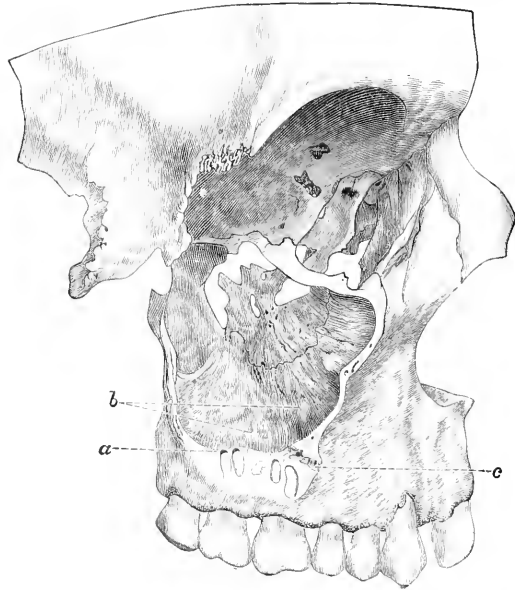


Fig. 2.

where antral trouble has come from the teeth, being less than 8 per cent. in fifty-seven possible cases.

In addition to these figures, I wish to offer as negative evidence, statistics from my own records in regard to the relation of these diseases of the teeth to the antrum, as they have come under the writer's observation. I have in the past 10 years treated 916 cases of pulpless teeth. Two hundred and twenty-four of these being superior molars, which, according to the authors named above, could and probably would have caused inflammation or pus in the antrum of Highmore. Out of this number, from my own records, only one had pus in the antrum as far as examination could tell; and this is the only marked and certain case of empyema of the maxillary sinus caused by the teeth that I have seen.

I have, on the other hand, treated a case in which

¹NOTE.—It is so difficult to reproduce these sections by cuts, that the specimens themselves must be seen, in order to thoroughly comprehend many of the points referred to in the paper.

the teeth were made pulpless by a diseased antrum, and this I believe to be a condition more frequently brought about than the reverse, from the fact that some of the teeth in the skulls examined, perforated the floor of the antrum with no protuberance, septa or other covering save that of the mucous membrane. (See Figures 1 and 2.)

Such perforation I have found in eight cases, which number I believe to be smaller than it should be, could all cases have been thoroughly examined for minute openings. It must be evident that the mucous membrane covering the apices of such teeth, if diseased, could easily cause the death of a tooth by destruction of its blood and nerve supply, which, in its turn, would produce a dental abscess or inflammation about the roots of the tooth, thus producing a difficult case to diagnose. The possibilities are that such diseased teeth having been found connected with the antrum, the teeth have borne the blame instead of the diagnosis having been properly made, and the opinion has prevailed that diseased teeth are largely the cause of antral trouble instead of the result. In order that these cases can be properly diagnosed, they must needs be examined by one thoroughly familiar with alveolar abscesses, and the causes leading thereto, which I claim very few persons can do who are not experienced dental practitioners of acute and accurate observation.

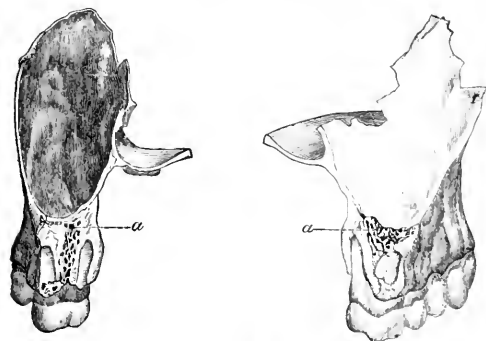


FIG. 3.

It would seem that these teeth whose roots perforate the antrum, where there is usually neither septa nor protuberance over the roots of the teeth, are more likely to cause the trouble in question than those which show the tubercle above the roots. This protuberance in question (pictured by Zuckerkandl, and copied by Bosworth, photographs of which cut I show you), (See Fig. 4) seems to be the prevailing idea of the relation of the teeth to the floor of the antrum, but which from my own observation is quite erroneous, never having seen but one case which approaches this condition. (See Fig. 1-a.) You can readily see these tubercles are not in the center of the floor, nor in direct line, nor is the floor flat for their reception, as Zuckerkandl's picture shows it (See Fig. 4), consequently his illustration seems ideal rather than true to nature. It would seem the rational thing (if we are to treat diseases successfully) to first know the anatomy of the parts, then we have the true foundation upon which to build our idea of the pathology. These two points being founded on the truth, our treatment is compara-

tively easy; whereas if we proceed on an improper conception of the anatomy we are endeavoring to treat imaginary things, and it is only through nature's kindness that our patients recover, for nature follows unchangeable laws.

Some further observations made in regard to the floor of the antrum are as follows: in about 25 per cent. of the cases examined, small septa or ridges were found to cross the antrum (See Fig. 2). These ridges you will observe have no relation to the position of the roots of the teeth, although in some cases they were found to come directly over the roots in place of the tubercle, as pictured by Zuckerkandl.

Another evidence can be presented to show that abscessed teeth do not frequently break into the antrum or cause any trouble there whatever, by taking into consideration the amount of cancellous tissues found about and above the roots of the molar teeth in almost every case. By examination of this section (See Fig. 3-a), it will be observed that the diploë or cancellous bone about the roots of most of the teeth affords quite ample space for the products of inflammation. These spaces being filled with soft tissues, like marrow, easily take on inflammation and the products of inflammation may largely displace them. Again, when we have inflammation in this cancellous tissue, and about the apex of the

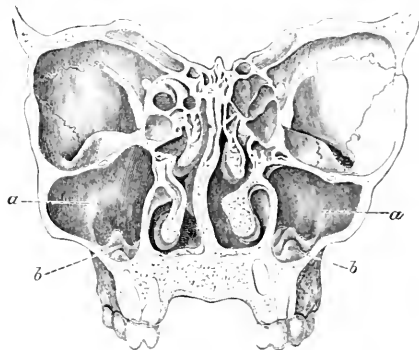


FIG. 4.

root, we have the periodontal membrane largely involved. This of itself gives way, as is evidenced by the lengthening of the tooth, and the products of inflammation may easily push down the side of a root and also easily perforate the alveolar process. The alveolar process on the buccal surface over the roots of the teeth being very thin (and often absent in spots), would be quickly perforated; whereas the floor of the antrum is usually thicker and of a dense bony character, consequently it would not be perforated as quickly as the alveolar process; and it seems in these cases that the periodontal membrane is very largely affected, which is evidenced by the examination of the sockets and bone where there has been an alveolar abscess; this is readily seen in specimen 1 (See Fig. 1) which you have already examined for another point. This specimen shows the evidence of a perforation in three separate places, one for each separate root, the two buccal roots having discharged the products of their inflammation in the mouth, and the palatal root opening into the antrum at the apex of the tubercle. This antrum

also has a more distinct septum than most that were examined, although I found four or five septa that were even larger than this.

I found one case of which I especially wish to speak, and which has already been mentioned. Skull No. 81 of my examinations has evidence of the worst trouble I found from alveolar abscess. In this case the roots of the canine, the first and second bicuspid, and palatal roots of the first molar were involved. A cavity had formed in this case reaching from the lateral tooth back to the first molar, and from the alveolar border to the summit of the canine fossa, measuring about an inch in diameter.

A septum seemed to have formed or had already been formed between this cavity and the antrum, completely isolating the antrum from any connection with the trouble, although the palatal root of the first molar was involved; yet there seemed to have been no connection of the disease between this tooth and the antrum, although the floor of the antrum could easily have been perforated through the socket of the buccal roots of this same tooth. If there was a discharge from this molar at all it showed no evidence in the antrum, but did show evidence in this external and anterior cavity, which seemed to have been the result of chronic inflammation and collection of pus.

In regard to the proper place to perforate the antrum from the mouth when demanded: after taking the anatomy of the parts into consideration, it would seem that for several reasons the opening should be made between the apices of the second bicuspid and first molar.

1. Because this locality is the most accessible.

2. A perforation here does not interfere with the blood or nerve supply of either tooth.

3. By raising the lip well, and slanting the drill upward and backward, you are sure to strike the floor of the cavity almost at its lowest point.

4. If a tube must be inserted, in this position it will be held somewhat in place by the lip, whether the teeth are present or absent.

The summing up or rationale, then, of the evidence herewith seems to be:

1. That the anatomic relation between the teeth and the antrum is not generally understood, since the sections here shown give evidence of much more cancellous bone than is usually considered to exist.

2. Small septa are present in a large per cent. of cases, and these septa or ridges have no direct relation to the position of the teeth.

3. The evidence seems to indicate that the protrusion of the teeth into the cavity is very largely the exception, instead of the rule, and that if they do protrude it is not evidence that an alveolar abscess would break there, since these tubercles are usually formed of dense hard bone.

4. A number of cases have been found where there is a perforation of the bone by the apices of the teeth and no protrusion, but that these apices are simply covered with mucous membrane; thereby the teeth may be affected by inflammation of the antrum, causing their death and loss, or a continuance of the trouble in the antrum by their presence in consequence of this special feature of the anatomy, and that pulpless and inflamed teeth are thought to be the usual cause of antral trouble where the reverse is often probably the case.

5. Statistics seem to show that a very small per

cent. of abscessed teeth have any connection whatever with the antrum. This per cent. probably not being over seven to ten.

6. That seemingly the best place to perforate the antrum for pus, is between the apices of the second bicuspid and first molar.

Since writing this paper, I have examined an additional 400 skulls and find the figures changed in regard to the per cent. of abscessed molars which were connected with the antrum. In 500 skulls (*making one thousand antra*) I find 252 upper molars abscessed. Making 25 per cent. of antra which have abscesses in this locality or every fourth antrum; this per cent. is probably smaller than it should be, since many teeth were lost and the alveolar process absorbed away and undoubtedly some of these lost teeth had been abscessed; out of these 252 possible cases, perforation into the antrum was found only 12 times, thus showing over 4½ per cent. or about one in every 21 of the abscessed teeth in this locality which communicated with the antrum.

DISCUSSION.

DR. TALEOT said, having in the last fifteen years made over twenty thousand examinations of skulls, he had found some of the conditions noted by the essayist. Of the skulls of civilized persons he had noticed many of these separations of the antrum, but he had never seen such in ancient skulls or the skulls of pure races. There is a state of things not brought before you by the paper; it is arrest of development of the bones of the face. This is a condition very common in civilized cities especially. In these cases the antrum is about half the size of the antrum in pure races, and it is such cases where protrusions occur as shown in the specimens exhibited. He said he would like to ask how the treatment would be carried out where a septum nearly closed the cavity? Would there not have to be two openings? There is much variation in the shape and size of this cavity in different skulls and it would be well if they were classified as to shape and size and other peculiarities. He had found a number of cases where the opening from the antrum into the nose had been closed up, owing to the arrest of development of the bone.

DR. LATHAM said every one knows the difficulty of deciding where to open into the antrum, but she thought the best place was from the socket of the first or second molar, when these teeth are missing or can be extracted. A good way to get rid of the pus, when the patient will help you is by means of constant irrigation, that is by washing out with the syringe ten or a dozen times a day.

DR. CLIFFORD said he was impressed with the desirability in cases of antral trouble not to depend upon local treatment. In many cases by treating systemically and getting the system in first rate condition the catarrh will dry up without other treatment. In cases of purulent secretions of any nature, or affecting any part of the system, constitutional treatment is of the greatest importance.

DR. FLETCHER in closing the discussion, said that he had not aimed at going into the question of treatment in his paper, but had wished to present the case in a pathologic and anatomic light. We should find out what a diseased condition is before we undertake to cure it. In regard to the septum in the antrum, he said if the perforation was made just where indicated, and the patient assumed a horizontal position, every part of the antrum would drain, except in a case where the septum extended clear or nearly across, when of course there would have to be another perforation. If the first molar is absent the best place for the perforation would be through its socket. In every case he had examined, this would enter the antrum. In treatment he favored both constitutional and local treatment. Some cases are very tedious. He had one now which he had been treating for five months and it was not cured yet.

SYSTEMIC MEDICATION IN DENTAL PRACTICE.

Read in the Section on Dental and Oral Surgery, at the Forty-fourth Annual Meeting of the American Medical Association.

BY EDGAR PALMER, D.D.S.

LA CROSSE, WIS.

Let us consider first our specialty in its physiologic and pathologic aspect.

It is supposed that all who are associated with this Section are of the opinion that "dentistry is a specialty of medicine."

It is sufficient for me to base my remarks upon the simple fact that an all-wise Creator has given man organs of mastication much after the same manner and for an equally important service as the organs of hearing and sight, and these organs being subject to abuse, disease and functional derangements, thousands of persons are required to devote their lives to their care and treatment. I am aware it is asserted that this great army of scientific men are, by the mechanical character of their methods, too far removed from the province of general medicine to be entitled to the privileges accorded to the oculist or aurist in giving attention to functional disturbances remote from organs over which they have special charge. I confess that my eyes are too weak to see the distinction, and my ears too dull to hear the voice of duty calling louder in one case than another. All the ambition and desire of the last years of my school life was centered upon the one thought of some day entering upon the practice of general medicine and surgery. An empty purse obliged me to take up something else, and as a temporary expedient I took my place at the foot of the ladder upon which the dental profession was then slowly climbing toward the distinguished eminence which it now occupies in the department of science.

The status of dentistry to-day is most gratifying. For many years every force and pressure of intellectual progressive effort has been brought to bear upon the creation of a higher standard of qualification; and while we have done much, there is opportunity to do more to exalt and commend our services in this general and beneficent cause of humanity.

I can confidently say that now, after more than thirty years' constant practice of this specialty, I am as near the practice of general medicine as I ever expect to be. This branch of the healing art, with its achievements, is good enough, and its resources and beneficent possibilities stimulating enough for any purpose save avarice and greed. The words of Daniel Webster in relation to the practice of law are so germane to this thought that I quote them here:

"Our profession is good if practiced in the spirit of it; it is damnable fraud and iniquity when its true spirit is supplied by a spirit of mischief-making and money-getting. The love of fame is extinguished; every ardent wish for knowledge repressed; conscience put in jeopardy, and the best feelings of the heart indurated by the mean, money-catching, abominable practices which cover with disgrace some of the modern practitioners of law."

The application of the established principles of general medicine was a matter but little considered in the first years of my practice. Frankly say it is comparatively but little understood by me to-day.

This much we do know, however, that it is the province of the dentist to search for bodily manifestations in health and disease which may bear upon the interpretation of dental function. We do not deal with the human teeth as though they were a mere mechanism of bone and pulp and nerve, or deal with their functions as an independent agent, with little or no concern or relation to other organs and the whole life of the being, but recognize a vital harmony and essential interdependence—the orderly subordination and co-ordination of parts each dependent upon the other for functional activity.

The magnetic influence and electric force of all nerve-supply, and the effects of fully charged abundant blood courses, bring to our aid a health-giving action upon which we can build pledges of success, while on the other hand, lacking in vitality, a system with evidences of derangement in formidable disturbances, neurasthenic in character, we are safe in predicting an aggravation if not the direct source of dental lesions.

The only conspicuous inheritance three-fourths of the human race confer upon their off-spring is a stunted development and impaired structural formation of the different organs that so universally beget disease.

Temperament and disposition are not more certainly marked upon the child than the impoverished condition of all nerve and blood-supply, from defective nutrition and assimilation, and as such conditions in the child are rarely obliterated during life, they should not be neglected in our practice for physiologic, pathologic, and diagnostic purposes at any time.

The organic origin of pathologic processes influencing local lesions, has for many years impressed itself upon my mind as a subject worthy of our earnest consideration. As long ago as 1878 I was permitted to read a paper before the American Dental Association upon this subject. I say "permitted," because that honorable body has a peculiar system of quarantine, requiring every immigrant, suspected of having contracted germs of progress, to be searched. My paper when returned to me bore a verbal indorsement something like this, in sentiment: We, the undersigned Sanitary Committee, have discovered in this, microscopic traces of an idea, but as we do not regard it of sufficient virility to infect any great number, you have our permission to read it. Whether the idea discovered by that Committee was what I intended to embody in my effort or not, I never learned, but if so, it was this. That the hyperemic condition consequent upon the saturation of the tissues of the body with alcohol, so strangulated the vascular and nerve supply as to cut off proper nourishment from the dental membranes, and indirectly establishing a retrograde metamorphosis of the nerve fibrils of the tooth, prolific also of neuralgia and often attended by wasting of tissue, as in decay, under such circumstances of impaired nutrition.

The mysterious force which inhibits itself in the sensitive protoplasm of a muscle is a phenomenon of no less interest to us than to the general practitioner.

The scientific investigations carried on by dentists during the last decade to put this profession, as well as medical men, in possession of agents which lessen the vital activity of pathogenic parasites, is evidence of an intellectual and progressive spirit most com-

mendable, as well as interesting and valuable to all practitioners of the healing art.

Why, then, let me ask, in view of all that our profession has achieved in this line of scientific work, and in view of our rigid system of dental education in all branches which general medicine requires of other specialists, are we prohibited from exercising this knowledge we are expected to possess, in the treatment of such systemic conditions as directly influence a dental lesion?

Brought daily face to face with all these exciting and retarding influences which you so well understand, must we forever lock the door leading out of the oral vestibule into the wonderful habitation of man's vital forces, and turn the key over to the family physician?

How many dentists, out of two hundred in this country of whom I recently asked the question, do you suppose answered that they prescribed constitutional treatment independent of the counsel or advice of the physician? The number is too few to stimulate me in carrying on the investigation any further.

But notwithstanding the majority of our profession, men whose views are worthy of the highest regard, express themselves as adverse to the practice of administering medicines themselves, I believe the day will come when it shall be considered within the province of the medically educated dentist to make recommendations for general physical ailments affecting the organs given into his care. There must always be a courteous recognition of the rights and duties of the physician, but *within a common sense limit*. I believe "it is better to experience the truth and enjoy its practical uses, even without a perfect knowledge of every theory, than to have full mastery of the theory but reap no benefits from it."

Dr. J. TAFT said that it was in the experience of every practitioner of dentistry to have the question raised about the need of systemic medication as a necessary part of the treatment of diseases of the mouth and teeth. He could see no reason why a dentist should not modify by treatment the systemic conditions which hindered the success of his operations in the special line of the profession which he practiced. Why should he not treat the system, as well as the oculist or any other specialist who found the patient in an unfit condition for treatment for the diseases which their specialties would cover? The only reason this question should ever come up in regard to the dentist is because, unfortunately, he is not usually willing or able to diagnose or prescribe for physical conditions outside of the oral cavity. The ophthalmologist, the aurist, and every other specialist, having laid the foundation of their professional skill in the studies of general medicine, and turned their attention afterward to the specialty chosen, are fitted to, and unhesitatingly do, prescribe when necessary to change the conditions of the system, so as to favor the success of the contemplated operation. It is just as important that the dentist should be able to do this as any other specialist.

The diseases of the teeth are influenced by the diseased conditions of the other organs, and it is patent to every intelligent operator that his success in dealing with the teeth and mouth, the diseases of the alveolus, mucous membrane and antral cavities, will depend largely upon whether he can place the general system in the condition which will favor his success. Until there is a toning up and strengthening of the general system it is often worse than useless for a dentist to operate.

this is not all. There are signs of diseases which come

under the dentist's eye more serious than merely a run-down system, and he should be able to recognize such peculiar conditions in a degree, and at least understand the relationship between such conditions and the disease in his peculiar domain, even if he prefer to refer the case to a regular practitioner or specialist in some other branch. The dentist should be able to refer the patient to the physician, giving a fair diagnosis of the case. If a physician received a patient from a dentist with only the message: "Something is the matter; find out what it is, and bring about a better state," he would not have a very high opinion of that dentist's standing as a specialist in medicine.

All our medical teaching is based upon the idea that for every specialist a general knowledge of the whole system of medicine is necessary. If it is not necessary for the dentist, why should he study anatomy and physiology? If it is not necessary, why should he study general pathology? It is necessary, for if he does his whole duty in his profession, he must need this learning to enable him to recognize and treat such general conditions. And more than that, it is necessary for the treatment of such diseased conditions as are recognized as belonging to his own specialty. The course of an abscess on the gums or necrosis of the jaw is the same as abscess on any other of the soft tissues and necrosis of any other bone.

Dr. JOHN S. MARSHALL said that when a dentist did not feel able to treat systemically when it was necessary, it was the fault of our former faulty system of teaching in the dental schools. Until recently it was generally considered that a dentist had no need of the knowledge of general medicine. No one would go with a diseased eye to one who was not a graduate of medicine, and the feeling about dentists should be as it is about oculists. The dentist should be as able to treat general disease as any other specialist. He would be sorry if he could not prescribe for any condition which would hinder the success of the treatment for which the patient had come to him. Our field is the mouth, not merely the teeth. We must be able to treat systemic conditions which we observe indications of, and if we are properly educated so as to be able to diagnose them, why should we not?

Dr. VIDA A. LATHAM said she would like to ask the Section a question bearing on the subject of the paper, and also upon professional ethics or etiquette. The question is, May a dentist suggest to a physician the necessity for a general line of treatment for disease of the general system? Dr. Latham related the case of a patient of hers, a young man about seventeen years of age, who was a hard student. His teeth had been sound and apparently good until he had an acute attack of pneumonia, when it was found that in the course of about four months, either because of the disease or of the treatment, cavities had appeared in nearly every tooth. When examination was made, the young man was so weak that he fainted in the office. Dr. Latham called the attention of his mother to the state of his teeth as well as to his physical condition, and recommended that he be put in charge of his physician, as she thought there was a serious danger of a relapse into pneumonia. The physician declared that he was in need of no further treatment. The consequence was as she had foreseen, a dangerous relapse, which leaves him at present with a second severe attack of pneumonia. Dr. Latham desired the opinion of the members of the Section as to whether she had done more or less than she should in sending the patient back to the physician for treatment.

Dr. E. S. TALBOT said that the whole question of the relations of the dentist to systemic medication and to the general practitioner was affected by the faulty system of dental education, which is entirely wrong. He spoke of a

gentleman who held a position in a medical college and also in a dental college. The faculty of the medical college was pleased with him, but after the first year the faculty of the dental college declared that his lectures were too far advanced for the dental students; that they did not care to go so deep into things, and they were dissatisfied with him on that account.

The condition and the ambition of the dental student of to-day is little better and little higher than it was twenty-five years ago. He only cares in most cases, for just enough general medical and physiologic knowledge to get for him the diploma, and when he has secured that he forgets all that is not, in his opinion, necessary for his success as a dentist.

The specialists in other departments do not feel so. They generally have practiced a few years at least before taking up a specialty, and are competent to treat any diseased condition which presents itself to them. The dentist, on the other hand, could not diagnose diseases of the general system, and not being a graduate in medicine would not dare to treat them. For himself, he said that his education was all the wrong end front, as he had practiced before attending any college, and afterward had taken a medical degree. The proper course would be the exact reverse of this. First the medical degree, next the dental and afterwards the practice. There are comparatively few of his patients that he does not prescribe systemically for. He has no sort of hesitation in considering himself a part and parcel of the medical profession, and in such a case as Dr. Latham reports he would go to the family physician and point out to him the condition of the young man and his need of treatment. He often has cases where he sees conditions which make it necessary to send the patient to a physician.

DR. EDGAR PALMER said that he thought when a patient whose physical condition was such as to make it impossible for the dental work needed to be done came to the office, the dentist should prescribe what will alleviate the condition. There is a long list of troubles we do prescribe for, in preparing the system for the surgical operations in the mouth; but of course there is a common sense limit, and we should not take upon ourselves the responsibilities of the general practitioner.

DR. JOHN S. MARSHALL said Dr. Latham's question had not been fully answered yet. It was, Had she the right to go to the physician and tell what she had discovered? He thought she not only had the right, but that it was a duty.

DR. GEORGE V. I. BROWN agreed with the ideas which had been advanced, but thought that the education of dentists is improving and rapidly too. The dentist should know how to prescribe, but should be careful not to encroach on the field of the general practitioner, and so raise feelings of jealousy. More trouble comes to the physician's patients from not consulting the dentist than comes to the dentist's patients from not consulting the physician. If he had a patient who was not getting from his physician proper treatment, he would not hesitate to recommend a change of physicians. This would rarely be necessary, but sometimes it would.

DR. ANDERSON said he saw no reason why the dentist should not apply all the knowledge he had in any direction for the benefit of his patients. If, however, the dentist neglects his own specialty to learn to practice general medicine, he would lose opportunities for advancement in his own special line.

DR. W. H. CARSON said that to discuss the question asked by Dr. Latham was equivalent to admitting that we were not specialists in medicine. If we are members of the medical profession, then of course we should consult with the family physician. Unfortunately, the majority of the den-

tists are not properly educated; they are not competent even to write a prescription. This should be changed; we should be physicians first and specialists afterward. Dentistry is looked upon by students as a more easily acquired profession than medicine, and those who are unable to acquire the latter feel that the former is within their reach, and thus it comes that the class of students at dental colleges are less highly prepared, educationally, and probably mentally, too. This should be changed; as much should be required of the dental student in the way of study as of the medical student and the requirements for matriculation to the dental student should be as high.

DR. TAFT regretted that the mass of the profession did not appreciate the necessity of a good general education as a foundation for the professional education. The low standard of education required for entering the colleges is not so much the fault of these institutions as it is the fault of the profession. Almost every student is sent to the college either directly from the office of a preceptor or at least has taken the advice of some dentist as to the step. This is where our responsibility is. If an unfit man asks your advice about studying dentistry, persuade him not to study it. Most of the dentists have very little knowledge of general medicine, yet if they would they could get this knowledge, and they should take hold and master it, and they would do so if they could appreciate the necessity of it. On the other hand, the medical profession do not appreciate the diseases of the mouth. This is because they have so many things in their course of study that the diseases of the special organs are not taught thoroughly in the colleges.

NEW DEVICES FOR CUTTING BONE.

Read at the Nineteenth Annual Meeting of the Mississippi Valley Medical Association, held at Indianapolis, Ind., Oct. 4-9, 1893.

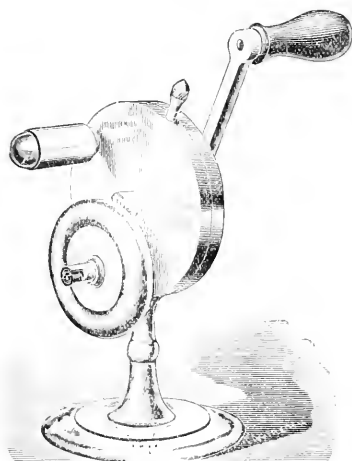
BY ALLEN DE VILBISS, M.D.

TOLEDO, OHIO.

It is the exception and not the rule that new devices are made perfect from their first conception; they require repeated changing to strengthen weak parts and shape them suitable for the work intended. One may develop a device so that there seems to be no need of further change, but when put to a practical test some points are liable to be discovered wherein it can be made better. This has been my experience, and the instruments I will show you have been developed through a series of practical tests. I have used them first upon the dead, afterward upon the living. I could report case after case of operations made with them on the skull, maxillary bones, ribs, nasal bones, etc., but the time I wish to occupy with this paper will not permit me to do so. I will only try to give you a few points in regard to their construction and how they are to be used. Many a useful instrument has been brought into bad repute for lack of a thorough knowledge of its technique. Not only is the reputation of the instrument sacrificed but the patient suffers the consequences. The time, I hope and believe, is not far in the future, when the surgeon will of necessity, have to be in possession of more than a theoretical knowledge of surgery. He should in the first place possess some inherent mechanical ingenuity, also a perfect knowledge of the technique of each instrument used; not only the knowledge, but he must have educated his hands how to execute that which he theoretically knows.

The chisel and mallet are simple devices, yet many surgeons do not know how to hold the chisel, so as

to do the greatest amount of cutting, with the least amount of jar to the part operated upon. This skill is only acquired by patient practice. The instruments that I will show you are not intended for the class of operators who have not the time or are not willing to study them sufficiently to be equal to any exigency that may arise. The objection has been offered to instruments that run with speed by transmitted power, that they are too complicated and

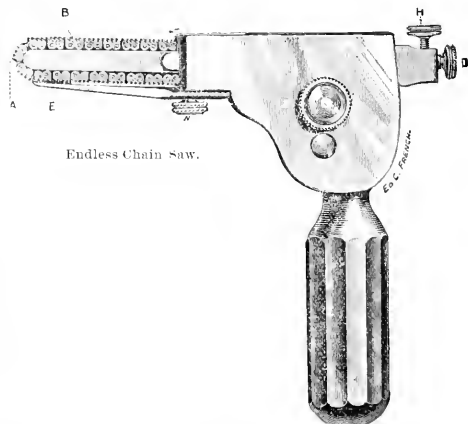


Hand Engine.

require too much time to understand them; too liable to get out of order. These objections will be retired just as soon as instruments of this class can be made more perfect in construction, and surgeons have sufficient time to become thoroughly educated in their use. Where is the man who would take up the flail and set aside the improved threshing machine of to-day; the jack plane and do away with the automatic planer. The answer comes that he can not be found. The most convenient plan for propelling instruments is a hand engine. I think the only objection that can be offered to it is, that it requires the help of an assistant. It is made of brass, nickel plated, its speed is produced by the use of two internal gears, and two spur gears, that run in oil to make it noiseless. Its bearings are positive, hence no chance to get out of order and is always ready to do its work if properly handled. It is better than the dental engine, or small electric motors that are now in use, as more power can be produced by it than either of them. It can be used anywhere as it is small and weighs but a few pounds. To operate it, place the finger of the left hand on the stationary handle, and the thumb around the post on top of the main cylinder, resting it on the abdomen, stand, operating table, or clamp it to a high stool, which is easily moved about to suit the convenience of the operator. The power is conducted by means of a flexible cable which is ten times as strong as the dental or surgeon's cable now in use, and unlike it, will not break when needed most. The person who is to run the engine should be instructed, before commencing an operation, to keep close enough to the operator to prevent stretching the cable, as he would impart his movements to the surgeon's hand; also

to avoid greater angles than 45 degrees, as it would create friction in the angle from the cable on its sheath and make hard running; and last, but not least, that he can do no harm by turning fast but can by turning too slow.

I will next call your attention to an endless chain saw, which is moved in a definite direction over its carrier at the rate of two thousand revolutions per



Endless Chain Saw.

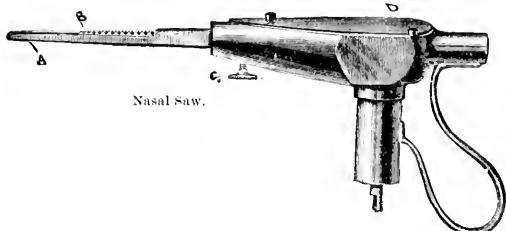
minute. This saw is especially adapted for making excisions, trephining, cutting away portions of the maxillary bones, ribs, etc. To operate upon the skull, first bore through with this drill I show you, which is an ordinary twist drill with its cutting end ground as square across as possible, and leave a fixation point; it is fitted to the cable and provided with a slide and set screw, so that it is impossible to cut any deeper than is intended; if not deep enough at first setting of slide gauge, place it again and again, thus repeating the cutting until the dura is reached.



Nasal Dilator, with bands in position.

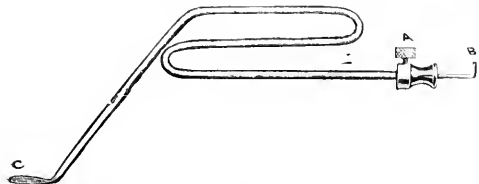
Then take the protector in the left hand, passing its foot piece in the opening and beneath the internal table. This can be readily done unless there are firm adhesions of the dura mater, in which case they will have to be broken up; then cut through with one or more strokes as may be needed, following up the saw and protecting the membrane by the protector foot as you cut. The stem of the protector is so slim, that it will follow in the slot the saw makes. The foot piece being in advance of the stem is conse-

quently always between the dura mater and its cutting edge; it matters not if you strike the metal foot piece as it will not injure the saw. By using the instrument in this way there is less danger in removing portions of the cranial bone than by any other method. The preparations necessary for the operation are the cleansing and cutting down upon the bone in any desired manner. The saw is prepared in the same way as any other instrument, by boiling it and placing it in a carbolyzed solution; or what is better just before using it, is to hold its point in gasoline (which is an excellent antiseptic), then by giving a few turns of the engine handle, the fluid is made to cover and wash all parts making it perfectly aseptic. After the operation the saw should be taken apart, washed, dried, and run in gasoline as before described. It is so constructed that it can be



Nasal Saw.

taken apart and put together in one minute's time. The shield passes beneath the cutting edge of the teeth, its outer edge being ground sharp so as to separate tissue that may come in contact with it. It also serves to gauge the depth the saw is to cut each time it is carried along the bone. In making the first cut the shield should rest on the bone, the next time on the bottom of the slot made by the first cut, and this repeated until the desired depth is reached. If in cutting away portions of the spine we are afraid of penetrating too deeply, we can make it cut less in depth by increasing the angle of the saw to the horizontal plane of that on which we are operating; by following this plan you may know exactly how

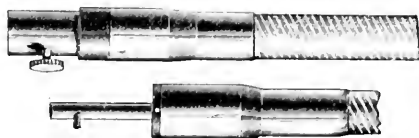


Protector.

deeply you are cutting each time. In removing portions of the inferior maxillary bone, clavicle or ribs, where there is to be a complete section taken out, I draw beneath the place to be sawed, a piece of sheet steel, which is about ten-thousandths of an inch thick and is easily bent, so as to be readily slipped under and drawn to its central portion. I usually use a strip from four to six inches long, so that it will serve as a retractor of soft tissues on each side of the bone and protect the tissue beneath it.

In the use of this saw the main points to be remembered are, first, to secure proper tension; to always draw the saw toward you when cutting, never from you, to not crowd it, and that the engine can not be turned too fast but can be too slow.

I will now show you a saw that although it can be used for many other purposes was intended for intranasal work; it can be attached to the cable and run fast enough that the to and fro movements will be two thousand per minute. It is simple in its construction, consisting only of a handle, pitman wheel, pitman bar, saw shield and one set screw. You will see that the saw moves in a grooved director its entire length which prevents it from injuring tissue at



Cable.

its extreme point, also from getting out of the slot it is cutting. It can be reversed to cut up or down by loosening the set screw. The grooved director may be removed, then turn the cover to the right, lift out the saw and reverse or clean as may be desired. It is easily operated as we have only to move it in the direction desired to cut through, except in a broad surface, when it will be necessary to give a short to and fro movement, in order that the saw teeth may clean themselves, and prevent filling of the inter-



Drill with Gauge.



Nasal Dilator.



Templet.

spaces. Herein lies the trouble in using the ordinary saw; we can not give length of stroke sufficient to make it empty, without getting out of the slot we are cutting, or punching tissue with the end of the saw; and it will soon pass over the surface as though it was dull or had no teeth.

The teeth as I have them made, are different from any I have seen, being cut square across, with each alternate tooth on both sides cut out one-half their thickness, which leaves an open space for the material cut to fall out, and prevent clogging. They have the appearance of being set but are not. This saw has a stroke of seven-eighths of an inch, which is sufficient as a rule; when it is not, it can be doubled

by carrying it back and forth. Any one who has used small saws often, or tried to use the power saws as devised by Drs. Roe, Potter or Brown will appreciate the grooved director connected with this saw, and it is this part and the form of the teeth that I claim to be new. I have had a few cases where there was not room in the nasal cavity to use a saw and I made an opening with a trephine; this one that I show you can be used to make this opening, also for the same purpose as Dr. Curtis and Dr. Jarvis use theirs; it differs from them, as the external part can be turned to the right and slipped off, thus making it an anti-septic instrument; also the end of the crown is made knife-like, the same as the Foster wood bit except there is no part cut out, it forming a complete circle serving as a fixation point, thus preventing it from running off to one side like those with teeth on.

I notice that in Dr. Jarvis' article (in Burnett's System of Diseases of Nose and Throat), that he says he has recently modified and improved his drill by simply surrounding the cutting facet by a knife-like ring, the edge of which may be either interrupted or unbroken. I use the cylinder on a single lipped twist drill which I devised for this purpose. I find it empties better than Dr. Jarvis' with its opening on the side, or Dr. Curtis' with its opening at the end of the cylinder. It is essential to the successful use of cutting instruments in the nose, to have some means of positive continued nasal dilation, and I hope you will pardon me, when I say that I have devised another nasal dilator and I think it a good one. Whether you will agree with me or not in this is a matter of the future, after you have tried it, as we have no right to recommend or condemn until after we have made a practical test. The objection to wire nasal dilators is that they do not hold the vibrissæ in the vestibule back; blood flows and obscures the light; this one you see is flat, and in shape corresponds to the internal lateral shape of the vestibule; it may be used without the rubber bands for explorative purposes and with them for operations.

The drills spoken of in connection with the chain saw, are made in two sizes, with movable gauges, and will be found to be useful in operations of the mastoid frontal sinuses, antrum of Highmore and in cases of osteomyelitis, etc. It is true in making the mastoid operation, the use of the drill has been condemned, but the reason for it is this; that until now there has been no convenient way of running with speed, a drill large enough, with precision as to depth, to make a sufficient opening. I drill one hole through the cortex; if not large enough, with the aid of a templet I drill another beside the first; then use the second size drill which has a gauge large enough not to enter the first opening, or in some cases it may be preferable to complete the opening into the antrum with the gouge. In the use of the instruments just described, speed is necessary in order to do perfect work, and it does not increase the danger. There is not a dentist who would be willing to return to the use of the hand burr, or consider it safer than the use of one connected with the dental engine. Neither will the surgeon be willing to set aside instruments with speed, after becoming accustomed to using them.

Blank Applications for membership in the Association, at the JOURNAL office.

NECROLOGY.

Dr. N. L. Lusk of Penn Yan, N. Y., December 4.

Dr. John Rix of Fort Madison, Iowa, December 14.

Dr. Eli Dudley Pocock of Shreve, Ohio, December 16.

Dr. Stephen Herrick of Muscatine, Iowa, December 16.

Dr. Joseph R. Hoffman of Morriston, N. Y., December 11.

Dr. Alonzo Spofford Ball of New York, December 20, aged 93.

Dr. William B. Carpenter of Leavenworth, Kan., December 16.

Dr. Henry Ristine of Cedar Rapids, Iowa, May, 1893. Dr. Ristine was the first to report a case of trichiniasis in the United States.

Dr. William Bushnell, aged 93 years, died at his home in Mansfield, Ohio, on the 13th inst. He came from Hartford, Conn., in 1828. Dr. Bushnell was for many years Censor of Cleveland Medical College, and a member of the Ohio and American Medical Associations.

Dr. William Lobschied, died at Youngstown, Ohio, of pneumonia. Dr. Lobschied was sent by the Government at one time as Special Commissioner to China. He had compiled a Chinese dictionary and was a frequent contributor to current medical journals.

Dr. S. Guttman, editor of the *Weekly Medical Journal*, died at Berlin on December 22, of influenza. He had, also, since the death of Dr. Boerner, edited the Medical Directory of the German Empire. This Directory also contains an account of all the universities in which the German language is used in Austria and Russia.

Dr. James E. Wende! of Murfreesboro, Tenn., was one of the oldest physicians in the State, who, beginning in early manhood, practiced with distinguished success almost to the day of his death. He was an accomplished gentleman, a devoted Christian and a physician whose memory will be sacred in many homes. He leaves a life record which his family, his profession, his church and the community in which he labored may well delight to honor.

Dr. M. C. Drake of Ladoga, Ind., died in San Francisco, Cal., Dec. 17, 1893. He was a victim of Bright's disease, of which he was conscious, and he resigned practice a year or two ago and knew his time was short.

He was a man of profound medical learning. He was graduated at Jefferson Medical College, Class of 1857. Served three years as surgeon in the late war and after this was graduated at Bellevue Medical College and in 1881 attended the Polyclinic of New York city.

He had an excellent groundwork in the Greek and Latin languages. He was a quick active man and did a large and lucrative business here and leaves his two children, Edward Drake of Ladoga and Mrs. Ryan of Delphi, Ind., in comfortable circumstances.

He was once a member of the AMERICAN MEDICAL ASSOCIATION, and was a thirty-second degree Mason. W. F. B.

Dr. Dewitt C. Patterson of Washington, D. C., a valued member and one of the trustees of the AMERICAN MEDICAL ASSOCIATION, died recently at his home in that city. His funeral occurred in Washington December 21.

The pallbearers were Dr. W. W. Godding, Dr. W. W. Johnston, Jr. N. S. Lincoln, Dr. W. H. Lovejoy, Dr. James Kerr, Dr. J. W. Bulkeley, Prof. J. W. Chickering and Mr. George W. Deering.

Mrs. Patterson and the only son, Dr. A. C. Patterson, accompanied the remains to Cleveland, where they were interred. Dr. Patterson was much beloved by all the members of the Board, and will be greatly missed. A sketch of his life will appear in our next issue.

THE

Journal of the American Medical Association

PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE,
PER ANNUM, IN ADVANCE, \$5.00
SINGLE COPIES, 10 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 68 WABASH AVENUE, CHICAGO, ILLINOIS.

F. J. KERMAN, LONDON AGENT, 11 Adam Street, STRAND, LONDON.
W. H. LOWDERMILK & CO., WASHINGTON AGENTS.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any state or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. DUNGLISON, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues and subscription for THE JOURNAL. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

All members of the Association should send their Annual Dues to the Treasurer, RICHARD J. DUNGLISON, M.D., Lock Box 1274, Philadelphia, Pa.

SATURDAY, DECEMBER 30, 1893.

PROFESSOR SENN'S GREAT GIFT TO THE MEDICAL PROFESSION.

The noblest deeds require nothing but simple language; they are spelt by emphasis. It is insignificant matters that stand in need of high flown words, because it is the expression, the tone, and the manner that alone give them effect.—La Bruyère.

PROFESSOR NICHOLAS SENN has given his great collection of medical books to the Newberry Library.

Words can not add to the importance of the fact thus chronicled.

The value of the gift to Chicago, and to the medical profession, can not be estimated in money, for as MILTON says: "A good book is the precious life blood of a master spirit embalmed and treasured up on purpose, to a life beyond life." "How much," says BURTON, "are all we bound that are scholars, to those munificent Ptolemies, bountiful Mæcenases, heroic patrons, that have provided for us so many well furnished libraries, as well in our public academies in most cities, as in our private colleges?"

"O quam te memorem vir illustrissime quibus egois?"

PROF. SENN has for many years been engaged in the gathering of this magnificent collection, but for the most part the gems of the library were obtained by purchase from the estate of PROFESSOR WILLIAM BAUM, Professor of Surgery, University of Göttingen. He was one of the founders of the German Congress of Surgeons, and for fifty years had been collecting works on anatomy, physiology, surgery and the old classical authorities. PROFESSOR BAUM died in 1886, and his estate offered the library for sale. The wish of PROFESSOR BAUM was that the German Congress of Surgeons should purchase the library, but that organization did not see their way clear to meet the expenses. The administrator of his estate publicly stated that PROFESSOR BAUM had spent over forty thousand dollars in its purchase. The administrator offered the library to various parties, and

the Royal Library of Berlin offered an almost fabulous price for a number of antiquarian volumes contained in the collection, but the administrator, following the wishes of PROFESSOR BAUM, refused to separate the books, and announced that it would be sold by auction. This coming to the ears of PROFESSOR SENN, he at once secured it by making a partial payment, and then withdrew it from sale. The books were shipped to PROFESSOR SENN, then in Milwaukee, in fifty-two cases, constituting an entire car load.

Beside the works on surgery, gynecology and ophthalmology in the BAUM library, the collection contains a full set of Virchow's Archives, several single volumes of which are now valued at \$50 each. Langenbeck's Archives, Jahresbericht der Gesund. Medicine, Cannstatt's Jahresbericht, Prager Vierteljahresschrift, and the Deutscher Chirurgie. (The continuation of these periodicals from time to time by the terms of the gift, the Newberry Library must hereafter procure as published.) To the foregoing, PROFESSOR SENN has added nearly all the modern works on surgery, which includes gynecology, and allied branches. He will retain his working library of modern works, and a few old favorites to which he is naturally attached. The first thought of this action was suggested by Mrs. SENN, who appreciating the value of the library, pointed out the insecurity of a private house from fire and other casualties, and PROFESSOR SENN concluded that he would place the collection at the disposal of the profession. There are thousands and thousands of pamphlets, ancient and modern, and atlases almost numberless. All of these go with the collection, the money value of which is about fifty thousand dollars.

When PROFESSOR SENN came to make the formal tender of the transfer of his books, he had a pang of regret, but Dr. POOLE the librarian, consolingly said that the Newberry was only five minutes walk from his house and he would keep them for him. No bibliophile can part with his books without regret, and yet in this action PROFESSOR SENN has built himself a monument more enduring than bronze or marble, for generations of medical men, long after those now on the stage shall have passed away, will draw inspiration and wisdom from the "SENN COLLECTION," in the Newberry Library, and as often with gratitude reflect on the noble generosity of its distinguished founder.

THE OMENTUM.

The American Journal of Obstetrics for December contains a paper read before the Pan-American Congress by DR. JAMES F. W. ROSS of Toronto, on "The Omentum and the Role it plays in Operative Work upon the Abdomen." It is strange that an organ so important to the surgeon should be so little studied

and its function so little understood. It may be that its long-suffering nature—permitting itself to be lacerated and imposed upon in so many ways by the hands of the operator—has led to its neglect, except so far as the danger of hemorrhage is concerned. The vessels once tied and the lacerated portions removed, the surgeon thinks no more of it. Indeed, in the majority of text-books it is passed over with the meager statement that its probable function is to protect the viscera and facilitate the movements of the coils of intestine.

That it must have some other use, the immense lymphatic and blood supply would seem to indicate. The membrane also reaches its highest point of development in the mammalian group, though it is interesting to note that it is only slightly developed in the whale. As Dr. Ross points out, if it had been simply intended for the preservation of heat, one would expect to find a full development among the cetaceans, as well as the other members of the family.

TAIR, as quoted by Ross, says that in some patients suffering from dropsy due to peritoneal papilloma, the effusion may be made to come and go as the patient is allowed to move about or is confined to bed. The interesting part of his observation is that in those cases in which the effusion can not be so influenced, the omentum will be found to be more or less involved. Dr. Ross adds the account of an interesting case in which he removed the omentum about six inches below its attachment to the stomach. Some time after the operation, the patient developed pain in the abdomen and a cystic collection in the remains of the omentum which was tapped. The tapping was followed by suppuration in the cyst which finally discharged and the patient recovered. These observations would rather indicate that, in some manner, the omentum regulates the amount of fluid in the peritoneal cavity.

An important function of the omentum, and which must be apparent to every one who has opened the abdomen of a patient suffering from suppurative disease, is its attachment to the viscera in order to limit the purulent collection. As the author of the paper under consideration aptly remarks, "It is like a man-of-war ready to sail to any port in which there is impending trouble." Through its great lymphatic supply it must possess great power of absorption and neutralization of the pus products in addition to the merely mechanical action of a dam.

Several interesting questions are raised by Dr. Ross—Does the vast network of blood vessels contained in this little-known membrane serve to hold the surplus blood during the process of digestion? Has it any special function in connection with the blood supply of the stomach, as would seem indi-

cated by its attachment to that organ? These are important questions for the physiologist to solve, but the point most concerning the surgeon is the facility with which the immense quantity of serum thrown out after an abdominal operation is taken care of by means of the blood and lymphatic supply, and the lesson to be learned would appear to be the necessity for care lest it be injured and its power for good thereby impaired. It would seem important that it be preserved in every way possible on account of its action as a safety-valve.

Dr. Ross has opened up a field of inquiry which will be of much interest and advantage to the surgeon and physician alike.

INEBRIETY QUESTION IN ENGLAND.

In striking contrast with the quack cures, revival excitements, and sensational efforts to reach the inebriate in this country, may be placed the scene enacted in the office of the Home Secretary of the English Government at London recently. In 1879 Parliament passed a law for the organization of asylums for the treatment and control of inebriates. After several years experience, a Parliamentary committee made an elaborate examination of the workings of the act, and urged its continuance with some changes.

The British Medical Association appointed a committee to formulate these changes, and urge them on the Government. Dr. NORMAN KERR was chairman. This committee was joined by a similar committee from the Society for the Study of Inebriety; the British Temperance, and Woman's Association, and other Societies, together with a number of leading physicians of both Army and Navy, and also members of Parliament and distinguished London physicians.

The amendments most urgently asked for were; 1, for non-criminal inebriates, (a) power to seclude and detain for curative treatment, (b) provision for the poor and persons of limited means, (c) the reception and curative detention of voluntary patients without appearance before justices, on a written agreement (as in America) attested by a commissioner or clerical incumbent, (d) similar provisions for inebriates in opium, chloral, and other narcotic drugs, (e) power to licensee to appoint a permanent deputy, (f) separate retreats for the sexes, (g) power to licensee to re-convey an escaped patient back to the retreat direct, (h) power to guardians to detain pauper inebriates or to pay for their curative detention elsewhere; 2, for criminal inebriates, power to magistrates to commit to special hospitals or reformatories.

Dr. FARQUHARSON, M. P., stated the object of the meeting was to have better legal control of a class of persons who were both helpless and hopeless in most cases. Dr. KERR followed as a representative of the British Medical Association (with its 16,000 members) pointing out the failure of the present system

of dealing with inebriates. Of the 245,000 men and women committed yearly in England, fully 150,000 were for drunkenness or crimes growing out of this state. Of the number, over 80 per cent. were females and 60 per cent. males. About 7 per cent. of this number were committed from 100 to 600 times for the same offence. This was evidence of the wretched failure of the present means. The physical aspect of inebriety had been ignored and this was the result. The associations which were represented on this occasion believed that drunkenness was the manifestation of a diseased mental condition, and should be treated as such; also that all appeals to the emotions or fears by legal methods were useless; therefore they asked the aid of the Government for means to apply the measures recognized by science.

Remarks were made by several persons on the same line, urging the needs of physical care and treatment. The Home Secretary in reply, promised to introduce a bill with the prepared changes to the next Parliament. He expressed his firm belief in the connection between inebriety and crime, and that inebriety should be regarded rather as an effect than a cause of bad social conditions. Legislation to remove the causes should be encouraged. It was evident that the present methods were neither curative or deterrent. The time has come when we must recognize habitual inebriety as standing on the same level as insanity, with the same conditions of irresponsibility, and attended with equal if not greater dangers to the community.

The question of asylums for the indigent and the practical way to establish them was mentioned, and the meeting ended. It is evident that our English brethren are approaching this subject from the only true and practical side; by the means of legal restraint and medical care and treatment in organized asylums for this purpose. For several years the British Medical Association have had a committee on the care and treatment of habitual drunkards. This committee have advised certain legislation, and made collective statistics of various phases of the subject, and in other ways sought to instruct the profession on the question generally. Several reports have been issued of much interest bearing on the prevalence and nature of inebriety. This committee has been made up of the most eminent members of the profession, and has taken in a quiet way a leading part in the direction of public sentiment on this topic.

It is unfortunate that the profession in this country have been indifferent to this topic, and permitted the most radical views and measures urged by incompetent men to direct public opinion. As a result, we have no reliable statistics, and the most confusing medley of theories and means for treatment. No wonder the charlatan finds this a rich hunting

ground for fortunes gathered out of the ignorance and credulity of the people.

The entire question of alcohol and inebriety in this country is one of the most practical medical fields of research that is coming to its prominence. But it must be studied along scientific lines, free from preconceived theories, and with the central object of finding facts irrespective of all possible conclusions that may follow. Our English brethren have begun the work, and have set an example for us to follow.

MANHOLES AS NUISANCES, THE CONTINUANCE OF WHICH MAY BE ENJOINED.

A municipal government, though invested by statute with plenary powers over the subjects of streets, sewers, drainage, water supply, and sanitation, has no right to create and permanently maintain a nuisance dangerous to health and life, which nuisance consists of openings, such as "manholes," in a sewer located in a public street contiguous to the dwelling of a citizen, the manholes being allowed to emit poisonous gases in large quantities through perforated covers placed over them. This is true, at least, says the Supreme Court of Georgia in the case of the City of Atlanta v. Warnock decided Nov. 9, 1893, where the dangerous character of the nuisance results, in all probability, not from defects inherent in the general system, but in failing to adapt it to local conditions, such as a steep grade in the particular street in which the unwholesome sewer is constructed and maintained. And there is no abuse of discretion in granting a temporary injunction, in such a case, enjoining the city "from continuing said manholes in such condition as to allow the escape of noxious gases." But whether a nuisance attributable to a mistaken exercise of the legislative power of a city in adopting an unsafe or unwholesome system of sewerage is the subject-matter of injunction, may be questioned.

MATTERS JOURNALISTIC.

There are some matters in relation to this subject that deserve attention. The "special" correspondent of the *British Medical Journal*, in the issue of December 2, says:

"There are two fundamental curses under which the profession in America labors:

"1. The lack of independent medical journals controlled and issued by medical men for medical purposes. At present almost every journal is owned by some publishing or manufacturing concern, which of course publishes it for purely commercial purposes. It is easy to see that in such cases the advertising pages seek to control the reading columns. If an editor shows independence, and refuses to permit the commercial debauchery of his columns, woe be to him!

"2. Cooperating with—nay, bound up with—this

first misfortune, is the second—the lack of a National or unitary organization. It at present seems to be impossible to arouse in the professional mind the recognition of the need of professional unity. Without professional unity we can not speak to the people, criticise abuses, or encourage faint and sporadic attempts at virtue. We have no singleness or strength of voice, journalistic or organic; and from the multiplicity of non-cooperating jealous societies, together with the multiplicity of trade journals, our professional disorder of speech is either a sorry laryngismus paralyticus, or a sorer laryngismus stridulus, while the omnipresent quack and patent medicine men and the 'likes of them' crowd every farm with nasty advertisements and huge bulletin boards, and bribe to silence or a worse subserviency every secular newspaper of the continent."

It is understood that our esteemed contemporary has, by a circular letter addressed to various prominent members of the medical profession in America, offered to come to the rescue of our afflicted profession and, like another CHEVALIER BAYARD in the field or HORATIUS at the bridge, deal defiance and death to our enemies whom we are too weak to assail, for the trifling sum of eight dollars per annum. So far as our own feeble efforts may avail to welcome this valiant ally to our camp to assist us in combating the evil powers, we cheerfully extend them, but in our judgment the wrongs complained of may be easier righted by avoiding abuse of American medical journalism and American medical journalists. Let us elevate them, dear contemporary, by our good example. The JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION has no "reading notices," and while it welcomes legitimate advertisements, it keeps them in the columns devoted to that purpose, and it is sure that advertisers have more respect for the JOURNAL because its editorial columns never contain them.

But we read another disparaging fling at American medical journalists in the circular of a home contemporary. We have received a circular from New York dated December 12, which among other interesting items of information says:

"We believe that for the first time in the history of American medical journalism there is presented a journal at once independent and free from all mercenary influences. That such a publication exists now in the *American Medical-Surgical Bulletin*, is due to the liberal-minded and far-sighted policy of a syndicate of wealthy men, who clearly recognize the need of our day in this regard."

After this attack on American medical journalism, the circular further says:

"2. The *Bulletin* will regularly publish, twice every month, a full synopsis of the proceedings of the New York Academy of Medicine, the most important deliberative body of physicians and surgeons on this continent, which synopsis will include stenographic reports of all the papers read at the frequent meetings of the Academy and its various special Sections (on General Medicine, Surgery, Neurology, Obstetrics and Gynecology, Genito-Urinary Surgery, Pediatrics, Orthopedics, Laryngology and Rhinology, Ophthal-

mology, Otology and Public Health). About one hundred such meetings will occur in 1894." (Italics ours.)

The Section on MODESTY appears to have been inadvertently omitted from this comprehensive program.

We had before suspected that some members of the Academy secretly aspired to national jurisdiction, but this is the first official announcement of it that has fallen under our observation. Or, is there a possibility that the Academy never authorized the statement?

The *Bulletin* seems to be prosperous, for its circular says: "Already over fifteen thousand physicians and surgeons in all parts of the United States have become subscribers to the *Bulletin*." (Italics theirs.)

The affidavit editor was evidently in when this was written, but will he swear to it?

The management seem themselves to be harassed with doubts on the subject for they say:

"Should your confidence in us and in our enterprise be sufficient guarantee, you will greatly please us by filling out that part of the inclosed postal card ordering a year's subscription (in case you are not already a subscriber)."

We have retained the postal card as a souvenir of the full fledged enterprise of "the only" journal worth mentioning as an able, fearless and highly scientific publication, absolutely untrammelled by any of the selfish considerations that govern the remaining medical publications in this sinful and wicked world.

CORRESPONDENCE.

Treatment of Uterine Fibroids.

To the Editor:—In a recent editorial and correspondence in the JOURNAL, the treatment of uterine fibroids was discussed. In the correspondence, Dr. Franklin H. Martin called your attention to the omission of his method of dealing with uterine fibroids by ligating the uterine artery and the broad ligament through the vagina. Dr. Martin's method avoids the dangerous hysterectomy.

I would like to call your attention to an operation which I devised for the purpose of avoiding the removal of the uterine fibroid, and which you also omitted to mention in your editorial. My operation consists in removing the tubes and ovaries, and then ligating the uterine artery as it courses along the sides of the uterus. The uterine artery should be ligated nearly as far as the internal os. I did the operation first in November, 1892, on a patient with a large uterine fibroid which could not be removed without almost certain death to the patient. The myoma was so large that it could not be accommodated in the pelvis, and reached to a point half way from the pubic crest to the umbilicus. In three months it had shrunk to one-half its original size, and her severe hemorrhage had almost totally ceased. Six months after the operation it was only one-quarter of its original size, and now the uterus is only about twice its normal size. She is at present in perfect health. I have since performed the operation twice, and Dr. Waite recently performed it once. So far every case has improved.

The total removal of myoma is still a hazardous operation. But the ligation of the appendages will check about one-

third of the uterine blood supply. And the ligation of the uterine artery as it courses along the sides of the uterus from fundus to neck, will cut off as much blood supply as is compatible with the life of the uterine tumor. My operation was performed in the same month, November, 1892, as Dr. Martin's. Both were done independent of each other. They are the only means by which the blood supply of the myomatous tumor can be controlled. It is known to observing gynecologists that uterine myomata have not a very vital growth. They often become absorbed without any treatment. A shock, attendant on opening the abdomen, may induce a myoma to atrophy. Pregnancy frequently causes them to disappear during and after the puerperium. A slight change in the blood current will many times be sufficient to reduce a myoma. But when a definite nourishing blood current is suddenly cut off together with functioning tubes and ovaries, as in the operation I offer, it will be frequently sufficient to cause the myoma by atrophy. Hundreds of myomata have been cured, at least symptomatically, by ligating off the tubes and ovaries, but my operation proposes to cut off a supply of blood much greater than the ovarian artery. In fact, one can cut off as much blood supply from the myoma as his judgment dictates, by ligating the artery along the side of the uterus toward the internal os. A woman is more shocked and mutilated by the removal of the large uterus than she is by removal of the appendages, and the additional manipulation necessary to the ligation of the artery along the uterine sides is very little.

The operation I propose will not suit all cases to avoid abdominal hysterectomy. The operation which Dr. Martin offers will not fit every case. But by judging each case on its individual requirements, I believe that one of the two operations which look to the control of blood supply will fit many cases which previously submitted to hysterectomy—with much risk. We hope your editorial, which notes that the only real curative method is the removal of the tumor, will be superseded by the operation which cures the tumor *without removal*—by atrophy. Cut off the blood stream that feeds an unnecessary district and it must check further growth and result in shrinkage. It should never be forgotten that an unlimited ligation should not be practiced, as gangrene may follow.

I have noticed during the past year, while examining fibroids per vaginam and by abdominal section, that some portion of the tumor was being fed by an enlarged and dilated artery, e.g., one of the ovarian or one of the uterine arteries were considerably enlarged. The most frequent (on account of opportunity and accessibility) I found was one of the uterine arteries excessively enlarged. I would often find on one side of the uterus (the side of the most enlargement), the uterine artery dilated and beating almost like the femoral. The plan of the operation is to ligate that dilated artery, which is growing a tumor, whether it be ovarian or uterine.

Respectfully,

F. BYRON ROBINSON, Chicago.

Analyses of "Cerebrine" and "Medulline."

To the Editor:—At a meeting of the Chemical Section of the Chicago Academy of Sciences, held two months ago, Prof. M. Delafontaine of this city, presented some facts regarding tests of the substances known as "cerebrine" and "medulline," and somewhat more in detail than in the note in the JOURNAL of August 26. This work having been criticised in certain quarters, both as regards methods and conclusions, I thought it worth while to make a new examination of the question, agreeing as far as possible sources of error. I accordingly obtained from a well-known Chicago

druggist a bottle of each of the two. He had 100 preparations which I tested, with results agreeing fully with those of Prof. Delafontaine. These tests I considered, however, as preliminary to more extended ones. For this purpose I secured through one of our leading wholesale drug houses four bottles of "cerebrine" and four bottles of "medulline" direct from the Columbia Chemical Co., 20 South LaSalle Ave. These bottles came packed in a small box which was added to me unopened. Each small bottle was in a dark red paste-board carton, labeled "Sterilized Solution of Cerebrine" and "Sterilized Solution of Medulline," with the name "William A. Hammond," in red ink printed diagonally across it in red ink. The cartons had not been opened, which was shown by the unbroken labels. The bottles themselves were sealed with some kind of white wax, apparently paraffine, and were each found to contain about four cubic centimeters of a sweetish liquid consisting mainly of glycerine and alcohol.

I carried out special tests as follows:

The contents of two bottles of "cerebrine" were poured into a small flask and extracted with pure benzol in two operations, using twenty cubic centimeters each time. The united extracts were evaporated spontaneously; a small oily residue left was treated with water, warmed on the water bath and used for tests. A portion of this aqueous mixture gave a strong test for nitrates with diphenylamine and sulphuric acid; another portion gave the nitrate test with ferrous sulphate and sulphuric acid. Another portion failed to give the *nitrite* test with naphthylamine and sulfonic acid. The remainder of the aqueous liquid was saponified with sodium hydroxide and then tested for nitrates and nitrites, both of which were found in decided quantity. The benzol, sodium hydroxide, sulphuric acid and acetic acid used in these tests were pure and free from even traces of nitrates or nitrites, as I found by careful special examination.

The reactions given above show the presence of an organic nitrate (not nitrite) in the liquid, and the behavior on saponification is strongly suggestive of nitroglycerine. The fact of the solubility of this nitrate in pure benzol is important.

I next dissolved the contents of one bottle of "cerebrine" in ten cubic centimeters of water and made tests for alkaloidal bodies. With solutions of mercuric-potassium iodide and iodine in potassium iodide, no precipitation whatever occurs. Platonic chloride, picric acid and phosphomolybdic acid give a very slight haziness; with mercuric chloride a marked cloudiness is produced. These tests I consider sufficient to show the absence of animal or other alkaloids.

Four bottles of "medulline" were next mixed and extracted with pure benzol; an oily residue remained on evaporation of the benzol. This residue was dissolved in alcohol and treated with ammonium sulphid. A finely divided precipitate of sulphur settled out. The excess of ammonium sulphid was removed with pure zinc sulphate, and the filtered liquid tested for nitrites; a strong reaction was obtained. This test, like those given above for the "cerebrine" is characteristic of nitroglycerin and strengthens those obtained in my preliminary tests. Taking all tests into consideration, I am of the opinion that the preparations, "cerebrine" and "medulline," contain nitroglycerin as their active ingredients, as stated by Delafontaine and others.

Yours truly,

J. H. LONG.

Northwestern University Laboratories.

Uterine Fibroids.—A Correction.

To the Editor:—In my letter in the JOURNAL of Dec. 23, 1893, two errors occur, caused by carelessness in copying

the original manuscript. The errors are important, inasmuch as they involve dates which make my articles appear as having been published subsequent to Profs. Gottschalk's and Küstner's, when in fact my articles were published several months before theirs. My letter makes Prof. Küstner's article in the *Centralblatt f. Gynäkologie* appear Aug. 19, 1892, when the date should have been Aug. 19, 1893, and Prof. Gottschalk's article which reads in the letter Sept. 30, 1892, should have been Sept. 30, 1893.

Yours very truly,

FRANKLIN H. MARTIN.

BOOK NOTICES.

The Essentials of Chemical Physiology for the Use of Students.

By W. D. HALLIBURTON, M.D., F.R.S., pp. 166. London: Longmans, Greene & Co., Chicago: The W. T. Keener Co. Price, \$1.50. 1893.

This book has for its object that of supplying the student with directions for examining practically the most important of the subjects included in chemie physiology.

It is concise and comprehensive and an excellent manual for advanced students.

An Outline of the Embryology of the Eye, with illustrations from Original Pen Drawings by the Author. By WARD A. HOLDEN, A.M., M.D. Pp. 69. New York: G. P. Putnam's Sons. 1893. Chicago: The W. T. Keener Co. Price, 75 cents.

This monograph is the Cartwright prize essay for 1893. The drawings represent the development in the eye of the chick embryo and the pig embryo, on the days stated. Although less comprehensive than the section on the development of the eye in Minot's "Embryology," yet it has its field of usefulness, and doubtless will be appreciated. The writer seems not to have been acquainted with the work of O. Schultze, on this subject, or that of Mihalkovics, but in the main the work shows careful and original observations in this interesting field.

Manual of Physical Diagnosis for the Use of Students and Physicians. By JAMES TYSON, M.D., Professor of Clinical Medicine in the University of Pennsylvania, etc. Pp. 241. Second edition, revised and enlarged. Philadelphia: P. Blakiston, Son & Co. 1893. Price, \$1.50.

This work is carefully written and contains all the recent additions to the subject. The bacteriologic examination of sputum for tubercle bacilli and the pneumococcus are given *in extenso*. The chemie examination of gastric contents are given, and directions for making a postmortem examination for purposes of pathologic diagnosis and the normal weight of the different organs are given. The book is an excellent one, and although much smaller than some of the more elaborate works, will be found very useful.

Essentials of Practice of Medicine. Arranged in the form of questions and answers, prepared especially for students of medicine. By HENRY MORRIS, M.D., with a complete appendix, on the examination of urine, by LAWRENCE WOLFF, M.D. Third edition, revised and enlarged by some three hundred essential formulæ selected from the writings of the most eminent authorities of the medical profession. Collected and arranged by WILLIAM M. POWELL, M.D. Pp. 374 and appendix 66. Philadelphia: W. B. Saunders. 1894. Price, \$2.00.

The rather elaborate title tells the scope of the book, and for those who like question-compends this is one of the best of its class.

The Physician's Visiting List for 1894. Forty-third year of its publication. Philadelphia: P. Blakiston, Son & Co.

This old and well-known visiting list has retained the characteristics which have made it so popular in the past,

and in addition there will be found a posological table by Dr. Gould which gives the decimal dose of all the ordinary remedies. Another table gives the comparative thermometric scales, and there is much useful information compressed in small space. Among the many excellent lists on the market we recall none that are superior to this.

New Truths in Ophthalmology as developed by G. C. SAVAGE, M. D., Professor of Ophthalmology in the Medical Department of the University of Nashville and Vanderbilt University.

This attractive title covers a multitude of papers which have been published (the most of them within the past year) in medical journals.

It is evident that the author's conception of a scientific truth differs from the generally accepted definition. An observation does not become a scientific truth because one man has demonstrated the fact "to his own satisfaction;" a theory does not become an established principle because one man believes it to be true. All observations must be verified and indorsed by other capable and competent investigators before they can be accepted as new truths. And the author would have done well to postpone the publication of this book until he had received these indorsements; for we are liable to make mistakes, and even Dr. Savage is not infallible. When, for instance, he undertakes to develop as a new truth in ophthalmology his doctrine of "the harmonious symmetric action of the oblique muscles in all cases of oblique astigmatism." Anybody familiar with the rudiments of physiologic optics can see the fallacy of his arguments, the whole doctrine resting on false premises.

Man an Organic Community, being an exposition of the law that the human personality in all its phases in evolution, both coordinate and discoordinate, is the multiple of many sub-personalities. By JOHN H. KING. In two volumes. London: Williams & Norgate. New York: G. P. Putnam's Sons. Chicago: The W. T. Keener Co. Price, \$4.50. 1893.

This book is an elaborate presentation of the author's views on the origin and nature of the human personality; the phylogenetic stages, the phylogenetic sexual forms; the coordination of faculties and functions. The forms of mental and organic coordination as shown in the normal forms, i. e., the active wakeful state; the state of quiescent repose; the state of reverie; the dream state; the state of somnambulism; and induced mental and physical states. The abnormal discoordinate states are then fully and exhaustively considered and the whole concludes with an exhaustive bibliography. As a scientific treatise it is exhaustive and complete, and the theories advanced of some of the complex phenomena discussed are entertaining and plausible. At all points the author rather successfully brings forward observed facts to sustain his conclusions, and some well-known facts receive a new illumination from the author's method of treatment.

A sample of the author's style may be useful to our readers:

We thus become conscious that the lowest elements in the organism are the plasma and the cell, and that as independent organisms each cell, according to its nature, guides and controls its own external and internal relations. Secondly, that when these cells become associate groups there are manifested, not only the status of each individual's vitality, but that a common principle of personality gives a unity to the group, they act in concert, and that this united action is not the result of special inheritance, and a common factor in the personality may be noted by several organic results that accrue in skin grafting. Thus the loss of a local group or groups of associated cells, acting as a subpersonality in the individual organism, may be replaced by the associate grafting of foreign skin from any other animal or man, or from any other part of the same organism. No matter what may have been the original nature of the skin thus transplanted, when it is made part of the new organism, like an emigrant alien in the new community to which it has become attached, it has to forego all the

weather, when they shall be scraped, swept and freshly sanded, and in pleasant weather washed with hot water and quickly dried, the passengers being sent on deck during the operation;

That the berth-deck attendants shall be on duty night and day in rotation by regular sea-watches, and the attendants on watch be required to remove the debris of seasick passengers without delay; and

That benches and mess-tables shall be provided and the passengers' food be distributed by the berth-deck attendants, who shall take away all unused food, and carry the dishes to the pantry.

7. As to additional provisions for the personal health, cleanliness and comfort of emigrant passengers:

That wash-rooms under cover, with basins supplied with running water, shall be provided on the upper deck, those for men to be separate from those intended for women and children;

That fresh water for drinking purposes shall be provided in each compartment; and

That inexpensive mattresses, pillows, these to be serviceable as life-preservers, and blankets shall be provided for emigrant passengers, the mattresses to be destroyed after each passage, and the pillows and blankets to be steamed and washed before being again used.

While other suggestions as to sanitary provisions might appropriately be made, your Committee feel that those indicated are of such urgent necessity that they should be insisted upon and put into effect without delay.

All of which is respectfully submitted:

(Signed) ALBERT L. GHON,

Medical Director, U.S. Navy, Chairman.

FREDERICK MONTZAMBERT, M.D., F.R.C.S., D.C.L.,

Supt. Quarantine Station, Grosse Isle, Que.

WALTER WYMAN,

Surprising Surgeon General, U.S.M.H.S.

S. R. OLLIPHANT, M.D.,

President State Board of Health of Louisiana.

WM. T. JENKINS, M.D.,

Health Officer of the Port of New York.

American Electro-Therapeutic Association.

The Third Annual Meeting Held in Chicago, Sept. 12, 13 and 14, 1893.

AUGUSTIN H. GOELET, M.D., President.

(Continued from page 929).

The Secretary then read a paper by H. NEWMAN LAWRENCE, M.I.E.E., F. I. Inst., London, Eng., on

ELLIPTIC-MEDICAL ECCENTRICITIES.

In this paper I use the word, eccentricity, as meaning, "deviation from a center." The center being the object of our Association as set forth in Rule II, viz: "The cultivation and promotion of knowledge in whatever relates to the applications of electricity in medicine and surgery."

It is manifest that all eccentricities, all deviations from the center, are harmful to any cause and are likely to be especially so to such a cause, as ours, surrounded as it is by difficulties and pitfalls in all directions. In venturing to call attention to electro-medical eccentricities, I do so simply as one of a body having the cause of our Association at heart, and not in any sense as attempting to dictate or lay down the law. That honest eccentricities do exist among us and that dishonest eccentricities swarm around us none will deny. Perhaps, therefore, a short consideration of some of them may not be unwelcome, and may possibly tend to free the cause of electro-therapeutics from these hindrances.

The first eccentricity is one which I approach with considerable diffidence, inasmuch as it refers to most of the published works of writers upon medical and surgical electricity, some of which works have attained a world-wide reputation.

I refer to the want of continuity between the chapters on the physics of electricity and those on the medical and surgical uses of electricity. There is too often a strong and distinct line of separation between the two portions of such books. On the one side, we have an abstract of, or a series of extracts from, some elementary work upon electricity; and on the other, statements about cases and their treatment, so constructed that they seem almost to avoid connection with the laws and data laid down in the first part. The result of this is that the student has to face unnecessary difficulties. The most important steps, which show the real

relationship between the physics and the therapeutics are wanting, and he is left to grope his way among mysterious technicalities and apparent contradictions till, perchance, his patience is exhausted and he gives up the subject in disgust.

The causes of this eccentricity are not far to seek. Most of the earlier electro-medical specialists had to make the best of electrical knowledge in many ways inferior to that of the present day. From this they extracted as little as possible, probably in the hope of avoiding complications, and thus set up a type or fashion in books upon electro-therapeutics, based upon a sort of homeopathic dose of weak physics. This type others have, almost slavishly, followed.

As time went on and knowledge increased more rapidly on the electrical side than the medical, more advanced physics had to be dragged in, so that the breach between the two portions of the book became wider. Curiously enough this breach became more marked in some cases where the medical writer, in the hope of getting over the difficulty, has called to his aid a non-medical physicist; for though, for the most part, each side of the work was thereby improved, yet the way of looking at things from the electrical standpoint seemed so different from the view taken by the medical side, that the want of continuity was lamentable and at least as prominent as before.

A leading electrical paper in London recently explained its views on the subject as follows: "We have long endeavored to show, in this journal, that a proper study of the physics common to all branches of applied electricity is a *sine qua non* to medical electricians; and now that the time has at length arrived when the medical profession and their technical organs are beginning to recognize the truth of our contention, it may not be unfitting that authors of books on medical electricity should consider how far the desired end can be obtained by crowding into their text-books a few chapters upon physics, however well they may be written.

"The electrical engineer, whatever branch of applied electricity he intends to adopt, has to first prepare himself by a careful study of complete text-books, often of no mean size, dealing with the physics which form a common basis to all branches; and surely it is necessary for the electro-therapist to prepare himself in like manner. Medical men, when writing a treatise on forms of treatment by drugs, do not offer their readers instruction upon chemistry by attempting to include it in their books. They write on the understanding that the student has already been through a course of study in the general principles of chemistry, so far, at least, as they are likely to apply to medicine. Why, then, should writers on treatment by electricity add to the difficulties of themselves and their readers by endeavoring to condense the general principles of electrical phenomena into the small space which is all the exigencies of circumstances leave available in the one book? It seems to us that this effort at comprehensiveness involves the saying of either too little or, in another sense, too much.

"We venture to think that the student and the practitioner would be better served by a few short sentences, recommending a preliminary study of one or two standard text-books on electricity and magnetism, with hints as to the need of special attention to points more directly bearing upon the problems and practical difficulties the electro-therapist has to face."

Another point is the special terms or words which are so often used in electro-therapeutics, possessing little or no definite meaning and often being entirely misleading. With this form of eccentricity, Mr. J. J. Carly ably dealt in his paper before this Association last year. I will, therefore, not enlarge upon it but content myself with another (short) quotation from the same journal. In reviewing a book it says: "As the terms, galvanic electricity and faradic electricity are used, in the book, we can not close this review without again pointing out how undesirable it is that they should still be adopted in medical works. Most physicists are agreed, and our present author seems of the same opinion, that electricity is one and the same, however generated. The currents obtained may be either continuous, interrupted or alternating, and each of these forms of current possesses certain physiologic properties, whatever the source of generation be. For instance, the continuous current may be obtained from a galvanic battery or from a well-commutated direct current dynamo, and the alternating from a coil, or an alternating current dynamo. In the one case the conti-

¹ Electrical Review, London, April 14, 1893, page 443.

² Electrical Review, London, April 14, page 441.

nity endows the current with certain physiologic powers; in the other, the alternations endow it with certain other physiologic powers. In neither has the source of generation any physical or physiologic influence. Why, then, speak of galvanic or faradic electricity, per se? Such terms, especially in so complex a subject as medical electricity, act as a stumbling block to the student, and often, in unprincipled hands, become a trap to the unwary."

I will now pass from the books to the practitioner who, from the force of circumstances, is not in a position to personally administer electricity to his patients.

The physician who wishes his patient to be treated electrically, and who has not the special knowledge, the time or the apparatus necessary, is often in a difficulty. Here in England, the difficulty is scarcely met by the very objectionable custom that has sprung up of intrusting electric applications to the hands of hospital nurses and irresponsible individuals of both sexes who, under the cloak of "massage," are ever ready to do anything and everything the doctor may suggest or the patient sigh for. These people, though acting often from the highest and most conscientious motives, I know, do enormous harm. Few of them have had any training in medical electricity at all, and most of them possess none of the requisite qualifications. Why medical men should be willing to intrust their patients to such unskilled assistants it is hard to see, but while they continue to do so it is manifest that the standard of qualifications will be raised. If doctors want to have electricity applied to their patients *in a proper manner*, so that they (the patients) may receive the full advantage which electricity can be obtained from the treatment, they must employ, as their assistants for the purpose, people who have *special preparation for the work* by a study of anatomy, physiology, electricity and electro-therapeutics.

What is wanted is an established *standard for qualified practitioners*, so that the busy physician may feel sure that any person having passed that standard is qualified for his work, in the same manner as any person passing the standard of the Pharmaceutical Society is acknowledged a qualified dispenser of drugs. The present state of things is unsatisfactory in the extreme. Can not some steps be taken to alter it?

It now turns to a far more serious set of eccentricities—the various forms of body appliances called electric and magnetic. Most of these wonders are utter frauds, but the nature of the deception they practice is so insidious and is put forward in such a plausible manner that the public believe in them to a large extent. The existence of these body appliances is for the most part totally ignored by the medical profession, but the result of this silent policy can hardly be considered satisfactory. The medical profession loses, the electro-medical science is brought into disrepute and the public are defrauded of enormous sums every year. I venture to think that the time has come when the attitude of medical men and electricians should change somewhat towards these absurd and useless appliances.

I would suggest that authoritative statements be made of the fundamental principles of electric or magnetic generation; and that medical men and electricians, and such of the general public as we can get together to help us, shall openly condemn all appliances which do not act in accordance with those principles.

The question of the genuineness or otherwise of electric or magnetic appliances is really one for the electrician rather than the medical man. The battle must be fought not on, "can the appliance do any good to the body?" but on, "is the appliance electric or magnetic as may be claimed?" i. e., is it capable of generating electricity or magnetism? It is here that a definite and distinct line may be drawn: *any so-called electric appliance that does not, and cannot, by reason of its construction, generate electricity at all, is not, E. M. F. to pass into the body, is a fraud and should be suppressed by the State.* Any such appliance as does generate electricity and pass it into the body and there are a few such) belongs to another category. It is not fraudulent; it is what it professes to be, i. e., electric. Its therapeutic value is of course quite another matter, and must very wisely be left to the opinion of the medical profession. There has been too much mixing of the questions of the genuineness of the appliances and the remedial possibilities of the small electric or magnetic action their vendors claim they are capable of. These seem to me to be very separate and distinct questions. The one can be answered by facts and well-known, generally accepted laws; the other can be, at present, only a matter of opinion.

In this Association we have splendid opportunities for

moving in this matter, and it is scarcely possible to imagine a subject more urgently needing our attention.

I would, therefore, propose the formation of a special committee of members to consider, report and act. That they should assign a report and appeal to the chief medical and electronic societies or associations of each country, say, Great Britain, Germany and France, asking them to cooperate in laying the matter before their respective governments. In America this appeal would probably go directly to the American Medical Association and the American Electronic Association. The appeal would be strengthened if it may be the case, as I think that the appeal should be strengthened by the cooperation of the principal medical and electronic societies of the United States.

Perhaps I may be forgiven if I conclude with some extracts from a recent article of mine:

Electric is a word which to most minds conveys a definite meaning, and it indicates that the particular article or instrument to which the word is applied possesses electrical properties, or, perhaps, in fact, is different essentially from all other properties, and only be described by a distinctive word. Electric, therefore, is understood, and rightly understood, to indicate properties of a distinct and definite order, so that when a machine or appliance is described as electric we expect its name to be characteristic to be the possession of recognized electrical properties.

"There can be little doubt that this is the general belief, and it follows that if articles are called electric that are not electric, a deception is practised, while, if they are sold, the seller is guilty of fraud.

"Further, if by calling things electric which are not electric, the price of the goods can be enhanced a hundred-fold, the fraud becomes a very gross one indeed.

"There are, unfortunately, a considerable number of so-called electrical appliances which are electric in name only, being sold to the public and generally advertised so extensively that their sale is very great. We think it high time that such systematic deception of the public should be stopped.

suppose a grocer sells a pound of margarin and calls it butter, he is liable to be brought before the nearest magistrate, and fined heavily for his deception. A milkman is similarly liable if he sells a milk that which is not milk. The extent of the deception in each case is probably represented by a few pence. On the other hand, some electrical appliance vendors are selling as "electric" things which are not electric, and deceiving the public to the tune of many shillings, and often pounds, on each transaction, and yet they get off scot free.

"Surely what is sauce for the goose ought to be sauce for the gander. If the deception of selling one set of articles under a false name is a fraud, punishable by law, why does not the same law hold good where another set of articles is concerned? It may be that the law does not apply to electric frauds simply because such offenses were not contemplated when the law was made. If this is so the sooner the law be made to include them the better.

As matters are now, not only are the public defrauded, but the beneficent science of electrotherapeutics is brought into disrepute, its advances are checked, its legitimate claims are looked upon with suspicion, while not a few people condemn it entirely because they or their friends have been duped. They fail to differentiate between the substance and the shadow, and cry aloud that because they are deceived by the shadow the substance is not.

are always open to the public. It may be argued that it is not so easy to tell if an article is electric or not, as it is easy to tell if butter is butter or margarine. Perhaps not to the uninitiated, but to the electrical expert it is as easy to prove and demonstrate on electrical goods as it is for the public analyst to declare upon articles of food. We would suggest that a good way to protect the public from the various electrical swindles of this order would be to establish an authority, if none at present exists, which should decide as to the genuineness of appliances which claim to be electric, and then prosecute for fraud any persons afterwards found selling as electric, things which are not genuine.

"Some such protection is a necessity, and we appeal to our contemporaries, medical and electrical, to bring their influence to bear upon the authorities, so that action may be taken to put an end to this scandalous state of things."

1980-1981-1982

DR. MORTON agreed thoroughly with the author but had said about the make-up of electro-therapeutic textbooks.

and the use of such terms as galvanic and faradic; yet in the latter particular we are constantly dropping back into the use of these terms. He was sure all agreed with the author that the world should be improved, but we should remember that there always will be swindlers and people who are willing to be fooled. On this account, it was not legislation, but general education which would be the most effective remedy.

Dr. HELDMAN said that the kind of abuses referred to thrive by opposition, and die by neglect; hence, legislation is of no use. The American people are anxious to be humbugged and are willing to pay for it; hence, medical men should leave the quacks and their methods alone. In his opinion, the man who puts an electric battery in the hands of a nurse or a family is adopting these very methods. He thought there would be just as much wisdom in giving a man a vial of strychnin and telling him to take a little when he felt weak as to give him a faradic battery with the general instructions to use it occasionally.

(To be Continued.)

Will Appeal.—The *News* of Ripley, Tenn., says that Dr. E. E. Kerr of that place was disciplined lately by the Chattanooga Medical Society for attachment to a Keeley cure, and that he will appeal to the AMERICAN MEDICAL ASSOCIATION. The Keeley business will be an interesting question for the Judicial Council to tackle.

Another "Tri-State" Medical Society.—The Tri-State Medical Society, composed of physicians of Western Pennsylvania, Western Maryland and Western Virginia, met at Cumberland, Md., on Thursday, December 21, at 1:30 p.m., in the City Council chamber. One object of the meeting was the perfecting of the organization, which was first effected at a meeting held at Bedford Springs, in July last.

Syracuse, New York, Medical Association.—The Syracuse Medical Association held an important meeting in the Business Men's rooms December 19. Dr. G. M. Price presided, and Dr. S. B. Craton acted as Secretary. At the election which followed Dr. N. P. Warner was chosen President; Dr. T. H. Halsted, Vice-President, and S. B. Craton, Secretary and Treasurer.

Dr. John Van Duyn read a paper on "Rupture of the Left Ventricle," and Dr. H. L. Eisner discussed it. The report of the Committee on Permanent Rooms was made by Dr. T. H. Halsted. The majority of the Committee recommended that the Press Club rooms in the Larned Block be secured at a rental of \$250 a year. They also recommended that the annual membership fee be \$5. The proposition concerning the rooms not being satisfactory to all, a committee consisting of Drs. W. Jacobson, J. L. Hedron, D. W. Murray, T. H. Halsted and J. Van Duyn were instructed to further consider the matter and report at the next meeting.

Eleventh International Medical Congress.—The undersigned Chairman of the American National Committee of the Eleventh International Medical Congress has received the following communications from the Secretary General:

1. Papers to be read in any of the Sections of the Congress should be announced on or before Jan. 31, 1894, to the Secretary General, Prof. E. Maragliano, Ospedale Pannatone, Geneva, Italy.

2. The title of the paper ought to be accompanied with a brief abstract of its contents and conclusions.

3. The program to be distributed will contain the titles of all the papers announced before August 31, 1893, and since.

4. The reductions granted by the railway companies months ago will be available from March 1 to April 30, 1894.

In the interest of such medical men as will sail for Europe

before official cards will have been received from the General Committee, the undersigned proposes to supply in as official a form as he thinks he is justified in doing, credentials which are expected to be of some practical value. It is suggested besides, that a passport may increase the traveler's facilities.

Very respectfully,

A. JACOB, M.D.

110 W. Thirty-fourth Street, New York.

A letter of the Secretary General's, dated November 29, informs me that "traveling documents" will be sent to the address of every subscriber on or before Feb. 15, 1894; and that after that date Congressists will have to apply to the undersigned.

It also contains the following regulations of former circulars:

Members' dues are five dollars (money order to Prof. L. Pagliani, Rome; guests' (wives and adult relations) two dollars; medical students, no fees. All are entitled to traveling documents.

Reductions on the Italian railways are available from March 1 until April 30.

A. JACOB, M.D., *Chairman National Committee.*

Medical Society of Berlin.—(President, R. Virenow.) Meeting of Dec. 7, 1893. Herr Th. Weyl, "On the Influence and Value of Hygienic Restrictions for the Health of the City of Berlin." In the first place, he inquired whether canalization had had any remarkable influence on the state of health, death rate, etc., of Berlin. For this purpose he has collected some statistic data, principally the mortality in the years 1871, 1875, 1880, 1885, 1890, when the population was officially counted. Then follows a line of data concerning the mortality in Berlin judged by special causes of death and by the respective ages of those who died. Dr. Weyl has in this manner taken reference to tetanus infantum in the first year, to dysentery, to tuberculosis, to abdominal typhoid of all ages and to carcinoma in women above thirty years of age. For the purpose of canalization the town is divided into twelve parts, each of which is called a radial system. Therefore Dr. Weyl made a comparative inquiry as to how mortality had been altered in a certain radial system in comparison to former times without canalization. It is a pity that statistics but partly serve in observations in this direction, by the method after which they are now taken. By chance, however, the comparison was now already possible for the first and sixth radial systems, using the data of the Mayor's list of deaths and births. By these, the health of Berlin has much improved since canalization was first introduced, as can safely be derived from the data. Dr. Weyl approved some further proposals for improving the health of the city; especially he demanded health officers as in England, and health officers for the schools. Women also should be admitted for these places. Dr. Weyl showed the necessity of these officers by the results of some little private inquiry of his, how far in some houses sewage pits were placed from inhabited rooms. Some houses, however, are not yet in connection with canalization, although it is ordered by the Mayor's decree. Also in regard to the health officers for school question, Dr. Weyl has collected some private statements. He will employ for this office the physicians designed by the city for the medical service of the poor.

Society for the Relief of Widows and Orphans of Medical Men.—Dr. E. Eliot, President of the Society, made the following report at the Meeting of the Board of Managers held in New York, Dec. 20, 1893. Eleven widows and three children of deceased members relieved; \$6,510.30 added to the permanent funds, now amounting to \$189,157.06; the membership increased by 13, now numbering 143; and all this at an expense of only \$180.30—such is the record of last year, and it will compare favorably with that of any preceding one.

In its foundation our Society had for its model that of the same name in London, established in 1788, and such are our record and prospects that the mother need not feel ashamed of the daughter. Of course their capital, \$110,286, greatly exceeds ours. They have legacies from 58 persons, three of \$25,000 each; one of these, and the last of the three, being that of Sir Erasmus Wilson, the distinguished dermatologist, in 1887. Our benefactors number 55, most of them having contributed \$150 each. The name in this list leading all the rest is that of Abner Clark, whose gift is estimated at \$20,000.

According to the last publication of the London Society, the allowance to a widow is \$250 and a Christmas present of \$25, making \$275 for the year. The largest allowance to their orphans is \$60 with a Christmas present of \$10, making the annual amount \$70. The provision in our by-laws for giving each child \$50 as an outfit at the time when the annuity ceases I do not find in their regulations.

Their expenses last year exceeded \$1,200. Of this the Secretary had \$630. The amount of our expenditure, as above mentioned, is \$180.20, our Secretary being allowed "an honorarium" of \$50.

Their "Grants and Expenses" exceeded their "Total Receipts Available for Payments" by \$366, this amount being their deficit. We added, as previously stated, \$6,610.20 to our permanent fund. Happily our by-laws prohibit deficits. Their membership is 312 7 less than the previous year. The number of their widows receiving relief is 58, and the number of children 12. The large number of the former is astonishing. Should our widows ever bear as large a proportion to our membership as is the case with the London Society we should be compelled to reduce the allowance, or gifts to our principal must be large and numerous.

A great difficulty during the past year has been the safe investment of our funds at a fair rate of interest. We have had thousands of dollars for which we received but 2 per cent.

The Secretary of the London Society informed me last summer that it required much effort to keep their members good, and to make additions thereto. Such has been the experience of our Society. For a number of years, our members according to the annual statements, were less and less. I believe that for several years not more than one or two persons have voluntarily sought membership. Those who have joined us have done so through personal solicitation. The energetic President of the New York Physicians Mutual Aid Association, happily one of our Board of Managers, recently informed us that not more than six out of a hundred applied for membership in that Society without personal urging. Printed documents and annual statements do not bring members. Physicians should make provision for themselves and any family they may leave. No one in our profession in our city need die in straightened circumstances. By the payment of from \$15 to \$20 in the Physicians Mutual Aid Association his representatives, in the event of his death, can immediately command \$1,000. After a suitable probation, and not a large payment in our Society, he can provide generous relief for a widow and orphans, should they be in need of it. The medical profession in no city in the world, so far as I can learn, are as fortunate in this respect as are the physicians in generous New York.

Our Board of Managers is much the same as last year. Two faithful ones, Drs. Laurence Johnson and Wm T. White, whom death has removed, we shall greatly miss. Happy will it be for the Society if their successors prove equally attentive to their duties.

The Association of American Medical Colleges.—Notice of proposed amendment to Sec. V, Art. 3 of the Constitution. At a meeting of the Faculty of Rush Medical College, held Dec. 7, 1893, the Faculty by unanimous vote passed the following resolution, to-wit: *Resolved*, that Sec. V, Art. 3, of the Constitution of the Association of American Medical Colleges be amended to read as follows: "From students who intend to graduate in 1899 or in subsequent classes, four years of medical study and attendance upon four

annual courses of lectures of not less than six months duration each, will be required. Provided, that graduates of literary colleges who have taken a course of four years, including study in the natural sciences and graduates from universities and colleges that furnish a suitable course of scientific studies, graduates of schools of Pharmacy that require three years of study and adequate preliminary education, and graduates of Dental colleges requiring two years of study and adequate preliminary education may be admitted to the second year's work of course of lectures in the college without examination."

The present wording of Section V, Article III, is as follows: "Candidates for the Degree of Doctor of Medicine shall have attended three courses of graded instruction of not less than six months each, in three separate years."

It will be observed that the adoption of the proposed amendment will require of all matriculants of the session of 1895, attendance upon four full courses of instruction before receiving the degree of M. D.

Recognizing that the proposed amendment, if adopted, would necessitate the formulation of a general curriculum of study for the various branches of the courses, and perchance, other necessary changes or additions to the by-laws, the President, Dr. N. S. Davis, has appointed the following named persons to act as a special committee to prepare a new schedule of minimum of requirements, and to submit the same at the fifth annual meeting, to be held at San Francisco, at 3 p. m., Wednesday, June 6, 1894.

COMMITTEE.

E. L. Holmes, Chairman of the Committee.—President Rush Medical College, Chicago, Ill.

Reginald H. Fitz.—Harvard Medical College, Boston, Mass.
Victor C. Vaughn.—Dean Dept. of Medicine, University of Michigan, Ann Arbor, Mich.

Wm. Osler.—Johns Hopkins Medical College, Baltimore, Md.

Wm. E. Quine.—President College of Physicians and Surgeons, and President Illinois State Board of Health, Chicago, Ill.

P. S. Connor.—Ohio Medical College, Cincinnati, Ohio.

Dudley S. Reynolds.—Hospital College of Medicine, Louisville, Ky.

N. S. Davis, Jr.—Chicago Medical College, Chicago.

Perry H. Millard.—Dean College of Medicine and Surgery, University of Minnesota, Secretary Association of American Medical Colleges, St. Paul, Minn.

The Committee will hold a meeting in Chicago at the Grand Pacific Hotel, at 3 p. m., Wednesday, Feb. 7, 1894. Colleges, members of the Association, are requested to aid the Committee in their work by advice or representation. It is particularly desirable that Colleges, members of the Association, be represented by a formally appointed delegate at the forthcoming session. The proposed amendment, if adopted, marks a most important era in the history of medical education in this country. Colleges unable to be represented by a regularly appointed delegate, will confer a favor by informing the Secretary of their attitude on this amendment, that the same may be submitted or made known to the convention before the final action is determined. Colleges electing delegates are requested to indicate in their credentials if they have full power to act, and to furnish the Secretary the names of the delegates elected as soon as practicable. Colleges are entitled to one delegate each. A proxy can not be delegated to a person not directly connected with the College desiring representation.

In the consideration of this question it is proper that I refer you to the recent action of the AMERICAN MEDICAL Association and of the Iowa State Board of Health, regarding the enforcement of the four years' course by the Colleges wishing their Alumni to receive recognition subsequent to 1895.

There are at present seventy-one Colleges members of this Association.

Article VI, of the Constitution, reads as follows: "This Constitution shall not be altered or amended except by a written notice to all the members at least thirty days previous to a stated meeting, and by a vote of two-thirds of all the delegates present at such meeting."

Very respectfully submitted,

PERRY H. MILLARD,
Secy. Ass'n American Medical Colleges,
St. Paul, Minn.

PUBLIC HEALTH.

The Chicago Medical Society and the Public Health Bill proposed by the New York Academy of Medicine.—At the last meeting of the Chicago Medical Society the committee appointed to consider the request of the New York Academy of Medicine for an indorsement of their proposed bill reported as follows:

To the President and Members of the Chicago Medical Society:—"Your Committee to whom was referred the Public Health bill proposed by the New York Academy of Medicine hereby respectfully report that they have carefully examined the bill, and the arguments adduced in its favor. They submit herewith an analysis of the provisions of the bill from which it will be seen that the bill falls very far short of the recommendation of the AMERICAN MEDICAL ASSOCIATION, the American Public Health Association, the Mississippi Valley Medical Association, and the Illinois State Medical Society.

"The New York Academy of Medicine has apparently forgotten the fact that the AMERICAN MEDICAL ASSOCIATION already has a committee appointed to secure public health legislation of a much broader character, more consonant with the dignity of our profession, and more in harmony with the needs of the people.

"The Academy of Medicine of the City of New York representing itself, recommends a conglomerate *Bureau*; the great national organizations composed of authorized representatives from all the States, recommend a *Department*.

"We do not think the medical profession should be satisfied with any less, and we do not think the country will be materially benefited, by organizing States into separate districts, or that a board has any particular advantage over a department. On the contrary, we are of the opinion that a properly organized Department of Public Health would have immense advantages over the proposed Bureau which may make rules, and must trust others to execute, which places State Boards of Health in an equivocal position in relation to the proposed District Commissioners. Your Committee invite attention to the wise words of President Cleveland in his last message to Congress as follows:

"The admonitions of the last two years touching our public health and the demonstrated danger of the introduction of contagious diseases from foreign ports have invested the subject of national quarantine with increased interest. A more general and harmonious system than now exists, acting promptly and directly everywhere, and constantly operating by preventive means to shield our country from the invasion of disease, and at the same time having due regard to the rights and duties of local agencies, would, I believe, add greatly to the safety of our people."

"It is believed that the bill of the AMERICAN MEDICAL ASSOCIATION meets in all essential particulars the views of the President as thus expressed. Your Committee feel that the bill of the Academy if passed should be amended to provide definite qualifications for the Commissioners, as preliminary to appointment, and that the Secretary of the Board should be a medical man, and that the compensation should be adequate for the services rendered.

"They are further of opinion that the provision that continues the quarantine under one officer of the Government, while the regulations governing the same are framed by the Commission, will lead to confusion, inefficiency and irresponsibility; if the Bureau of Public Health is to frame the regulations, that Bureau should have the responsibility of executing them.

"Finally, your Committee point out that the courts, the Inter-State Commerce Commission, the Solicitor General, the Tariff Commission, the Civil Service Commission, the Superintendent of the Geological Survey, and the Superintendent of the Coast Survey now have by law ample remuneration for their services, while the medical men appointed under the proposed Act are expected to serve for a mere pittance.

"But the criticisms on this bill might be almost indefinitely extended. Your Committee, therefore, respectfully recommend that the Society affirm its adhesion to the request of the AMERICAN MEDICAL ASSOCIATION for a Department of Public Health, and that a committee be appointed to coöperate with the committee of the said Association, engaged in the furtherance of said legislation.

"We further recommend that our Secretary be instructed to notify our distinguished confreres of the New York Academy of Medicine, that this Society prefers the bill to establish a Department of Public Health to the one proposed by them."

ANALYSIS OF PUBLIC HEALTH BILL PROPOSED BY NEW YORK ACADEMY OF MEDICINE.—A BUREAU OF PUBLIC HEALTH.

The Bureau. Two Commissioners-at-Large; nine District Commissioners. Officers elected by Bureau, President and Vice-President, to be elected from Commissioners-at-Large (outside Secretary).

Compensation. President, \$150 per day; all other Commissioners, \$10 per day; Secretary, \$1000 per year.

Executive Committee. The President and the four Ex-Officio Commissioners.

Duties of the Bureau. Make rules for duties of Executive Committee; make rules for guidance of Bureau and establish, establish, establish, government of National sanitation, foreign and Inter-State special departments; may call conference with State Boards.

Sections 3, 6, and 7. Collect and diffuse information; advise the Department of the Executive Committee. Authorities when called for, or when the Bureau thinks best, to secure sanitary condition of vessels from foreign ports; to prevent the introduction of contagious and infectious diseases and their spread, and to be the governing medium for National sanitary action; may make investigations abroad, and the President of the United States may, on request, detail officers from the several Departments of the Government.

Sec. 8. Shall report facts to Secretary of Treasury.

Sec. 9 and 10. Shall obtain information of sanitary condition of foreign countries from Consuls and from domestic sanitary authorities, and transmit same to various public and State officers.

Sec. 11 (dup. of Sec. 6). Shall furnish information and advice to States and Government Departments when requested.

Sec. 12. Shall cooperate with State authorities and secure uniform system of notification.

Sec. 13. Shall make rules for vessels engaged in foreign trade.

Sec. 14. Shall issue rules and regulations to Consuls.

Sec. 15 and 19. Shall have authority to forbid entry of vessels under certain specified conditions, and may order vessels to quarantine; may send to National or State quarantine in case of epidemic.

Sec. 20. May exercise Inter-State quarantine powers.

Sec. 21 and 22. Provides for purchase of State quarantines.

Sec. 23. Shall make an annual report, and its correspondents may have franking privilege one million appropriations.

District Commissioners. Sec. 24. Examine into health measures employed in respective districts, and report same to Bureau, and thereafter make annual report of sanitary affairs of his district.

Surgeon General of the Army. Execute all orders, rules and regulations relating to sanitation in his branch of the Public Service.

Surgeon General of the Navy. Same as above.

Surgeon General Marine Hospital Service. Perform all duties in respect to quarantine and quarantine regulations provided by this Act.

ACTION OF MILWAUKEE MEDICAL SOCIETY.

The Milwaukee Medical Society also report against the bill as follows: 1. It is generally acceded by physicians and sanitarians who have given the matter careful thought, and are not prejudiced, including members of the New York Academy of Medicine, that the bill to provide for a Secretary of Public Health in the Cabinet of the President, which was prepared by the AMERICAN MEDICAL ASSOCIATION, is the only ideal scheme thus far presented to settle the sanitary problem, so far as National legislation is concerned.

2. All other bills are makeshifts, and makeshift legislation is pernicious legislation, as is abundantly shown in the history of our own country.

3. The bill proposed by the New York Academy of Medicine is not claimed by its advocates to be the best solution of the problem, and is cumbersome, expensive and impracticable.

4. Any legislation asked for or favored by the medical profession which is not designed for the highest good, conceived in the light of the most advanced scientific knowledge, is derogatory to the best interests of the medical profession, and as a result detrimental to the best interests of the people and country.

5. No lesser office than one on a parity with the members of the President's Cabinet is consistent with the dignity of maintaining sanitary relations with other nations, with the rank of the medical profession, and with the importance of best protecting life and preserving health and happiness in our own nation.

6. That if this object can not be obtained at present it is unwise to favor legislation which by reason of its imperfection will belittle the medical profession, retard the progress of sanitation and medical science, and reflect discredit upon all who espouse it.

ASSOCIATION NEWS.

The San Francisco Meeting of the American Medical Association.—Our California friends are "bustling," and have been since the Milwaukee meeting. They are stirring up the entire profession west of the Rockies by all possible means. They are instructing them respecting the Association, and seeking to secure their cooperation with it.

The *Occidental Medical Times* of Sacramento publishes each month the majority and minority reports of the Committee on Revision of the Constitution and By-laws and Code of Ethics, as made at Milwaukee. This will enable all its readers (and they are the brightest in the great West) to understand some of the great questions which must come before that meeting.

Every indication points to a larger meeting of the medical profession than has ever met in this country before. Preparations are being made for the profit, comfort and pleasure of all visiting members east of the Rockies. Those who can, and do not provide for this meeting will make a mistake.

Section activity has already begun by the most "live" work among the officers of the Sections. Others will soon wake up, and hundreds will be laboring to prepare some work of value to present at one or more of the Sections of our NATIONAL MEDICAL ASSOCIATION.—(*Cleveland Medical Gazette*).

MISCELLANY.

Dr. M. J. Stern has been elected a Professor of Surgery at the Polyclinic Hospital of Philadelphia. Dr. Stern is a graduate of Jefferson College.

Hospital for Contagious Diseases.—Cambridge, Mass., is to have a hospital for contagious diseases, the Board of Aldermen having voted \$5,000 for that purpose December 10.

A Bust of Professor N. S. Davis.—An excellent bust of Professor N. S. Davis, by Mr. Starr, has been placed in the Art Institute of Chicago, where it is much admired.

The Late Sir Andrew Clark.—Under the will of Dr. Clark, the London Hospital will receive \$2,500 for a memorial scholarship. The estate, inventoried at over a million dollars, is left almost wholly to the family of the deceased.

Health Commissioner.—Dr. Zachary Taylor Emery has been appointed Health Commissioner of Brooklyn, N. Y. He is an ex-President of Kings County Medical Society, and is young and energetic.

The Husband Must Pay.—Where there is a statute making the husband, who has means, liable for his wife's support, the Supreme Court of California holds, in the matter of Weringer's estate, decided Nov. 25, 1893, that her estate can not be charged for medical services, medicines and nursing that he secured for her in her last illness, which makes him alone liable therefor.

To Enforce the Medical Practice Act.—The New York police were recently directed to take a census of all persons engaged in the practice of medicine in the city. Each individual patrolman was instructed to copy the names and addresses from all the doctors' signs. It took only two hours to do the work. The Medical Society will now have the data to catch the bogus practitioners. There are supposed to be about four thousand legally qualified physicians in New York city.

Dr. A. Marlin of Berlin, well known in America by his papers read at the Ninth International Medical Congress, held at Washington, has received the title of Professor. His

father, Carl Friedrich Marlin, was born at Berlin, Prussia, in 1812, and was Professor of Botany at Berlin. Dr. A. Marlin is now in the United States, having been appointed to the position of Professor of Botany at the University of California, Berkeley, in 1887. He is a member of the American Academy of Sciences, and has published many papers on botanical subjects, including a paper on the structure of the cell wall of plants, which was published in the *Annals of Botany* in 1887.

Dr. Gibbs Will Not Pay His Fine.—Dr. Gibbs of O. has concluded that he will not pay the fine of \$250 which Judge Scott assessed in the contempt case in which the doctor was a witness in the case of the State against Frederick Henegedoh.

The Doctor December 20 filed in the office of the clerk of the district court a motion to set aside the judgment, alleging that in finding him guilty the court erred. He further avers that he never had a trial, and that he was not given an opportunity of making a defense, and that he was never served with an information in the contempt case.

"Sanitary Day" to fall in May.—It is proposed by Sir R. W. Richardson that one holiday every year be declared in the month of May. It shall be devoted to the planting of shade-trees and to discourses on the benefits of out-door life and a pure water supply. It shall be called "Sanitary Day." All nations in the northern hemispheres will be invited to observe the same day; a day in November shall be observed at the Antipodes, for the same purposes. Of course, the medical profession will be in the forefront of the movement, preaching the superiority of an ounce of prevention over a pound of apothecary stuff.

Dr. Hammond Explains His Relations to the Columbia Chemical Company.—Dr. W. A. Hammond, in a letter to the *Washington Post*, explains his relation to the Columbia Chemical Company as follows:

"I was the President and a large stockholder in the Columbia Chemical Company, and I remained so as long as I pleased. But, having demonstrated my right as a physician and an American citizen to hold any kind of property that the code of ethics and the law of the land permit, I have accepted a very advantageous and long pending offer for my stock, and am, therefore no longer connected therewith, except in the capacity of consulting chemist, a post somewhat analogous to the one held in the Apollinaris Water Company by that king of medico-ethical propriety, Mr. Ernest Hart."

It will be remembered that Gen. Hammond was acquitted by the Medical Association of the District of Columbia of the charges preferred against him.

Decay of Books.—M. Delisle, the principal librarian at the Bibliotheque Nationale in Paris, warns us that our modern literature is destined to perish. Of the 2,000 and odd volumes published annually in France, not one, he thinks, will remain after a certain time. Cheap paper is a splendid thing in its way, but this is the price we must pay for it. Old-fashioned paper made from rags has stood the test of hundreds of years, as the many fine specimens of fifteenth-century printing show, to say nothing of still earlier books in manuscript. Nowadays, however, paper is made of all sorts of material of a more or less perishable character. In particular, as M. Delisle points out, books printed on paper made from wood pulp soon begin to rot away. At first the pages are covered by yellow spots, and these are replaced in course of time by holes. Even so-called hand-made papers are often no more durable, being treated with chemicals that slowly destroy them.—(*Lancet* Dec. 10, 1893).

Disinfectant Action of Saprol.—Saprol is produced as a light brown liquid with an odor of carbolic acid. Specific gravity .060. Analysis: Saprol contains .43 per cent. of phenol, 53.9 of cresol, 2.5 of hydrocarbons, pyridin and other

bases. Gross affirms that saprol constitutes an admirable disinfectant, devoid of the inconveniences presented by other disinfectants. Saprol is distributed in a uniform manner on all fecal matter which it covers with an impermeable film; the phenol and cresol which it contains penetrate little by little in the subjacent liquids. To save 32.8 to 34.4 per cent. of all saprol; in the case of neutral liquids 37.6 to 39.2. When the liquid possesses an alkalin reaction all the constituent parts exercise their disinfectant action. In the absence of an epidemic 1 per cent. of saprol will suffice to disinfect all fecal matter. The yearly cost will in that case be 45 centimes per man. In the suppression of epidemics, it is necessary to use 1 to 100 per cent. of saprol. The yearly cost will be 4 francs 50 centimes in addition per man.

The fecal masses disinfected by saprol are perhaps utilized with the same ease as other salts. Lastly, its mode of employment is simple. It is only necessary to stir the masses with saprol in the proper quantity.—*Vratch*, 1893, No. 30, page 836.

On the Etiology of Primary Carcinoma of the Gall Bladder.—

F. Siegart describes seven cases of primary carcinoma of the gall bladder. In all he found biliary calculi. Many facts show that these calculi had been produced before the tumor, and that their presence had irritated the bladder.

The author was inclined to this opinion, having found that the parts of the bladder that were not attacked by the carcinoma presented many signs of irritation.

In comparing facts relative to the primitive carcinoma and secondary carcinoma of the gall bladder, he arrived at the following conclusions:

1. That biliary calculi always coexisted with primary carcinoma of this organ, and exceptionally with secondary carcinoma; 2. biliary calculi are one of the causes of carcinoma of the gall bladder, but are never found as a consequence of carcinoma.—*Revue des Sciences Médicales*.

Convalescent Homes in Berlin.—The city is going to make another disposition of the public Convalescent Homes, which had existed before, but were not much used by the convalescent, owing to the difficulty of reception. Till now the procedure was as follows: The Committee of the Home was firstly to give his leave. For this purpose, the physician in charge was obliged to give a letter after certain prescriptions, in which were contained notes on the former disease and the necessity of the country sojourn, and over alimentary and medical specialties concerning the man's question. When the call of the convalescent and the recommending letter of his physician had passed examination, the Committee resolved whether the sick as well as their physicians worried of these diplomatic proceedings, and that the Home remained without inhabitants. Now the Homes (situated in the country near Berlin), shall be connected to the hospitals, so that the medical staff of the hospital can send patients to the Home without formally asking the will of the Committee. This measure will but partly do. As the inhabitants of the Homes not only come from the infirmaries, but also are visited by their physicians in their lodgings, or had frequented some out-patient room, care should be taken that the profits of the country sojourn may be reaped also by these patients. Therefore it is planned to create the place of a physician especially for the service of the Convalescent Homes, whose office in the City Hall is open from 1 to 4 P.M. The respective Committees of the Homes give him regular reports as to number of inhabitants and free places in the single Home. On the other hand, the public hospitals should daily give him information whether candidates for the Home are leaving the hospital. What private patients claim reception in a Home, should also direct themselves to this office. Often their former physician will reform this to health officer and give notes for the further treatment. This officer soon would be the center for the convalescent service of the town. He soon would learn which classes of recovering people are able to be sent to a country home, which should not, and his advice would be useful also for the practitioners in charge of the sick. He would also dispose of the places in the Homes. This officer should give his advice to the people and to his colleagues as much as possible directly, and should be easily accessible to all callers and decide out-hand in each case.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from December 16, 1893, to December 22, 1893.

Capt. W. B. BAXISTER, Asst. Surgeon U. S. A., is granted leave of absence for one month, to take effect about the 20th inst.

Major J. W. L. HOWELL, Surgeon U. S. A., is hereby granted leave of absence for one month, to commence about Dec. 22, 1893.

First Lieut. MADISON M. BREWER, Asst. Surgeon, having relinquished the unexpired portion of his sick leave of absence, will report in person to the commanding officer, Ft. Monroe, Va., for temporary duty at that post.

First Lieut. JOHN S. KYLE, Asst. Surgeon, now on temporary duty at Jackson Park, Chicago, Ill., is relieved from further duty at Columbus Bks., Ohio, and when his services are needed will be recalled with the troops at Jackson Park, will report in person to the commanding officer, Ft. Sheridan, Ill., for duty at that post.

Marine Hospital Changes. Official list of changes of stations and duties of medical officers of the U. S. Marine Hospital Service, for the four weeks ending December 16, 1893.

Surgeon P. H. BALMACHE, granted leave of absence for five days, Nov. 25, 1893. To inspect quarantine ports, Dec. 7, 1893.

Surgeon GEORGE PREVANCE, to inspect quarantine ports, Dec. 7, 1893.

Surgeon H. W. SAWTELLE, to inspect quarantine ports, Dec. 7, 1893.

Granted leave of absence for three days, Dec. 4, 1893.

Surgeon H. W. AUSTIN, detailed as chairman of Board to amend and revise the quarantine regulations, Dec. 9, 1893.

Surgeon J. M. GASSAWAY, to proceed to Mobile, Ala., as inspector, Nov. 22, 1893. To inspect quarantine ports, Dec. 7, 1893.

Surgeon R. W. M. BAKER, Asst. Surgeon, detailed as Board to examine candidates, Revenue Marine Service, Dec. 9, 1893.

Surgeon H. R. CAETER, to proceed to Brunswick, Ga., for temporary duty, Nov. 24, 1893. To inspect quarantine ports, Dec. 7, 1893.

Detailed as member of Board to revise and amend the quarantine regulations, Dec. 9, 1893.

Surgeon W. A. WHEELER, detailed as member of Board to revise and amend quarantine regulations, Dec. 9, 1893.

P. A. Surgeon E. E. BARKS, granted leave of absence for seven days, Nov. 22, 1893.

P. A. Surgeon D. A. CARMICHAEL, to inspect quarantine ports, Dec. 7, 1893.

P. A. Surgeon J. H. WHITE, to proceed to Savannah, Ga., for duty, Dec. 4, 1893.

Detailed as member of Board to revise and amend quarantine regulations, Dec. 9, 1893.

P. A. Surgeon P. M. CARRINGTON, to proceed to Baltimore, Md., for duty, Dec. 9, 1893.

P. A. Surgeon L. L. WILLIAMS, to proceed to Charleston, S. C., for duty, Dec. 4, 1893.

P. A. Surgeon W. J. PETTUS, granted leave of absence for eleven days, To proceed to Buffalo, N. Y., for duty, Dec. 4, 1893.

P. A. Surgeon J. J. KINSYON, to rejoin station, Washington, D. C., Nov. 24, 1893. Granted leave of absence for three days, Dec. 4, 1893.

Detailed as recorder of Board to revise and amend quarantine regulations, Dec. 9, 1893.

P. A. Surgeon R. M. WOODWARD, granted leave of absence for seven days, To proceed to Cape Can., Ill., for duty, Dec. 4, 1893.

P. A. Surgeon G. T. VAUGHAN, detailed as recorder of Board for physical examination of candidates, Revenue Marine Service, Dec. 9, 1893.

P. A. Surgeon J. O. COPE, to inspect quarantine ports, Dec. 7, 1893.

P. A. Surgeon G. M. KUTHERS, to report at Bureau for temporary duty, Dec. 6, 1893.

P. A. Surgeon H. D. GEDDINGS, to proceed to New York, N. Y., for duty, Dec. 2, 1893.

Asst. Surgeon G. B. YOUNG, to proceed to New York, N. Y., for duty, Dec. 4, 1893.

Asst. Surgeon W. G. STIMMONS, to proceed to Detroit, Mich., Dec. 4, 1893.

Asst. Surgeon B. W. BROWN, granted leave of absence for seven days, To proceed to Washington, D. C., Dec. 4, 1893.

Asst. Surgeon E. R. HAUGHTON, to proceed to Vineyard Haven, Mass., for duty, Dec. 4, 1893.

Asst. Surgeon J. A. NYDGE, granted leave of absence for seven days, To rejoin station, Pittsburg, Pa., Dec. 7, 1893.

Asst. Surgeon W. J. STEWART, granted leave of absence for fourteen days, Nov. 27, 1893.

Asst. Surgeon EDGAR STRAYER, granted leave of absence for seven days, Nov. 27, 1893.

Asst. Surgeon J. H. OAKLEY, to proceed to Halifax, Nova Scotia, for temporary duty, Nov. 24, 1893. To proceed to New York, N. Y., for temporary duty, Dec. 11, 1893. To proceed to San Francisco, Cal., for duty, Dec. 16, 1893.

LETTERS RECEIVED.

(A) Allen, Clamor, Jersey City, N. J.

(B) Berlin, Paul, Berlin, Germany; Baxter, E. K., Boston, Mass.;

Born, W. A., Red Ash, Ky.; Blodgett, F. J., New York, N. Y.; Buck-

master, S. R., Chicago, Ill.; Barnes, Ira N., Detroit, Ill.; Brown, M. R.,

Chicago, Ill.; Boissiere, G. A., New Orleans, La.;

(C) Cline, A. H., Cambridge, Mass.; Curtis, H. H., New York, N. Y.;

(D) Dietrich, W. A., Chattanooga, Tenn.; De Villasis, A., Toledo, Ohio.;

Donnan, W. McKay, Oco, Oklahoma.

(E) Emrys, W. C., Owatonna, Minn.; Elwood, H. R., Milwaukee, Wis.;

(F) Estlin, T. H., Chicago, Ill.;

(G) Harsha, W. M., Chicago, Ill.; Hammett, B. F., Emonton, Pa.;

Hale, G. V., Wheatland, Texas; Hemenway, Stacy, Eugene, Ore.;

Hammond, W. A., Washington, D. C.; Huizinga, J. G., Grand Rapids, Mich.;

(J) Johnson, W. L., Johnston, Mass.; Johnson, H. P., La Crosse, Wis.;

(K) Kegan Paul, French, Tribner & Co., London, England; Kemper,

G. W. H., Muncie, Ind.;

(L) Loeb, H. C., St. Louis, Mo.; Leighton, W. H., National Home, Wis.;

(M) Martin, E. H., Chicago, Ill.; Millard, Perry H., St. Paul, Minn.;

McKam, H. E., Independence, Iowa; Mason, C. H., Chatham, N. Y.;

Mathers, Edgar R., Cincinnati, Ohio; McBride, M. A., West Point, Texas.;

(O) Ocker, J. C., Cincinnati, Ohio.;

(P) Peters, W. H., La Fayette, Ind.;

(R) Ranch, J. R., Lebanon, Pa.; Reynolds, Geo. W., Chicago, Ill.;

Richardson, F. W., St. Paul, Minn.; Robinson, F. R., Chicago.;

(S) Solis Cohen J., Philadelphia, Pa.; Stockton, C. C., Buffalo, N. Y.;

Swasey, Edward, Worcester, Mass.; Smith, J. L., New York, N. Y.;

Solis-Cohen, J., Philadelphia, Pa.;

(W) Winato, L. O. B., Milwaukee, Wis.; Wilmont, I. D., Hudson, Wis.;

West, W. E., Dodd, Texas.; Webb, J. A., East Meredith, N. Y.;

INDEX VOLUME XXI.

A QUERRY	257	Atkinson, S. J. See "Medical Notes."	257
Abandonment of Fort Bataillon, Cal.	149	Atkinson, S. J. See "Medical Notes."	149
Absolute alcohol for surgical purposes—	62	Atkinson, S. J. See "Medical Notes."	62
duty free	62	Atkinson, S. J. See "Medical Notes."	62
Accommodation, a case of persistent spasm	640	Atkinson, S. J. See "Medical Notes."	640
of the relieved temporarily by tetan-	640	Atkinson, S. J. See "Medical Notes."	640
otomy of the external rectus	640	Atkinson, S. J. See "Medical Notes."	640
Accouchement force, in certain electrical	332	Atkinson, S. J. See "Medical Notes."	332
complications	332	Atkinson, S. J. See "Medical Notes."	332
Address, chairman's introductory	37	Atkinson, S. J. See "Medical Notes."	37
on State medicine	37	Atkinson, S. J. See "Medical Notes."	37
Adenoid growths, remarks on the operative	734	Atkinson, S. J. See "Medical Notes."	734
methods in the treatment of	734	Atkinson, S. J. See "Medical Notes."	734
Adulterations, municipal authority over	170	Atkinson, S. J. See "Medical Notes."	170
Advertise in the JOURNAL	170	Atkinson, S. J. See "Medical Notes."	170
Aged people, a convention of	114	Atkinson, S. J. See "Medical Notes."	114
Agnew's or (Quincy's) operation	114	Atkinson, S. J. See "Medical Notes."	114
Albinism, the pernicious influence of upon	685	Atkinson, S. J. See "Medical Notes."	685
the eye	685	Atkinson, S. J. See "Medical Notes."	685
Alcohol, special influences of, on the	492	Atkinson, S. J. See "Medical Notes."	492
body	492	Atkinson, S. J. See "Medical Notes."	492
Alcoholism in Europe, increase of	37	Atkinson, S. J. See "Medical Notes."	37
Alexander, Harriet C. B. Insanity in chil-	37	Atkinson, S. J. See "Medical Notes."	37
dren	37	Atkinson, S. J. See "Medical Notes."	37
Alkalies on human gastric digestion, the	311	Atkinson, S. J. See "Medical Notes."	311
action of	311	Atkinson, S. J. See "Medical Notes."	311
Alligator, the useful	234	Atkinson, S. J. See "Medical Notes."	234
Altitude per se	32	Atkinson, S. J. See "Medical Notes."	32
Alumni will smoke four times a year	89	Atkinson, S. J. See "Medical Notes."	89
Alvarnga prize of the College of Physi-	670	Atkinson, S. J. See "Medical Notes."	670
cians, Philadelphia	670	Atkinson, S. J. See "Medical Notes."	670
Amblyopia exanopsia, is there any	599	Atkinson, S. J. See "Medical Notes."	599
Amblyopia exanopsia, what is	599	Atkinson, S. J. See "Medical Notes."	599
American inebriate asylums	37	Atkinson, S. J. See "Medical Notes."	37
Medical Association, the meeting of the	100	Atkinson, S. J. See "Medical Notes."	100
Medical Association, loyal to the	429	Atkinson, S. J. See "Medical Notes."	429
Medical Association, membership of the	37	Atkinson, S. J. See "Medical Notes."	37
Medical Association Journal, the	871	Atkinson, S. J. See "Medical Notes."	871
medical editors, the	211, 429	Atkinson, S. J. See "Medical Notes."	211, 429
medical profession, a glance at, since	938	Atkinson, S. J. See "Medical Notes."	938
the beginning of the present century	938	Atkinson, S. J. See "Medical Notes."	938
medical profession, the disorganization	243	Atkinson, S. J. See "Medical Notes."	243
of the	243	Atkinson, S. J. See "Medical Notes."	243
physicians and surgeons, executive com-	217	Atkinson, S. J. See "Medical Notes."	217
mittee of the congress of	217	Atkinson, S. J. See "Medical Notes."	217
Public Health Association, a	748	Atkinson, S. J. See "Medical Notes."	748
Public Health Association—a correction	779	Atkinson, S. J. See "Medical Notes."	779
women are physically degenerating	779	Atkinson, S. J. See "Medical Notes."	779
women, health of	779	Atkinson, S. J. See "Medical Notes."	779
Surgical Association	779	Atkinson, S. J. See "Medical Notes."	779
Amputation at the hip-joint by Wyeth's	971	Atkinson, S. J. See "Medical Notes."	971
bloodless method	971	Atkinson, S. J. See "Medical Notes."	971
Amputations, larval, a few notes on trauma-	23	Atkinson, S. J. See "Medical Notes."	23
tic and artificial amputations—construc-	23	Atkinson, S. J. See "Medical Notes."	23
tures or prosthetic appliances for lost	23	Atkinson, S. J. See "Medical Notes."	23
parts	23	Atkinson, S. J. See "Medical Notes."	23
An admonition	467	Atkinson, S. J. See "Medical Notes."	467
appeal for peace and tolerance	467	Atkinson, S. J. See "Medical Notes."	467
easy conundrum—what he should do	467	Atkinson, S. J. See "Medical Notes."	467
with it	467	Atkinson, S. J. See "Medical Notes."	467
Anesthetics, the discovery of modern surgi-	212	Atkinson, S. J. See "Medical Notes."	212
cal	212	Atkinson, S. J. See "Medical Notes."	212
Anders, J. M. Points in the surgery and	775	Atkinson, S. J. See "Medical Notes."	775
clinical history of erysipelas	775	Atkinson, S. J. See "Medical Notes."	775
Andrews, Edmund A. Are American women	610	Atkinson, S. J. See "Medical Notes."	610
physically degenerating	610	Atkinson, S. J. See "Medical Notes."	610
Edmund, The impending revolution	610	Atkinson, S. J. See "Medical Notes."	610
in military surgery caused by the new	610	Atkinson, S. J. See "Medical Notes."	610
infantry rifle	610	Atkinson, S. J. See "Medical Notes."	610
Animal extracts in early medical annals	315	Atkinson, S. J. See "Medical Notes."	315
Antipsyias as she is taught	638	Atkinson, S. J. See "Medical Notes."	638
Aphasia, notes on focal specialties in	196	Atkinson, S. J. See "Medical Notes."	196
Apology, an	201	Atkinson, S. J. See "Medical Notes."	201
Appendicitis	201	Atkinson, S. J. See "Medical Notes."	201
what it is and what it is not, from a	195	Atkinson, S. J. See "Medical Notes."	195
surgical standpoint	195	Atkinson, S. J. See "Medical Notes."	195
Appendix vermiformis, abnormal	68	Atkinson, S. J. See "Medical Notes."	68
medical examination	68	Atkinson, S. J. See "Medical Notes."	68
Application blank and its uses, the	732	Atkinson, S. J. See "Medical Notes."	732
Appointment	732	Atkinson, S. J. See "Medical Notes."	732
Are American women physically degener-	614	Atkinson, S. J. See "Medical Notes."	614
ating	614	Atkinson, S. J. See "Medical Notes."	614
Army and navy delegates	324	Atkinson, S. J. See "Medical Notes."	324
hospital corps, a new company of in-	113	Atkinson, S. J. See "Medical Notes."	113
struction	113	Atkinson, S. J. See "Medical Notes."	113
medical examining board	682	Atkinson, S. J. See "Medical Notes."	682
medical examining board	682	Atkinson, S. J. See "Medical Notes."	682
medical examination papers at the re-	671	Atkinson, S. J. See "Medical Notes."	671
cent examinations	671	Atkinson, S. J. See "Medical Notes."	671
medical officers, civil practice by	671	Atkinson, S. J. See "Medical Notes."	671
medical school, faculty of	640	Atkinson, S. J. See "Medical Notes."	640
medical school	640	Atkinson, S. J. See "Medical Notes."	640
medical school, opening of the	640	Atkinson, S. J. See "Medical Notes."	640
medical school, aims and purposes of the	640	Atkinson, S. J. See "Medical Notes."	640
report of Surgeon General of the	730, 740	Atkinson, S. J. See "Medical Notes."	730, 740

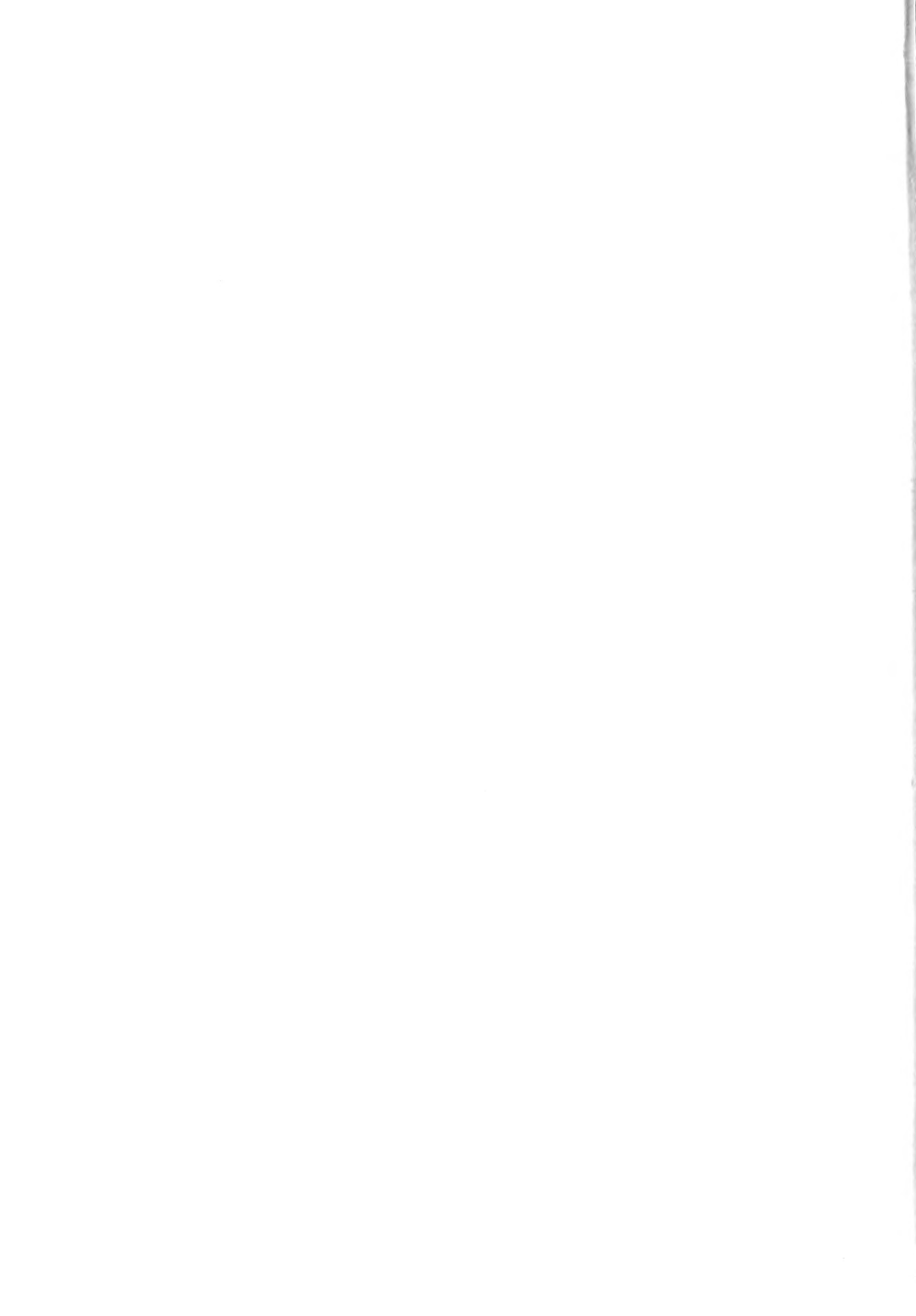
	PAGE.		PAGE.		PAGE.
Take, A Dictionary of Psychological Medicine	33	Chicago, health of, for the first three weeks in August	317	Dentition and some of its diseases	925
Tuttle, The Surgical Anatomy and Surgery of the Ear	353	medical colleges, opening of	510	Dentritic keratitis	925
Twenty-Fourth Annual Report of the State Board of Health of Massachusetts	868	Child labor certificates	622	Dental colleges, list of	604
Tyson, Manual of Physical Diagnosis for the Use of Students and Physicians	1016	Children's rights	204	and Oral Surgery. Chairman's address	739
Vermont State Medical Association, Transactions for 1892	591	Chloroform, action and safety	571	practice, systemic medication in	1005
Weekly Abstract of Sanitary Reports	247	fatality following the administration of	549	Denison, Charles. The mutual interest of the medical profession and insurance companies in the prolongation of life	45
Wharton, Minor Surgery and Bandaging	608	Chloride of sodium infusion in the fasting intestine	176	De Schweinitz, G. E. Intra-ocular injections of solutions of various antiseptic substances, an experimental inquiry	400
Whittaker, The Theory and Practice of Medicine Prepared for Students and Practitioners	620	Choking to death	571	Dentists, distinguished German	288
Wisconsin State Medical Society, Transactions	630	Cholera, treatment of, by large doses of quinin	919	DeVillbiss, Allen. New devices for boue cutting	1008
Yeo, A Manual of Medical Treatment or Clinical Therapeutics	620	Cholera, treatment of, by large doses of quinin	919	Diabetes, remarks on the treatment of	182
Yought, A Chapter on Cholera for Lay Readers	212	Cholera, treatment of, by large doses of quinin	919	Diabetes, remarks on the treatment of	182
		Cholera, treatment of, by large doses of quinin	919	Didama, Henry D. Brief clinical memoranda	81
Bone cutting, new devices for	1008	Cholera, treatment of, by large doses of quinin	919	Didama, Henry D. Brief clinical memoranda	81
Books, decay of	1023	Cholera, treatment of, by large doses of quinin	919	Diphtheria	189, 619
Boston City Hospital	249, 789	Cholera, treatment of, by large doses of quinin	919	at St. Paul	660
Brain tumor, with optic neuritis was the only positive sign	607	Cholera, treatment of, by large doses of quinin	919	bichlorid of mercury in the treatment of its specific diagnosis	770
Brain surgery, with report of cases	141-147	Cholera, treatment of, by large doses of quinin	919	the treatment of	226, 884
Brandy, baneful	908	Cholera, treatment of, by large doses of quinin	919	observations on isolated cases of	810
Brinfrau, a wise	908	Cholera, treatment of, by large doses of quinin	919	outbreak in New Jersey	213
Brissard, M.	547	Cholera, treatment of, by large doses of quinin	919	prevention of	849
British army, health of	547	Cholera, treatment of, by large doses of quinin	919	some observations on treating cases of	833
local government board, report of, 1891-2	346	Cholera, treatment of, by large doses of quinin	919	Diphtheritic croup, intubation and tracheotomy in	791
Medical Association, acute, pathology and symptomatology of, in infants and children, pathogenesis of the therapeutics of	871	Cholera, treatment of, by large doses of quinin	919	Diseases of the upper air passages, the relative value of the objective and subjective symptoms, the causation of the	717
Broncho-pneumonia in children, some phases of	874	Cholera, treatment of, by large doses of quinin	919	Disinfection circular	285
in children, treatment of	879	Cholera, treatment of, by large doses of quinin	919	Disinfectants, the use of	291
Brown, Bedford, Southern Surgical and Cytopathological Association; its origin, objects and aims	751	Cholera, treatment of, by large doses of quinin	919	Dispensary	291
Brown, Dr. W. A.	789	Cholera, treatment of, by large doses of quinin	919	Diseases of the heart and kidney	101
Bruswick, suffering at	902	Cholera, treatment of, by large doses of quinin	919	Dixon, W. A. Observations on isolated cases of diphtheria	850
Bulkley, L. Duncan. Syphilis insomium; a plea for the restriction of syphilis and a suggestion for the prevention of its spread	734	Cholera, treatment of, by large doses of quinin	919	Doctor, a busy	102
Burnett, Charles H. The relief of chronic deafness, tinnitus aurium and tympanic vertigo by removal of the incus and stapes	600	Cholera, treatment of, by large doses of quinin	919	Doctors' bills as debts of honor	742
Buried wire sutures, the use of, in laparotomies and hernias	203	Cholera, treatment of, by large doses of quinin	919	doctors must wear tags	789
Byford, Henry T. The essentials of success in vaginal hysterectomy	327	Cholera, treatment of, by large doses of quinin	919	Doctors, to reach the	860
		Cholera, treatment of, by large doses of quinin	919	Dodge, C. L. The pathology and symptomatology of acute bronchitis and broncho-pneumonia	872
CESAREAN section, a successful case of	345	Cholera, treatment of, by large doses of quinin	919	Dorland, W. A. N. and Charles S. Potts. The treatment of chorea by large doses of quinin	919
Calling the doctor in a military way	140	Cholera, treatment of, by large doses of quinin	919	Doyle, O. M. A case of abscess of uterus	773
Calomel as a topical application to hemorrhoids	541	Cholera, treatment of, by large doses of quinin	919	Dropsy, abdominal; 67 tapping operations on one patient	990
Camp Poplar river	110	Cholera, treatment of, by large doses of quinin	919	Drug, a precious	104
Canada, quarantine in	287	Cholera, treatment of, by large doses of quinin	919	Druggist, the imperious	749
Cancer cure, new	287	Cholera, treatment of, by large doses of quinin	919	Drunk	909
Carbohydrates in the urine, determination and significance of	113	Cholera, treatment of, by large doses of quinin	919	Duels better fought in the morning	564
Carstensen, J. H. The pathology and symptomatology of acute bronchitis and broncho-pneumonia in children	874	Cholera, treatment of, by large doses of quinin	919	Duff, J. M. Observations on the pathology of contagious diseases in a large city	689
Castor bean in India, the	65	Cholera, treatment of, by large doses of quinin	919	Dunmire, G. Benson. Some observations on treating cases of diphtheria	853
Cassberry, W. E. Rhinitis in children, its varieties, causes and treatment	89	Cholera, treatment of, by large doses of quinin	919	Durgin, Samuel H. Address of president international congress of public health	551
Cataract, extraction of, in a negro sold to be 16 years old	684	Cholera, treatment of, by large doses of quinin	919		
Cataracts, ripening of, immature, by direct trituration	651	Cholera, treatment of, by large doses of quinin	919	EARL, Dr., victory for	789
Cataract, nervous, a new pathology and treatment of	809	Cholera, treatment of, by large doses of quinin	919	Eastman, Joseph. A few points of interest to the family physician	415
Celiotomy, the management of patients after	331	Cholera, treatment of, by large doses of quinin	919	Eccentric position of the head	554
Centennial medical report	717	Cholera, treatment of, by large doses of quinin	919	Editorial correspondence	59, 510
"Cerebrin," analysis of, can meet all wants	868	Cholera, treatment of, by large doses of quinin	919	Educational models	544
and "medulline," analyses of	1015	Cholera, treatment of, by large doses of quinin	919	Educational, higher medical	983
Cerebellum cyst—ante mortem diagnosis	181	Cholera, treatment of, by large doses of quinin	919	medical	514
Cerebro-spinal pressure, some effects of the taking of, the relief of chronic, since and wounds of the sinuses	86	Cholera, treatment of, by large doses of quinin	919	Einhorn, Max. Demonstrations of gastropharynx	43
Cerebrum	896	Cholera, treatment of, by large doses of quinin	919	Electro-gynecology, recent progress in	539
Chairman's address, section of obstetrics and diseases of women	286	Cholera, treatment of, by large doses of quinin	919	Electricity, disinfection by	102
address, some recent advances in pediatrics	831	Cholera, treatment of, by large doses of quinin	919	Electro-anatomy, results of the use of, for the extraction of foreign bodies from the eye	568
Charak-Sambhiti	405	Cholera, treatment of, by large doses of quinin	919	therapeutics, influences governing the progress of	786
Charcot, Jean Martin	312	Cholera, treatment of, by large doses of quinin	919	Eleventh international medical congress	324
Charity hospital, Westchester, N.Y.	470	Cholera, treatment of, by large doses of quinin	919	Eliot, Llewellyn. Accouchment force in certain obstetrical complications	342
Charteris, M. Treatment of sea sickness	934	Cholera, treatment of, by large doses of quinin	919	Elioth, Robert. The tongue and its treatment	419
Chesne poisoning cases at Mansfield, Ohio	361	Cholera, treatment of, by large doses of quinin	919	Ergot, the place of, in obstetric practice	543
Chemical laboratory of the United States department of agriculture at the World's Columbian Exposition	509	Cholera, treatment of, by large doses of quinin	919	should an exception be made as to	985
the salts and compounds as preparations of classification of	167	Cholera, treatment of, by large doses of quinin	919	Erysipelas, points in the etiology and clinical history of	110
Columbia Company, Dr. Hammond explains his relations to the	1023	Cholera, treatment of, by large doses of quinin	919	of the face, abortive treatment of	139
Chicago Clinical Review	759	Cholera, treatment of, by large doses of quinin	919	Eschridge, J. T. Sarcoma of the pia and brain—removing brain tumor	478
health of	242	Cholera, treatment of, by large doses of quinin	919	Ethics—again—the milk in the cocoanut	660
		Cholera, treatment of, by large doses of quinin	919	Europhen	65
		Cholera, treatment of, by large doses of quinin	919	Exact electro-therapeutics a specialty	860

<p>Exophthalmic goitre, abstract of notes on the treatment of 48</p> <p>Exophthalmic goitre, the use of straphanthus in the treatment of 187</p> <p>Exostosis of the orbit 159</p> <p>Extra-uterine pregnancy 649</p> <p>Eye, classification of diseases of the, for hospital statistics 690</p> <p>Eye-ball, quiescent foreign bodies within the 366</p>	<p>FAIR, emergency hospital work 520</p> <p>Fast days postponed 520</p> <p>Fatal floods in Japan 520</p> <p>Faville, Dr. Harry B. 632</p> <p>Fenger, Dr. Christian 632</p> <p>Ferguson, E. D. Straphanthus in the treatment of exophthalmic goitre 187</p> <p>Fever at Tarrytown, N. Y. 567</p> <p>Mediterranean 567</p> <p>pneumonia—its symptomatology 567</p> <p>typhoid—a synopsis 127</p> <p>typhoid, treatment of 124</p> <p>typhoid—observations based on an experience of nearly one thousand cases of 121</p>	<p>FAIR, establishment and maintenance of an artificial prosthesis above the symphysis pubis in chronic prostatic obstruction 26</p> <p>Headache 24</p> <p>Health of military department of the M. 744</p> <p>publication, a model 102</p> <p>Commissioner 102</p> <p>Heart, chronic diseases of the, the school method of treating by baths and gymnastics 717</p> <p>Heath, F. C. Some new methods of treating chronic suppurative otitis media 753</p> <p>Heist, a preventive of chloroform poisoning 521</p> <p>He reads the Journal 521</p> <p>Hectic fever 529</p> <p>Hemorrhage, periperal 542</p> <p>torion of arteries for the arrest of 542</p> <p>Hemiparaplegia, with report of a case completely recovered after one year's duration 411</p> <p>Hemiparaplegia, a method of localizing points in the 411</p> <p>Hemorrhoids, calomel as a topical application to 411</p> <p>Herdman, Wm. J. The function of the right temporo-sphenoidal lobe 532</p> <p>Heredity, studies of 532</p> <p>Hernia, analysis of 12 cases operated upon for the purpose of the radical cure, of by Marcy's method 290</p> <p>in children 291</p> <p>in children, the etiology, morbid anatomy, diagnosis and treatment of 290</p> <p>strangulated 290</p> <p>the new treatment of 291</p> <p>Herricks, James R. Observations based on an experience with nearly one thousand cases of typhoid fever 120</p> <p>Hibbert, James F. Address on general medicine 653</p> <p>Higher medical education 653</p> <p>Hinde, Alfred. Purulent ophthalmia from the standpoint of its specific microbic cause 569</p>	<p>FAIR, establishment and maintenance of an artificial prosthesis above the symphysis pubis in chronic prostatic obstruction 26</p> <p>Headache 24</p> <p>Health of military department of the M. 744</p> <p>publication, a model 102</p> <p>Commissioner 102</p> <p>Heart, chronic diseases of the, the school method of treating by baths and gymnastics 717</p> <p>Heath, F. C. Some new methods of treating chronic suppurative otitis media 753</p> <p>Heist, a preventive of chloroform poisoning 521</p> <p>He reads the Journal 521</p> <p>Hectic fever 529</p> <p>Hemorrhage, periperal 542</p> <p>torion of arteries for the arrest of 542</p> <p>Hemiparaplegia, with report of a case completely recovered after one year's duration 411</p> <p>Hemiparaplegia, a method of localizing points in the 411</p> <p>Hemorrhoids, calomel as a topical application to 411</p> <p>Herdman, Wm. J. The function of the right temporo-sphenoidal lobe 532</p> <p>Heredity, studies of 532</p> <p>Hernia, analysis of 12 cases operated upon for the purpose of the radical cure, of by Marcy's method 290</p> <p>in children 291</p> <p>in children, the etiology, morbid anatomy, diagnosis and treatment of 290</p> <p>strangulated 290</p> <p>the new treatment of 291</p> <p>Herricks, James R. Observations based on an experience with nearly one thousand cases of typhoid fever 120</p> <p>Hibbert, James F. Address on general medicine 653</p> <p>Higher medical education 653</p> <p>Hinde, Alfred. Purulent ophthalmia from the standpoint of its specific microbic cause 569</p> <p>Hip-joint disease, probable cause of the limp of the first and second stages of 775</p> <p>Hoffman, Joseph. Appendicitis: what it is and what it is not, from a surgical standpoint 195</p> <p>Joseph. Ectopic pregnancy: its comparative symptomatology and treatment 405</p> <p>Hoffheimer, J. A. Phimosi, a plea for its relief by early operation 405</p> <p>Holmes, Bayard. Chronic glanders, with country life 101</p> <p>Homeopathic physicians, points of distinction between us and 615</p> <p>Honorary appointments 615</p> <p>Hooper, Dr. P. O. Resigns 615</p> <p>Hoover, Dr. Thomas 615</p> <p>Hospital at Lincoln, Neb., new 615</p> <p>at Champlain, N. Y., new 615</p> <p>at Kansas City 615</p> <p>at San Francisco, new 615</p> <p>at Los Angeles, new 615</p> <p>for the insane, Middleton, Conn 615</p> <p>physicians' organization 615</p> <p>for Melrose, Mass. 615</p> <p>Hospitals, new 287, 509, 508, 615</p> <p>right to establish 615</p> <p>Hotz, F. C. A case of sympathetic neuritis after excision of the eyeball 706</p> <p>How can it accompany 706</p> <p>Howe, Lucien. Legislation in the United States for the prevention of blindness 620</p> <p>Hughes-Moyer-Hinde—a correction 620</p> <p>C. B. Hinde, of the president of the section on neurology and psychiatry of the Pan-American Medical Congress 620</p> <p>Hunnison, W. H. Cocain: its uses in gynecology 620</p> <p>Hunt, Dr. William C. 620</p> <p>Hydratis of the kidney, memorandum of a case of 620</p> <p>Hydrate in epilepsy 620</p> <p>Hygienic exhibit, a personal 620</p> <p>Hygiene, school, report of committee on 620</p> <p>Hypertrophic conjunctivitis, perniciosa, and its treatment 620</p> <p>Hypertrophy, prostatic 620</p>	<p>FAIR, establishment and maintenance of an artificial prosthesis above the symphysis pubis in chronic prostatic obstruction 26</p> <p>Headache 24</p> <p>Health of military department of the M. 744</p> <p>publication, a model 102</p> <p>Commissioner 102</p> <p>Heart, chronic diseases of the, the school method of treating by baths and gymnastics 717</p> <p>Heath, F. C. Some new methods of treating chronic suppurative otitis media 753</p> <p>Heist, a preventive of chloroform poisoning 521</p> <p>He reads the Journal 521</p> <p>Hectic fever 529</p> <p>Hemorrhage, periperal 542</p> <p>torion of arteries for the arrest of 542</p> <p>Hemiparaplegia, with report of a case completely recovered after one year's duration 411</p> <p>Hemiparaplegia, a method of localizing points in the 411</p> <p>Hemorrhoids, calomel as a topical application to 411</p> <p>Herdman, Wm. J. The function of the right temporo-sphenoidal lobe 532</p> <p>Heredity, studies of 532</p> <p>Hernia, analysis of 12 cases operated upon for the purpose of the radical cure, of by Marcy's method 290</p> <p>in children 291</p> <p>in children, the etiology, morbid anatomy, diagnosis and treatment of 290</p> <p>strangulated 290</p> <p>the new treatment of 291</p> <p>Herricks, James R. Observations based on an experience with nearly one thousand cases of typhoid fever 120</p> <p>Hibbert, James F. Address on general medicine 653</p> <p>Higher medical education 653</p> <p>Hinde, Alfred. Purulent ophthalmia from the standpoint of its specific microbic cause 569</p> <p>Hip-joint disease, probable cause of the limp of the first and second stages of 775</p> <p>Hoffman, Joseph. Appendicitis: what it is and what it is not, from a surgical standpoint 195</p> <p>Joseph. Ectopic pregnancy: its comparative symptomatology and treatment 405</p> <p>Hoffheimer, J. A. Phimosi, a plea for its relief by early operation 405</p> <p>Holmes, Bayard. Chronic glanders, with country life 101</p> <p>Homeopathic physicians, points of distinction between us and 615</p> <p>Honorary appointments 615</p> <p>Hooper, Dr. P. O. Resigns 615</p> <p>Hoover, Dr. Thomas 615</p> <p>Hospital at Lincoln, Neb., new 615</p> <p>at Champlain, N. Y., new 615</p> <p>at Kansas City 615</p> <p>at San Francisco, new 615</p> <p>at Los Angeles, new 615</p> <p>for the insane, Middleton, Conn 615</p> <p>physicians' organization 615</p> <p>for Melrose, Mass. 615</p> <p>Hospitals, new 287, 509, 508, 615</p> <p>right to establish 615</p> <p>Hotz, F. C. A case of sympathetic neuritis after excision of the eyeball 706</p> <p>How can it accompany 706</p> <p>Howe, Lucien. Legislation in the United States for the prevention of blindness 620</p> <p>Hughes-Moyer-Hinde—a correction 620</p> <p>C. B. Hinde, of the president of the section on neurology and psychiatry of the Pan-American Medical Congress 620</p> <p>Hunnison, W. H. Cocain: its uses in gynecology 620</p> <p>Hunt, Dr. William C. 620</p> <p>Hydratis of the kidney, memorandum of a case of 620</p> <p>Hydrate in epilepsy 620</p> <p>Hygienic exhibit, a personal 620</p> <p>Hygiene, school, report of committee on 620</p> <p>Hypertrophic conjunctivitis, perniciosa, and its treatment 620</p> <p>Hypertrophy, prostatic 620</p> <p>INOSYNSCRAS, an 935</p> <p>Illinois Board of Health, the 631</p> <p>State Board of Health, the 102, 631</p> <p>State Board of Health, exhibit of the 175</p> <p>Immigrant inspection service 175</p> <p>Indiana Northern Hospital 379</p> <p>Inebriate asylums, American 379</p> <p>asylums, new 379</p> <p>Inebriety question in England 1012</p> <p>Infants' hospital 632</p> <p>Indiana, the 304</p> <p>the present epidemic of 774, 867</p> <p>pathology of 774, 867</p> <p>Infants, E. Fletcher. Address 888</p> <p>Infants, ability for the support and care of the 332</p> <p>INOSYNSCRAS, an 935</p> <p>Illinois Board of Health, the 631</p> <p>State Board of Health, the 102, 631</p> <p>State Board of Health, exhibit of the 175</p> <p>Immigrant inspection service 175</p> <p>Indiana Northern Hospital 379</p> <p>Inebriate asylums, American 379</p> <p>asylums, new 379</p> <p>Inebriety question in England 1012</p> <p>Infants' hospital 632</p> <p>Indiana, the 304</p> <p>the present epidemic of 774, 867</p> <p>pathology of 774, 867</p> <p>Infants, E. Fletcher. Address 888</p> <p>Infants, ability for the support and care of the 332</p> <p>INOSYNSCRAS, an 935</p> <p>Illinois Board of Health, the 631</p> <p>State Board of Health, the 102, 631</p> <p>State Board of Health, exhibit of the 175</p> <p>Immigrant inspection service 175</p> <p>Indiana Northern Hospital 379</p> <p>Inebriate asylums, American 379</p> <p>asylums, new 379</p> <p>Inebriety question in England 1012</p> <p>Infants' hospital 632</p> <p>Indiana, the 304</p> <p>the present epidemic of 774, 867</p> <p>pathology of 774, 867</p> <p>Infants, E. Fletcher. Address 888</p> <p>Infants, ability for the support and care of the 332</p> <p>INOSYNSCRAS, an 935</p> <p>Illinois Board of Health, the 631</p> <p>State Board of Health, the 102, 631</p> <p>State Board of Health, exhibit of the 175</p> <p>Immigrant inspection service 175</p> <p>Indiana Northern Hospital 379</p> <p>Inebriate asylums, American 379</p> <p>asylums, new 379</p> <p>Inebriety question in England 1012</p> <p>Infants' hospital 632</p> <p>Indiana, the 304</p> <p>the present epidemic of 774, 867</p> <p>pathology of 774, 867</p> <p>Infants, E. Fletcher. Address 888</p> <p>Infants, ability for the support and care of the 332</p>
---	--	--	---	---

	PAGE.		PAGE.		PAGE.
Le Mond, Robert Fields. Exostosis of the orbit	649	Medico-legal institute	101	Bodge, James Henry	700
Lepers, how shall they be cured?	781	legal experiences in railway cases	520	Bogue, Roswell G.	936
Lewis, Robert. Cases of laryngeal neoplasms	763	legal photography	495	Bowling, James M.	936
License, must be held by those who wish to practice medicine includes surgery	703	Meeting of the	664	Bowman, E. H.	936
Life, prolongation of, the mutual interest of the medical profession and insurance companies in	45	Membrana tympani and ossicles, class of cases from which we may expect good results from excision of the	858	Boyd, George B.	908
Lincoln, D. F. Report of the committee on school hygiene	713	Mental capacity sufficient to sustain marriage in law	425	Brainard, Dudley S.	498
Lindsay, C. A. Sanitary administration	593	Meningocele, with case	892	Branson, Henry	357
Link, John E. Report of cases in evidence of advanced theory of surgical impunity of the peritoneal viscera	270	Meteorology, the army and	701	Brown, Frank W.	498
Livingstone, David. Medical college in London	938	Methylen blue, treatment of malaria and diphtheria by	858	Browning, Joseph B.	982
Longevity, instance of	104, 213	Mettler, L. Harrison. Aural vertigo (Meniere's disease)	525	Buck, William P.	1010
Locked in jail by mistake	869	L. Harrison. Hemiparaplegia, with report of a case completely recovered after one year's duration	441	Bushnell, William	1010
London Lancet, the	104	Microbiologic poisons	859	Canter, Alfred Ladlow	716
Louisiana, a study of	177	Mid-winter doctors	908	Carter, Norris M.	556
Louisiana quarantine	662	Military surgeons of the National Guard, the National Association of	207	Carter, D. M.	700
Love, I. N. The therapeutics of bronchitis	578	surgeons, the meeting of the	282	Carson, James S.	700
I. N. Relief from pain in labor	311	surgery, the impending revolution in, caused by the new infantry rifle	955	Caswell, William	936
Louis F. The origin of claustrum, a suggestion as to its early maturation	633	Minard, E. J. C. Early aspirations in acute pleuritis	402	Chamberlayne, Francis J.	630
Lowell, Mass., hospital	711	Mineral waters, right to use geographical names for	623	Clarke, Courtney J.	556
Lunatics in jail	211	Minnesota State University	671	Clarke, Sir Andrew	700
Lydston, James. Pannus and its treatment by the digestive ferments	538	public health in	671	Cox, Algernon Sidney	700
G. Frank. Muscle building as illustrated in the modern Samson, Sandow	419	State board of health and vital statistics board of examiners, a candidate's answer to the	98	Collins, P. F.	907
Lynching, a case of moral	242	Mississippi Valley Association notes	588	Conover, James S.	982
		Valley Medical Association	775	Cooper, Joel Henry	498
MALPRACTICE CASES.	208	Mitchell, Giles S. A successful case of Cesarean section	233	Cooper, William E.	498
Malbates as nuisances, the continuation of which may be abated	1013	Montezuma, Dr. Carlos	908	Cooper, E. S.	829
Manitoba University Medical Department, examinations of	549	Monument to the physician-explorer	901	Cooper, Henry Crocsey	248
Manley, Thomas B. The etiology, morbid anatomy and treatment of infantile hernia of the inguinal type in the male	916	Morphin disease, treatment of the	287	Cott, Edwin S.	498
Thomas H. Farsal amputations—traumatic and artificial amputations—substitutes or practical appliances for lost parts	251	Morris, Edward P. Two cases of brain tumor where optic neuritis was the only positive sign—autopsies	607	Crichton, John P.	907
Marey, Henry G. Analysis of 135 cases of hernia operated upon for the purpose of radical cure	256	Morton, William J. Nutritional effects of surgical electricity considered in relation to high frequency, high potential currents and the transparency of the dielectric	945	Cuddback, Thomas	784
Henry O. Ventral hernia following laparotomy—its cause and means of prevention	329	Thomas G. Some medico-legal experiences in railway cases	520	Dodd, Addison	630
Henry O. Resection of the rectum for malignant disease and union of the divided gut with Murphy's button	858	Moyer, Harold N. Additional experiences in the hypodermic use of arsenic	530	Dore, Henry II.	390
Marine hospital service	260	Free, J. B. Diphtheria	789	Dayton, Charles L.	464
Marine Hospital, U. S., changes in the medical corps of the	350, 712, 870, 902, 1024	Municipal hospital of Philadelphia	789	Destrampe, Louis A.	132
Martin, J. N. Methods of removing the uterus for uterine fibroids, with report of cases	408	Murrell, T. E. Some practical experiences with muscular anomalies	642	Dodge, L. P.	829
Henry O. Vaginal ligation of a portion of the broad ligament of the arteries for uterine tumors	330	Murdoch, J. B. The torsion of arteries following the arrest of hemorrhage	952	Doyle, Addison	630
Dr. A.	1023	Muscle building as illustrated by the modern Samson, Sandow	419	Duffan, Justus	667
Massey, G. Betton. Recent progress in electro-gynecology	339	Muscular anomalies, some practical experience with	642	Duffan, Henry R.	498
Massachusetts, the state exhibit	339	Muscle and emphyema of the ethmoidal cells and sphenoidal sinuses	842	Duggan, Francis	784
Matters journalistic	1013	Museum of hygiene, medical department of the United States navy	359	Hagen, William A.	784
Matthews, Joseph H. Our diagnostic resources in rectal and allied diseases	725	Must be examined	177	Hall, David	132
Maxillary bone and their peristoma, diseases of the	994	not touch sweat-shops	250	Halse, A. W.	700
Mayor of Chicago and his Island, Inc.	135	not touch horses' tails	250	Hankle, E. J.	746
Mayo, W. J. Surgery of the gall bladder, cystic and common ducts	201	Myopic distention, the curvilinear reflection of Weiss as a prodromal sign of	639	Herrick, Stephen	1010
McDowell, biography of	785	Myxedema, thyroid feeding in	150	Higgin, John E.	336
biography, the	907	NASAL duct obstruction, the treatment of	637	Hing, John E.	336
McGahan, Charles F. Bichlorid of mercury in the treatment of diphtheria	770	septum, operations on the	808	Hoffman, Paul	1010
McKewen, George L. Repeated extra-uterine pregnancy	397	treatment, abuses of cocaine in	805	Hoffman, Joseph	1010
Medicinal fever, relative value of	66	Nasal obstruction, the treatment of	637	Hommel, Philomen	498
Medical education in the United States	275	Nassau, Robert Hamill. West African native foods	160	How, Lyman Bartlett	498
detection	304	National commission on the opium traffic	819	Howitz, Eugene	829
home, a proposed new	292	Naso-nucositis, the curability of	841, 881	Hughes, Charles Chapman	784
law of Pennsylvania, the new	62	Naso-pharyngeal inflammations, chronic, an etiological factor in the disorders of	767	Hulbert, Chauncey M.	784
Society of New Jersey, circular on Asiatic cholera	150	Navy, Commission of the surgeon-general	510	Hunziker, P. F.	357
colleges and their graduates	98	Navy, U. S., changes in the medical corps of the	31, 104, 178, 214, 321, 632, 792, 910	Hurd, William S.	247
editor's resignation, a	582	NECROLOGY.		Hutchinson, William F.	982
Society of New Jersey, circular on Asiatic cholera	150	Andrews, Clarence	630	Jackson, William Henry	784
colleges, American, instruction in psychology in	29	Antisell, Thomas	58	Jessup, R. B., Sr.	908
college, new	629	Armstrong, Clinton	280	Jenkins, John	784
Journal Publishers' Association	620	Arrington, J. D.	700	Keating, John M.	829
congress, address—end of the Pan-American meeting	420	Babcock, Leonard	936	Kelsey, W. J.	936
expert evidence, legal criticism of	447	Ball, Alonzo Spafford	1010	Kerlin, Dr.	746
Society of the State of New York	470	Ballard, O. M.	907	Knap, P.	357
club election	770	Bates, Woodville H.	280	Lachonour, H. D.	784
Mirror and the congress	470	Baker, Joseph H.	936	Le Fort, Leon	829
charity, abuse of	910	Becher, Abraham Clifford Wolf	784	Logan, Samuel Moore	936
training school at Agra, India	909	Belmont, James	357	Lozan, E. F.	498
colleges and students	743	Benson, George W.	936	Lusk, C. A.	784
education	929	Bentley, Lee M.	936	Lusk, S. L.	784
practice not to enforce the	1023	Berry, W. R.	936	Macdonald, John	1010
Medicine, address on general	773	Billings, Lucius F.	982	Martin, Stephen Crosby	784
hard times and free	669			Martin, W. W.	667

INDEX

Murray, C. J.	829	Odors, to remove	844	Prophylaxis, in	844
Newman, J. E.	837	Of the eye	849	Prophylaxis, in	844
North, Alfred	840	Ophthalmia, acute	849	Prophylaxis, in	844
Norton, Benjamin	840	Ophthalmia, chronic	849	Prophylaxis, in	844
Notson, William	842	Ophthalmia, chronic	849	Prophylaxis, in	844
Offutt, Barnack	784	Ophthalmia, chronic	849	Prophylaxis, in	844
O'Brien, S. S.	842	Ophthalmia, chronic	849	Prophylaxis, in	844
O'Rourke, James	842	Ophthalmia, chronic	849	Prophylaxis, in	844
Page, Horatio Nelson	498	Ophthalmia, chronic	849	Prophylaxis, in	844
Pancake, D. A.	790	Ophthalmia, chronic	849	Prophylaxis, in	844
Palmer, William Gray	790	Ophthalmia, chronic	849	Prophylaxis, in	844
Parke, T. H.	498	Ophthalmia, chronic	849	Prophylaxis, in	844
Parker, Isaac	498	Ophthalmia, chronic	849	Prophylaxis, in	844
Parker, Henry Chester	829	Ophthalmia, chronic	849	Prophylaxis, in	844
Parsons, R.	907	Ophthalmia, chronic	849	Prophylaxis, in	844
Patterson, DeWitt C.	1010	Ophthalmia, chronic	849	Prophylaxis, in	844
Paul, Dr.	506	Ophthalmia, chronic	849	Prophylaxis, in	844
Peters, John C.	1010	Ophthalmia, chronic	849	Prophylaxis, in	844
Phelps, Dr.	1010	Ophthalmia, chronic	849	Prophylaxis, in	844
Puncher, Eli Dudley	907	Ophthalmia, chronic	849	Prophylaxis, in	844
Pollard, W. H.	907	Ophthalmia, chronic	849	Prophylaxis, in	844
Pomroy, Herbert J.	907	Ophthalmia, chronic	849	Prophylaxis, in	844
Pugh, W. A.	907	Ophthalmia, chronic	849	Prophylaxis, in	844
Puffer, S. G. H.	907	Ophthalmia, chronic	849	Prophylaxis, in	844
Rae, John	434	Ophthalmia, chronic	849	Prophylaxis, in	844
Radmore, C. C.	257	Ophthalmia, chronic	849	Prophylaxis, in	844
Reed, Charles L.	784	Ophthalmia, chronic	849	Prophylaxis, in	844
Reid, W.	437	Ophthalmia, chronic	849	Prophylaxis, in	844
Reinhard, Louis	829	Ophthalmia, chronic	849	Prophylaxis, in	844
Richards, Thomas Lincoln	390	Ophthalmia, chronic	849	Prophylaxis, in	844
Rix, John	1010	Ophthalmia, chronic	849	Prophylaxis, in	844
Ristane, Henry	907	Ophthalmia, chronic	849	Prophylaxis, in	844
Robbins, John	907	Ophthalmia, chronic	849	Prophylaxis, in	844
Robinson, Morton	784	Ophthalmia, chronic	849	Prophylaxis, in	844
Roche, J. E.	546	Ophthalmia, chronic	849	Prophylaxis, in	844
Rosen, Henry	498	Ophthalmia, chronic	849	Prophylaxis, in	844
Rowe, Isiah Josiah Willis	907	Ophthalmia, chronic	849	Prophylaxis, in	844
Rowell, Samuel	784	Ophthalmia, chronic	849	Prophylaxis, in	844
Salisbury, Augustus F.	784	Ophthalmia, chronic	849	Prophylaxis, in	844
Sampson, Charles S.	907	Ophthalmia, chronic	849	Prophylaxis, in	844
Schofield, E. Lane	829	Ophthalmia, chronic	849	Prophylaxis, in	844
Seawright, J. D.	248	Ophthalmia, chronic	849	Prophylaxis, in	844
Seawright, Harry	257	Ophthalmia, chronic	849	Prophylaxis, in	844
Seawright, Charles S.	257	Ophthalmia, chronic	849	Prophylaxis, in	844
Shaw, G. R.	667	Ophthalmia, chronic	849	Prophylaxis, in	844
Sher, J. Frank P.	829	Ophthalmia, chronic	849	Prophylaxis, in	844
Shively, George G.	546	Ophthalmia, chronic	849	Prophylaxis, in	844
Shively, George G.	498	Ophthalmia, chronic	849	Prophylaxis, in	844
Sisson, Horace B.	498	Ophthalmia, chronic	849	Prophylaxis, in	844
Smith, Edward Loomis	176	Ophthalmia, chronic	849	Prophylaxis, in	844
Smith, Lender	907	Ophthalmia, chronic	849	Prophylaxis, in	844
Stanley, Charles Wesley	784	Ophthalmia, chronic	849	Prophylaxis, in	844
Stebbins, Walter G.	620	Ophthalmia, chronic	849	Prophylaxis, in	844
Stevens, Allan A.	667	Ophthalmia, chronic	849	Prophylaxis, in	844
Sullivan, George R.	174	Ophthalmia, chronic	849	Prophylaxis, in	844
Taylor, John S.	667	Ophthalmia, chronic	849	Prophylaxis, in	844
Thompson, W. H.	498	Ophthalmia, chronic	849	Prophylaxis, in	844
Thornton, George F.	498	Ophthalmia, chronic	849	Prophylaxis, in	844
Thwing, Edward P.	257	Ophthalmia, chronic	849	Prophylaxis, in	844
Thwing, William H.	257	Ophthalmia, chronic	849	Prophylaxis, in	844
Tyndall, Prof. John	748	Ophthalmia, chronic	849	Prophylaxis, in	844
Vandyke, Joseph	630	Ophthalmia, chronic	849	Prophylaxis, in	844
Vought, Walter	498	Ophthalmia, chronic	849	Prophylaxis, in	844
Wallace, H. H.	498	Ophthalmia, chronic	849	Prophylaxis, in	844





R American Medical Association.
15 Journal
44.3
v.21
cop.2

Biological
& Medical
Serials

PLEASE DO NOT REMOVE
CARDS OR SLIPS FROM THIS POCKET

UNIVERSITY OF TORONTO LIBRARY

STORAGE

